

High **PROTEC**

MRM4



DM version: 3.10.a (Build 61796)

Original document

English

REFERENCE MANUAL MRM4-3.10-EN-REF

Build 62011

Revision A

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1 About This Reference Manual

This document is a reference of all the Setting Values, Direct Commands and Signals of the MRM4. In other words, it lists all parameters that are available (or can be made available) with the (optionally) full featured versions of the MRM4 protection device.

CAUTION!



This document does not intend to give long and/or detailed description, nor does it intend to replace the full Technical Manual in any way. Only a quite short description is given for each parameter.

This document is a reference of all the Setting Values, Direct Commands and Signals of the MRM4.

Every HighPROTEC protection device operates using a lot of digital values of various types. Throughout our Technical Documentation, we are talking of “settings” (or “parameters”) or “signals” or “(measured) values”, depending on the type.

Please consult the Technical Manual, in particular Chapter “Modules, Settings, Signals and Values”, for details of the existing data types.

Modules

The firmware of every HighPROTEC protection device can be thought of being sub-divided in several independent function blocks, the so-called “modules”. Every protection function, for example, is a module of its own. But one of the fundamental concepts of a HighPROTEC protection device is to implement this with great consequence.

There is even a general protection module (named »Prot«) that interacts all specific protection modules.

Every parameter, every value and every signal is therefore a member of some module.

But note that the settings dialogs (on the panel (HMI) or in the *Smart view* operating software) often omit the module name whenever it is clear from the menu branch. This means the parameters are often displayed only with their individual parameter names, i. e. simply »Function« instead of the full-blown »I2>[1] . Function«. This increases the overview and simplifies all configuration and operation work; however, it is good to know that the writing »Function« is just an abbreviation. In fact, **every** parameter **always** belongs to a module, and therefore – to make this concept absolutely clear – the reference tables have always the module name added in front of every parameter name

Especially for protection functions it is often required to have several instances active. For example, overcurrent protection usually has several “stages”, and all of these are running at the same time (using their individual setting values). Therefore it is an important feature of every HighPROTEC protection device that a lot of modules exist in several “instances”, which are numbered (in brackets), for example: »I2>[1]«, I2>[2]«

In the reference tables, usually every module has its own dedicated chapter, which lists the available number of instances at the beginning. Then, however, in the sub-chapters listing the various parameter types, only the first instance (e. g. »I2>[1]«) is mentioned, because all the other instances are identical anyway.









Structure of a Reference Table

Since (almost) every module can be activated or deactivated independently of the other modules and all parameters of an inactive module disappear from the menu branch it would not be helpful if this Reference Manual would list parameters sorted according to the menu structure. Instead, we list categories of modules (e. g. “Protection Functions”) and all the modules within a category.

For each parameter, there is a table with its properties, looking like this:

| Module . Parameter | [Menu Path to This Parameter] | |
|---|---|--|
| Default Value | Value Range | |
| For some parameters: | | |
| <ul style="list-style-type: none"> • Availability restrictions | | |
| Type | <i>Short descriptive text explaining the functionality of this parameter.</i> | |

“Type” is the data type of the parameter, which is denoted by a small icon. The following types are possible:

-  Setting Parameter
-  Direct Control
-  Input State
-  Signal (Output State)
-  Statistical Value
-  Counter
-  (Measuring) Value
-  Dialog — Such a dialog can feature several data objects using a special representation and/or functionality.

“Perm.” means “permission”, i. e. the access level and password that is required to modify the parameter. (Please refer to the “Security” chapter in the full Technical Manual for details.)

Several “access levels” exist, each having its individual password setting. (Each password is settable and can also be deactivated, see the MRM4 User Manual.)


In particular, the following permissions (access levels) can exist:

| Short Designation in this Reference Manual | Name of Access Area (Panel or Smart view) | Access to: |
|--|---|---|
| "RO" | Read Only-Lv0 | Level "RO" provides <i>Read Only</i> access to all settings and parameters of the device. The device will fall back into this level automatically after a configurable period or inactivity. |
| "P.1" | Prot-Lv1 | This password provides access to the reset- and acknowledge options. In addition to that, it permits the execution of manual trigger signals. |
| "P.2" | Prot-Lv2 | This password provides access to the reset and acknowledge options. In addition to that it permits changing of protection settings and the configuration of the trip manager. |
| "C.1" | Control-Lv1 | This password grants permission for switching operations (switching switchgears). |
| "C.2" | Control-Lv2 | This password grants permission for switching operations (switching switchgears). In addition to that it gives access to the switchgear settings (switching authority, interlockings, general settings of switchgears, Breaker wear...). |
| "S.3" | Supervisor-Lv3 | This password grants non-restricted access to all parameters and settings of the device (device configuration). This includes also the devices planning, device parameters (e.g. Date and Time), Field Parameters, Service Parameters and Logic Parameters. |

"⊕ Adapt. Param." means that this parameter supports Adaptive Parameter Sets. (See the "Adaptive Parameter Sets" section in the User Manual.)

For some parameter types (e. g. Input and Output States), the second row (default, value range, permission) is useless and therefore omitted.

Example of a parameter:

| | | |
|---|-------------------|-----|
| Exp[1] . Mode | [Device planning] | |
| use | -, use ↳ Mode | S.3 |
|  <i>general operation mode</i> | | |

This means that one can find the parameter in the menu [Device planning], and its values are picked from a selection list named "Mode". The "↳" arrow indicates a cross-reference (hyperlink) into the "Selection Lists" chapter, and a click takes you to a table that lists all available choices.

The access level "S.3" means the access level "Supervisor-Lv3", which is required to modify the parameter.

Audience of This Manual

The manual serves as working basis for:

- Engineers in the protection field,
- commissioning engineers,
- people dealing with setting, testing and maintenance of protection and control devices,
- as well as trained personnel for electrical installations and power stations.

All functions concerning the MRM4 are listed. Should there be a description of any functions, parameters or inputs/outputs which do not apply to the device in use, please ignore that information.

This manual describes the (optionally) full featured versions of the devices.

All technical information and data included in this manual reflect their state at the time this document was issued. We reserve the right to carry out technical modifications in line with further development without changing this manual and without previous notice. Hence no claim can be brought based on the information and descriptions this manual includes.

We do not accept any liability for damage and operational failures caused by operating errors or disregarding the directions of this manual.

No part of this manual is allowed to be reproduced or passed on to others in any form, unless *SEG* have approved in writing.

This Reference Manual is part of the delivery scope when purchasing the device. In case the device is passed on (sold) to a third party, the manual has to be handed over as well.

Information Concerning Liability and Warranty

SEG does not accept any liability for damage resulting from conversions or changes carried out on the device or planning (projecting) work, parameter setting or adjustment changes done by the customer.

The warranty expires after a device has been opened by others than *SEG* specialists.

Warranty and liability conditions stated in *SEG* General Terms and Conditions are not supplemented by the above-mentioned explanations.

2 Device Configuration


















| MRM4 | # | # | # | # | # | # |
|---|----|----------|----------|----------|----------|----------|
| Version | -2 | | | | | |
| Hardware Option1 | | | | | | |
| 8 digital inputs 5 binary output relays + 1 Self-Supervision Contact IRIG-B | | A | | | | |
| 4 DI, 2 NO, 1 Changeover + 1 Self-Supervision Contact, 1 Analog Output, IRIG, URTD | | B | | | | |
| Hardware Option2 | | | | | | |
| Phase Current 5A/1A, Standard Ground Current 5A/1A | | | 0 | | | |
| Phase Current 5A/1A, Sensitive Ground Current 5A/1A | | | 1 | | | |
| Housing | | | | | | |
| Flush mounting | | | | A | | |
| 19 inch mounting (semi-flush) | | | | B | | |
| Customized Version 1 | | | | H | | |
| Customized Version 2 | | | | K | | |
| Communication | | | | | | |
| Without | | | | | A | |
| RS 485: Modbus RTU IEC 60870-5-103 DNP3 RTU | | | | | B | |
| Ethernet: Modbus TCP DNP3 UDP/TCP IEC 60870-5-104 | | | | | C | |
| Fiber Optics: Profibus-DP | | | | | D | |
| D-SUB: Profibus-DP | | | | | E | |
| Fiber Optics: Modbus RTU IEC 60870-5-103 DNP3 RTU | | | | | F | |
| RS 485/D-SUB: Modbus RTU IEC 60870-5-103 DNP3 RTU | | | | | G | |
| Ethernet: IEC 61850 communication Modbus TCP DNP3 UDP/TCP IEC 60870-5-104 | | | | | H | |
| RS 485, Ethernet: Modbus TCP/RTU IEC 60870-5-103 IEC 60870-5-104 DNP3 UDP/TCP/RTU | | | | | I | |
| Ethernet/Fiber Optics: IEC 61850 communication Modbus TCP DNP3 UDP/TCP IEC 60870-5-104 | | | | | K | |
| Ethernet/Fiber Optics: Modbus TCP DNP3 UDP/TCP IEC 60870-5-104 | | | | | L | |
| RS 485, Ethernet: IEC 61850 Modbus TCP/RTU IEC 60870-5-103 IEC 60870-5-104 DNP3 UDP/TCP/RTU | | | | | T | |
| Printed Circuit Board | | | | | | |
| Standard | | | | | | A |
| printed circuit boards are conformal coated | | | | | | B |

3 Menu

















3.1 Operation

3.1.1 Operation / Measured Values


















3.1.1.1 Operation / Measured Values / Current

| | | |
|---|---------------|---|
|  | »IL1 « | Measured value: Phase current (fundamental) |
|  | »IL2 « | Measured value: Phase current (fundamental) |
|  | »IL3 « | Measured value: Phase current (fundamental) |
|  | »IG meas « | Measured value (measured): IG (fundamental) |
|  | »IG calc « | Measured value (calculated): IG (fundamental) |
|  | »I0 « | Measured value (calculated): Zero current (fundamental) |
|  | »I1 « | Measured value (calculated): Positive phase sequence current (fundamental) |
|  | »I2 « | Measured value (calculated): Unbalanced load current (fundamental) |
|  | »%(I2/I1)« | Measured value (calculated): I2/I1, phase sequence will be taken into account automatically. |
|  | »phi IL1« | Measured value (calculated): Angle of Phasor IL1 Reference phasor is required to calculate the angle. This is the first measured voltage (or current) channel with sufficiently high amplitude. |
|  | »phi IL2« | Measured value (calculated): Angle of Phasor IL2 Reference phasor is required to calculate the angle. This is the first measured voltage (or current) channel with sufficiently high amplitude. |
|  | »phi IL3« | Measured value (calculated): Angle of Phasor IL3 Reference phasor is required to calculate the angle. This is the first measured voltage (or current) channel with sufficiently high amplitude. |
|  | »phi IG meas« | Measured value (calculated): Angle of Phasor IG meas Reference phasor is required to calculate the angle. This is the first measured voltage (or current) channel with sufficiently high amplitude. |
|  | »phi IG calc« | Measured value (calculated): Angle of Phasor IG calc Reference phasor is required to calculate the angle. This is the first measured voltage (or current) channel with sufficiently high amplitude. |
|  | »phi I0« | Measured value (calculated): Angle Zero Sequence System Reference phasor is required to calculate the angle. This is the first measured voltage (or current) channel with sufficiently high amplitude. |
|  | »phi I1« | Measured value (calculated): Angle of Positive Sequence System Reference phasor is required to calculate the angle. This is the first measured voltage (or current) channel with sufficiently high amplitude. |
|  | »phi I2« | Measured Value (calculated): Angle of Negative Sequence System Reference phasor is required to calculate the angle. This is the first measured voltage (or current) channel with sufficiently high amplitude. |






3.1.1.2 Operation / Measured Values / Current RMS

| | | |
|---|------------------|--|
|  | »IL1 RMS« | Measured value: Phase current (RMS) |
|  | »IL2 RMS« | Measured value: Phase current (RMS) |
|  | »IL3 RMS« | Measured value: Phase current (RMS) |
|  | »IG meas RMS« | Measured value (measured): IG (RMS) |
|  | »IG calc RMS« | Measured value (calculated): IG (RMS) |
|  | »I3 PRMS avg« | Average RMS current of all 3 phases |
|  | »%IL1 THD« | Measured value (calculated): IL1 Total Harmonic Distortion |
|  | »%IL2 THD« | Measured value (calculated): IL2 Total Harmonic Distortion |
|  | »%IL3 THD« | Measured value (calculated): IL3 Total Harmonic Distortion |
|  | »IL1 THD« | Measured value (calculated): IL1 Total Harmonic Current |
|  | »IL2 THD« | Measured value (calculated): IL2 Total Harmonic Current |
|  | »IL3 THD« | Measured value (calculated): IL3 Total Harmonic Current |
|  | »IL1 Ib« | Measured value: Phase current as multiple of Ib |
|  | »IL2 Ib« | Measured value: Phase current as multiple of Ib |
|  | »IL3 Ib« | Measured value: Phase current as multiple of Ib |
|  | »I3 P (%Ib) avg« | Average RMS current of all 3 phases as percentages of Ib |



3.1.1.3 Operation / Measured Values / URTD

| | | |
|---|------------------------|---|
|  | »Windg1« | Winding 1 |
|  | »Windg2« | Winding 2 |
|  | »Windg3« | Winding 3 |
|  | »Windg4« | Winding 4 |
|  | »Windg5« | Winding 5 |
|  | »Windg6« | Winding 6 |
|  | »MotBear1« | Motor Bearing 1 |
|  | »MotBear2« | Motor Bearing 2 |
|  | »LoadBear1« | Load Bearing 1 |
|  | »LoadBear2« | Load Bearing 2 |
|  | »Aux1« | Auxiliary1 |
|  | »Aux2« | Auxiliary2 |
|  | »RTD Max« | Maximum temperature of all channels. |
|  | »HottestWindingTemp« | The actual value for the hottest winding temperature. |
|  | »Hottest MotBearTemp« | The actual value for the hottest motor bearing temperature. |
|  | »Hottest LoadBearTemp« | The actual value for the hottest load bearing temperature. |
|  | »Hottest Aux Temp« | The actual value for the hottest Auxiliary temperature. |

3.1.1.4 Operation / Measured Values / Motor

| | | |
|---|----------------------|---|
|  | »SPH Remaining« | SPH Remaining |
|  | »SPH Rem.Block.Time« | In case that the Motor is blocked by an SPH blocking, the remaining blocking time is shown until the next motor start is permitted. |
|  | »TBS Rem.Block.Time« | In case that the Motor is blocked by TBS functions, the remaining blocking time is shown. |
|  | »NOCS Remaining« | This counter shows the number of remaining permitted cold starts. |
|  | »ABK Rem.Time« | This is the remaining anti-backspin time. |

3.1.1.5 Operation / Measured Values / ThR

| | | |
|---|----------------|----------------------------|
|  | »I2T Used« | Thermal capacity used. |
|  | »I2T Remained« | Thermal capacity remained. |

3.1.2 Operation / Statistics

3.1.2.1 Operation / Statistics / Demand

3.1.2.1.1 Operation / Statistics / Demand / Current Demand

| | | |
|-------------------------------------|---------------------|--|
| <input checked="" type="checkbox"/> | »IL1 avg RMS« | IL1 average value (RMS) |
| <input checked="" type="checkbox"/> | »IL2 avg RMS« | IL2 average value (RMS) |
| <input checked="" type="checkbox"/> | »IL3 avg RMS« | IL3 average value (RMS) |
| <input checked="" type="checkbox"/> | »IL1 Peak (Demand)« | IL1 Peak value, RMS value |
| <input checked="" type="checkbox"/> | »IL2 Peak (Demand)« | IL2 Peak value, RMS value |
| <input checked="" type="checkbox"/> | »IL3 Peak (Demand)« | IL3 Peak value, RMS value |
| <input checked="" type="checkbox"/> | »IL1 avg Ib« | IL1 average value as multiple of Ib |
| <input checked="" type="checkbox"/> | »IL2 avg Ib« | IL2 average value as multiple of Ib |
| <input checked="" type="checkbox"/> | »IL3 avg Ib« | IL3 average value as multiple of Ib |
| <input checked="" type="checkbox"/> | »I3P Fla Demand« | RMS current of all 3 phases calculated in a fixed demand window as percentages of Ib |
| <input type="checkbox"/> | »Res Cr I Demand« | Number of resets since the last device restart. The timestamp shows date and time of the last reset. |

3.1.2.2 Operation / Statistics / Max

3.1.2.2.1 Operation / Statistics / Max / Current

| | | |
|-------------------------------------|---------------------|---|
| <input checked="" type="checkbox"/> | »IL1 max RMS« | IL1 maximum value (RMS) |
| <input checked="" type="checkbox"/> | »IL2 max RMS« | IL2 maximum value (RMS) |
| <input checked="" type="checkbox"/> | »IL3 max RMS« | IL3 maximum value (RMS) |
| <input checked="" type="checkbox"/> | »IG meas max RMS« | Measured value: IG maximum value (RMS) |
| <input checked="" type="checkbox"/> | »IG calc max RMS« | Measured value (calculated):IG maximum value (RMS) |
| <input checked="" type="checkbox"/> | »I1 max « | Maximum value positive phase sequence current (fundamental) |
| <input checked="" type="checkbox"/> | »I2 max « | Maximum value negative sequence current (fundamental) |
| <input checked="" type="checkbox"/> | »%(I2/I1) max« | Measured value (calculated): I2/I1 maximum value, phase sequence will be taken into account automatically |
| <input checked="" type="checkbox"/> | »IL1 max Ib« | IL1 maximum value as multiple of Ib |
| <input checked="" type="checkbox"/> | »IL2 max Ib« | IL2 maximum value as multiple of Ib |
| <input checked="" type="checkbox"/> | »IL3 max Ib« | IL3 maximum value as multiple of Ib |
| <input type="checkbox"/> | »Res Cr Max values« | Number of resets since the last device restart. The timestamp shows date and time of the last reset. |

3.1.2.2.2 Operation / Statistics / Max / URTD

| | | |
|-------------------------------------|---------------------|--|
| <input checked="" type="checkbox"/> | »Windg1 max« | Winding1 Maximum Value |
| <input checked="" type="checkbox"/> | »Windg2 max« | Winding2 Maximum Value |
| <input checked="" type="checkbox"/> | »Windg3 max« | Winding3 Maximum Value |
| <input checked="" type="checkbox"/> | »Windg4 max« | Winding4 Maximum Value |
| <input checked="" type="checkbox"/> | »Windg5 max« | Winding5 Maximum Value |
| <input checked="" type="checkbox"/> | »Windg6 max« | Winding6 Maximum Value |
| <input checked="" type="checkbox"/> | »MotBear1 max« | Motor Bearing1 Maximum Value |
| <input checked="" type="checkbox"/> | »MotBear2 max« | Motor Bearing2 Maximum Value |
| <input checked="" type="checkbox"/> | »LoadBear1 max« | Load Bearing1 Maximum Value |
| <input checked="" type="checkbox"/> | »LoadBear2 max« | Load Bearing2 Maximum Value |
| <input checked="" type="checkbox"/> | »Aux1 max« | Auxiliary1 Maximum Value |
| <input checked="" type="checkbox"/> | »Aux2 max« | Auxiliary2 Maximum Value |
| <input type="checkbox"/> | »Res Cr Max values« | Number of resets since the last device restart. The timestamp shows date and time of the last reset. |



3.1.2.3 Operation / Statistics / Min

3.1.2.3.1 Operation / Statistics / Min / Current

| | | |
|-------------------------------------|---------------------|---|
| <input checked="" type="checkbox"/> | »IL1 min RMS« | IL1 minimum value (RMS) |
| <input checked="" type="checkbox"/> | »IL2 min RMS« | IL2 minimum value (RMS) |
| <input checked="" type="checkbox"/> | »IL3 min RMS« | IL3 minimum value (RMS) |
| <input checked="" type="checkbox"/> | »IG meas min RMS« | Measured value: IG minimum value (RMS) |
| <input checked="" type="checkbox"/> | »IG calc min RMS« | Measured value (calculated):IG minimum value (RMS) |
| <input checked="" type="checkbox"/> | »I1 min « | Minimum value positive phase sequence current (fundamental) |
| <input checked="" type="checkbox"/> | »I2 min « | Minimum value unbalanced load current (fundamental) |
| <input checked="" type="checkbox"/> | »%(I2/I1) min« | Measured value (calculated): I2/I1 minimum value, phase sequence will be taken into account automatically |
| <input checked="" type="checkbox"/> | »IL1 min Ib« | IL1 minimum value as multiple of Ib |
| <input checked="" type="checkbox"/> | »IL2 min Ib« | IL2 minimum value as multiple of Ib |
| <input checked="" type="checkbox"/> | »IL3 min Ib« | IL3 minimum value as multiple of Ib |
| <input type="checkbox"/> | »Res Cr Min values« | Number of resets since the last device restart. The timestamp shows date and time of the last reset. |

3.1.3 Operation / History

3.1.3.1 Operation / History / OperationsCr

| | | |
|---|--------------------------|---|
| # | »MStart . OCNT« | Motor Operation count since last reset. Resettable with »Sys . Res OperationsCr« or »Sys . Res All«. |
|  | »MStart . RunTime« | Motor Operation time since last reset. Resettable with »Sys . Res OperationsCr« or »Sys . Res All«. |
| # | »MStart . HighestStartI« | Highest starting phase current. The time stamp indicates the point in time when the maximum current has occurred. Resettable with »Sys . Res OperationsCr« or »Sys . Res All«. |
| # | »MStart . HighestRunI« | Highest running phase current. The time stamp indicates the point in time when the maximum current has occurred. Resettable with »Sys . Res OperationsCr« or »Sys . Res All«. |
|  | »MStart . Highest%I2/I1« | Highest %I2/I1 value since last reset. The time stamp indicates the point in time when the maximum unbalanced load has occurred. Resettable with »Sys . Res OperationsCr« or »Sys . Res All«. |
| # | »MStart . nEmrgOvr« | Number of emergency overrides since last reset. Resettable with »Sys . Res OperationsCr« or »Sys . Res All«. |
| # | »RTD . HighestWdTemp« | Highest motor winding temperature since the last reset. Resettable via »Sys . Res OperationsCr« oder »Sys . Res All«. |
| # | »RTD . HighestMbTemp« | Highest motor bearing temperature since the last reset. Resettable via »Sys . Res OperationsCr« oder »Sys . Res All«. |
| # | »RTD . HighestLbTemp« | Highest load bearing temperature since the last reset. Resettable via »Sys . Res OperationsCr« oder »Sys . Res All«. |
| # | »RTD . HighestAuxTemp« | Highest Auxiliary temperature since the last reset. Resettable via »Sys . Res OperationsCr« oder »Sys . Res All«. |

3.1.3.2 Operation / History / AlarmCr

| | | |
|---|--------------------------|--|
| # | »I[1] . NumberOfAlarms« | Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«. |
| # | »I[2] . NumberOfAlarms« | Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«. |
| # | »I[3] . NumberOfAlarms« | Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«. |
| # | »I[4] . NumberOfAlarms« | Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«. |
| # | »I[5] . NumberOfAlarms« | Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«. |
| # | »I[6] . NumberOfAlarms« | Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«. |
| # | »IG[1] . NumberOfAlarms« | Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«. |
| # | »IG[2] . NumberOfAlarms« | Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«. |
| # | »IG[3] . NumberOfAlarms« | Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«. |

| | | |
|---|---------------------------|--|
| # | »IG[4] . NumberOfAlarms« | Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«. |
| # | »ThR . nAlarms« | Number of alarms since the last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«. |
| # | »Jam[1] . NumberOfAlarms« | Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«. |
| # | »Jam[2] . NumberOfAlarms« | Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«. |
| # | »I<[1] . NumberOfAlarms« | Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«. |
| # | »I<[2] . NumberOfAlarms« | Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«. |
| # | »I<[3] . NumberOfAlarms« | Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«. |
| # | »I2>[1] . NumberOfAlarms« | Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«. |
| # | »I2>[2] . NumberOfAlarms« | Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«. |
| # | »Exp[1] . NumberOfAlarms« | Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«. |
| # | »Exp[2] . NumberOfAlarms« | Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«. |
| # | »Exp[3] . NumberOfAlarms« | Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«. |
| # | »Exp[4] . NumberOfAlarms« | Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«. |
| # | »RTD . nWdAlarms« | Number of winding temperature alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«. |
| # | »RTD . nMbAlarms« | Number of motor bearing temperature alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«. |
| # | »RTD . nLbAlarms« | Number of load bearing temperature alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«. |
| # | »RTD . nAuxAlarms« | Number of auxiliary temperature alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«. |
| # | »RTD . nChannelFails« | Number of RTD channel failures. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«. |

3.1.3.3 Operation / History / TripCmdCr

| | | |
|---|-----------------------|--|
| # | »MStart . nTRNTrips« | Number of transition trips since last reset. Resettable with »Sys . Res TripCr« or »Sys . Res All«. |
| # | »MStart . nRevTrips« | Number of reverse spinning trips since last reset. Resettable with »Sys . Res TripCr« or »Sys . Res All«. |
| # | »MStart . nZSWTrips« | Number of zero speed switch trips since last reset. Resettable with »Sys . Res TripCr« or »Sys . Res All«. |
| # | »MStart . nInSqTrips« | Number of incomplete sequence trips since last reset. Resettable with »Sys . Res TripCr« or »Sys . Res All«. |

3 Menu

3.1.3.3 Operation / History / TripCmdCr

| | | |
|---|-----------------------------|--|
| # | »MStart . nSPHBlocks« | Number of start per hour blocks since last reset. Resettable with »Sys . Res TripCr« or »Sys . Res All«. |
| # | »MStart . nTBSBlocks« | Number of time between start blocks since last reset. Resettable with »Sys . Res TripCr« or »Sys . Res All«. |
| # | »I[1] . NumberOfTripCmds« | Number of trip commands since the last reset |
| # | »I[2] . NumberOfTripCmds« | Number of trip commands since the last reset |
| # | »I[3] . NumberOfTripCmds« | Number of trip commands since the last reset |
| # | »I[4] . NumberOfTripCmds« | Number of trip commands since the last reset |
| # | »I[5] . NumberOfTripCmds« | Number of trip commands since the last reset |
| # | »I[6] . NumberOfTripCmds« | Number of trip commands since the last reset |
| # | »IG[1] . NumberOfTripCmds« | Number of trip commands since the last reset |
| # | »IG[2] . NumberOfTripCmds« | Number of trip commands since the last reset |
| # | »IG[3] . NumberOfTripCmds« | Number of trip commands since the last reset |
| # | »IG[4] . NumberOfTripCmds« | Number of trip commands since the last reset |
| # | »ThR . NumberOfTripCmds« | Number of trip commands since the last reset |
| # | »Jam[1] . NumberOfTripCmds« | Number of trip commands since the last reset |
| # | »Jam[2] . NumberOfTripCmds« | Number of trip commands since the last reset |
| # | »I<[1] . NumberOfTripCmds« | Number of trip commands since the last reset |
| # | »I<[2] . NumberOfTripCmds« | Number of trip commands since the last reset |
| # | »I<[3] . NumberOfTripCmds« | Number of trip commands since the last reset |
| # | »I2>[1] . NumberOfTripCmds« | Number of trip commands since the last reset |
| # | »I2>[2] . NumberOfTripCmds« | Number of trip commands since the last reset |
| # | »Exp[1] . NumberOfTripCmds« | Number of trip commands since the last reset |
| # | »Exp[2] . NumberOfTripCmds« | Number of trip commands since the last reset |
| # | »Exp[3] . NumberOfTripCmds« | Number of trip commands since the last reset |
| # | »Exp[4] . NumberOfTripCmds« | Number of trip commands since the last reset |
| # | »RTD . nWdTrips« | Number of winding temperature trips since last reset. Resettable with »Sys . Res TripCr« or »Sys . Res All«. |
| # | »RTD . nMbTrips« | Number of motor bearing temperature trips since last reset. Resettable with »Sys . Res TripCr« or »Sys . Res All«. |
| # | »RTD . nLbTrips« | Number of load bearing temperature trips since last reset. Resettable with »Sys . Res TripCr« or »Sys . Res All«. |
| # | »RTD . nAuxTrips« | Number of auxiliary temperature trips since last reset. Resettable with »Sys . Res TripCr« or »Sys . Res All«. |

3.1.3.4 Operation / History / TotalCr

| | | |
|---|------------------------|---|
| # | »SG[1] . TripCmd Cr« | Counter: Total number of trips of the switchgear. |
| | »SG[1] . Sum trip IL1« | Summation of the tripping currents phase |
| | »SG[1] . Sum trip IL2« | Summation of the tripping currents phase |
| | »SG[1] . Sum trip IL3« | Summation of the tripping currents phase |
| | »MStart . TRunTime« | Motor Operation (Motor run time) time since last reset. Resettable with »Sys . Res TotalCr« or »Sys . Res All«. |
| # | »MStart . TOCS« | Total Motor Operation count since last reset. Resettable with »Sys . Res TotalCr« or »Sys . Res All«. |
| | »Sys . Hours Counter« | Resettable device operation hours counter. Resettable with »Sys . Res TotalCr« or »Sys . Res All«. |

3.1.4 Operation / Status Display

3.1.4.1 Operation / Status Display / All Actives

| | | |
|---|-------------------|----------------|
| ↑ | »Prot . Active« | Signal: active |
| ↑ | »MStart . Active« | Signal: active |
| ↑ | »I[1] . Active« | Signal: active |
| ↑ | »I[2] . Active« | Signal: active |
| ↑ | »I[3] . Active« | Signal: active |
| ↑ | »I[4] . Active« | Signal: active |
| ↑ | »I[5] . Active« | Signal: active |
| ↑ | »I[6] . Active« | Signal: active |
| ↑ | »IG[1] . Active« | Signal: active |
| ↑ | »IG[2] . Active« | Signal: active |
| ↑ | »IG[3] . Active« | Signal: active |
| ↑ | »IG[4] . Active« | Signal: active |
| ↑ | »ThR . Active« | Signal: active |
| ↑ | »Jam[1] . Active« | Signal: active |
| ↑ | »Jam[2] . Active« | Signal: active |
| ↑ | »I<[1] . Active« | Signal: active |
| ↑ | »I<[2] . Active« | Signal: active |
| ↑ | »I<[3] . Active« | Signal: active |
| ↑ | »MLS . Active« | Signal: active |
| ↑ | »I2>[1] . Active« | Signal: active |

3 Menu

3.1.4.2 Operation / Status Display / Alarms

| | | |
|---|-------------------|----------------|
| ↑ | »I2>[2] . Active« | Signal: active |
| ↑ | »Exp[1] . Active« | Signal: active |
| ↑ | »Exp[2] . Active« | Signal: active |
| ↑ | »Exp[3] . Active« | Signal: active |
| ↑ | »Exp[4] . Active« | Signal: active |
| ↑ | »RTD . Active« | Signal: active |
| ↑ | »CBF . Active« | Signal: active |
| ↑ | »TCS . Active« | Signal: active |
| ↑ | »CTS . Active« | Signal: active |
| ↑ | »SysA . Active« | Signal: active |

3.1.4.2 Operation / Status Display / Alarms

| | | |
|---|-----------------------|--|
| ↑ | »Prot . Alarm« | Signal: General Alarm |
| ↑ | »I[1] . Alarm« | Signal: Alarm |
| ↑ | »I[2] . Alarm« | Signal: Alarm |
| ↑ | »I[3] . Alarm« | Signal: Alarm |
| ↑ | »I[4] . Alarm« | Signal: Alarm |
| ↑ | »I[5] . Alarm« | Signal: Alarm |
| ↑ | »I[6] . Alarm« | Signal: Alarm |
| ↑ | »IG[1] . Alarm« | Signal: The alarm threshold has been exceeded. |
| ↑ | »IG[2] . Alarm« | Signal: The alarm threshold has been exceeded. |
| ↑ | »IG[3] . Alarm« | Signal: The alarm threshold has been exceeded. |
| ↑ | »IG[4] . Alarm« | Signal: The alarm threshold has been exceeded. |
| ↑ | »ThR . Alarm« | Signal: Alarm |
| ↑ | »ThR . Alarm Pickup« | Signal: Alarm Pickup |
| ↑ | »ThR . Alarm Timeout« | Signal: Alarm Timeout |
| ↑ | »Jam[1] . Alarm« | Signal: Alarm |
| ↑ | »Jam[2] . Alarm« | Signal: Alarm |
| ↑ | »I<[1] . Alarm« | Signal: Alarm |
| ↑ | »I<[2] . Alarm« | Signal: Alarm |
| ↑ | »I<[3] . Alarm« | Signal: Alarm |
| ↑ | »MLS . Alarm« | Signal: Alarm |
| ↑ | »I2>[1] . Alarm« | Signal: Alarm Negative Sequence |
| ↑ | »I2>[2] . Alarm« | Signal: Alarm Negative Sequence |

| | | |
|---|----------------------------------|--|
| ↑ | »Exp[1] . Alarm« | Signal: Alarm |
| ↑ | »Exp[2] . Alarm« | Signal: Alarm |
| ↑ | »Exp[3] . Alarm« | Signal: Alarm |
| ↑ | »Exp[4] . Alarm« | Signal: Alarm |
| ↑ | »RTD . Alarm« | Alarm RTD Temperature Protection |
| ↑ | »RTD . Windg 1 Alarm« | Winding 1 Alarm RTD Temperature Protection |
| ↑ | »RTD . Windg 1 Timeout Alarm« | Winding 1 Timeout Alarm |
| ↑ | »RTD . Windg 2 Alarm« | Winding 2 Alarm RTD Temperature Protection |
| ↑ | »RTD . Windg 2 Timeout Alarm« | Winding 2 Timeout Alarm |
| ↑ | »RTD . Windg 3 Alarm« | Winding 3 Alarm RTD Temperature Protection |
| ↑ | »RTD . Windg 3 Timeout Alarm« | Winding 3 Timeout Alarm |
| ↑ | »RTD . Windg 4 Alarm« | Winding 4 Alarm RTD Temperature Protection |
| ↑ | »RTD . Windg 4 Timeout Alarm« | Winding 4 Timeout Alarm |
| ↑ | »RTD . Windg 5 Alarm« | Winding 5 Alarm RTD Temperature Protection |
| ↑ | »RTD . Windg 5 Timeout Alarm« | Winding 5 Timeout Alarm |
| ↑ | »RTD . Windg 6 Alarm« | Winding 6 Alarm RTD Temperature Protection |
| ↑ | »RTD . Windg 6 Timeout Alarm« | Winding 6 Timeout Alarm |
| ↑ | »RTD . MotBear 1 Alarm« | Motor Bearing 1 Alarm RTD Temperature Protection |
| ↑ | »RTD . MotBear 1 Timeout Alarm« | Motor Bearing 1 Timeout Alarm |
| ↑ | »RTD . MotBear 2 Alarm« | Motor Bearing 2 Alarm RTD Temperature Protection |
| ↑ | »RTD . MotBear 2 Timeout Alarm« | Motor Bearing 2 Timeout Alarm |
| ↑ | »RTD . LoadBear 1 Alarm« | Load Bearing 1 Alarm RTD Temperature Protection |
| ↑ | »RTD . LoadBear 1 Timeout Alarm« | Load Bearing 1 Timeout Alarm |
| ↑ | »RTD . LoadBear 2 Alarm« | Load Bearing 2 Alarm RTD Temperature Protection |
| ↑ | »RTD . LoadBear 2 Timeout Alarm« | Load Bearing 2 Timeout Alarm |
| ↑ | »RTD . Aux1 Alarm« | Auxiliary 1 Alarm RTD Temperature Protection |
| ↑ | »RTD . Aux1 Timeout Alarm« | Auxiliary 1 Timeout Alarm |
| ↑ | »RTD . Aux2 Alarm« | Auxiliary 2 Alarm RTD Temperature Protection |
| ↑ | »RTD . Aux2 Timeout Alarm« | Auxiliary 2 Timeout Alarm |
| ↑ | »RTD . Alarm WD Group« | Alarm all Windings |
| ↑ | »RTD . TimeoutAlmWDGrp« | Timeout Alarm all Windings |

3 Menu

3.1.4.3 Operation / Status Display / Trips

| | | |
|---|--------------------------|---|
| ↑ | »RTD . Alarm MB Group« | Alarm all Motor Bearings |
| ↑ | »RTD . TimeoutAlmMBGrp« | Timeout Alarm all Motor Bearings |
| ↑ | »RTD . Alarm LB Group« | Alarm all Load Bearings |
| ↑ | »RTD . TimeoutAlmLBGrp« | Timeout Alarm all Load Bearings |
| ↑ | »RTD . Alarm Aux Group« | Alarm Auxiliary Group |
| ↑ | »RTD . TimeoutAlmAuxGrp« | Timeout Alarm Auxiliary Group |
| ↑ | »TCS . Alarm« | Signal: Alarm Trip Circuit Supervision |
| ↑ | »CTS . Alarm« | Signal: Alarm Current Transformer Measuring Circuit Supervision |

3.1.4.3 Operation / Status Display / Trips

| | | |
|---|-----------------|----------------------|
| ↑ | »Prot . Trip« | Signal: General Trip |
| ↑ | »MStart . Trip« | Signal: Trip |
| ↑ | »I[1] . Trip« | Signal: Trip |
| ↑ | »I[2] . Trip« | Signal: Trip |
| ↑ | »I[3] . Trip« | Signal: Trip |
| ↑ | »I[4] . Trip« | Signal: Trip |
| ↑ | »I[5] . Trip« | Signal: Trip |
| ↑ | »I[6] . Trip« | Signal: Trip |
| ↑ | »IG[1] . Trip« | Signal: Trip |
| ↑ | »IG[2] . Trip« | Signal: Trip |
| ↑ | »IG[3] . Trip« | Signal: Trip |
| ↑ | »IG[4] . Trip« | Signal: Trip |
| ↑ | »ThR . Trip« | Signal: Trip |
| ↑ | »Jam[1] . Trip« | Signal: Trip |
| ↑ | »Jam[2] . Trip« | Signal: Trip |
| ↑ | »I<[1] . Trip« | Signal: Trip |
| ↑ | »I<[2] . Trip« | Signal: Trip |
| ↑ | »I<[3] . Trip« | Signal: Trip |
| ↑ | »MLS . Trip« | Signal: Trip |
| ↑ | »I2>[1] . Trip« | Signal: Trip |
| ↑ | »I2>[2] . Trip« | Signal: Trip |
| ↑ | »Exp[1] . Trip« | Signal: Trip |
| ↑ | »Exp[2] . Trip« | Signal: Trip |
| ↑ | »Exp[3] . Trip« | Signal: Trip |

| | | |
|---|-----------------|---------------------------------|
| ↑ | »Exp[4] . Trip« | Signal: Trip |
| ↑ | »RTD . Trip« | Signal: Trip |
| ↑ | »CBF . Alarm« | Signal: Circuit Breaker Failure |

3.1.4.4 Operation / Status Display / TripCmds

| | | |
|---|--------------------|----------------------|
| ↑ | »SG[1] . TripCmd« | Signal: Trip Command |
| ↑ | »MStart . TripCmd« | Signal: Trip Command |
| ↑ | »I[1] . TripCmd« | Signal: Trip Command |
| ↑ | »I[2] . TripCmd« | Signal: Trip Command |
| ↑ | »I[3] . TripCmd« | Signal: Trip Command |
| ↑ | »I[4] . TripCmd« | Signal: Trip Command |
| ↑ | »I[5] . TripCmd« | Signal: Trip Command |
| ↑ | »I[6] . TripCmd« | Signal: Trip Command |
| ↑ | »IG[1] . TripCmd« | Signal: Trip Command |
| ↑ | »IG[2] . TripCmd« | Signal: Trip Command |
| ↑ | »IG[3] . TripCmd« | Signal: Trip Command |
| ↑ | »IG[4] . TripCmd« | Signal: Trip Command |
| ↑ | »ThR . TripCmd« | Signal: Trip Command |
| ↑ | »Jam[1] . TripCmd« | Signal: Trip Command |
| ↑ | »Jam[2] . TripCmd« | Signal: Trip Command |
| ↑ | »I<[1] . TripCmd« | Signal: Trip Command |
| ↑ | »I<[2] . TripCmd« | Signal: Trip Command |
| ↑ | »I<[3] . TripCmd« | Signal: Trip Command |
| ↑ | »I2>[1] . TripCmd« | Signal: Trip Command |
| ↑ | »I2>[2] . TripCmd« | Signal: Trip Command |
| ↑ | »Exp[1] . TripCmd« | Signal: Trip Command |
| ↑ | »Exp[2] . TripCmd« | Signal: Trip Command |
| ↑ | »Exp[3] . TripCmd« | Signal: Trip Command |
| ↑ | »Exp[4] . TripCmd« | Signal: Trip Command |
| ↑ | »RTD . TripCmd« | Signal: Trip Command |

3.1.4.5 Operation / Status Display / Prot



























| | | |
|---|-----------------------------|---|
| ↑ | »available« | Signal: Protection is available |
| ↑ | »Active« | Signal: active |
| ↑ | »ExBlo« | Signal: External Blocking |
| ↑ | »Blo TripCmd« | Signal: Trip Command blocked |
| ↑ | »ExBlo TripCmd« | Signal: External Blocking of the Trip Command |
| ↑ | »Alarm L1« | Signal: General-Alarm L1 |
| ↑ | »Alarm L2« | Signal: General-Alarm L2 |
| ↑ | »Alarm L3« | Signal: General-Alarm L3 |
| ↑ | »Alarm G« | Signal: General-Alarm - Earth fault |
| ↑ | »Alarm« | Signal: General Alarm |
| ↑ | »Trip L1« | Signal: General Trip L1 |
| ↑ | »Trip L2« | Signal: General Trip L2 |
| ↑ | »Trip L3« | Signal: General Trip L3 |
| ↑ | »Trip G« | Signal: General Trip Ground fault |
| ↑ | »Trip« | Signal: General Trip |
| ↑ | »Res FaultNo a GridFaultNo« | Signal: Resetting of fault number and grid fault number. |
| ↓ | »ExBlo1-I« | Module input state: External blocking1 |
| ↓ | »ExBlo2-I« | Module input state: External blocking2 |
| ↓ | »ExBlo TripCmd-I« | Module input state: External Blocking of the Trip Command |

3.1.4.6 Operation / Status Display / Control

3.1.4.6.1 Operation / Status Display / Control / General Control

| | | |
|---|-----------------------|---|
| ↑ | »Local« | Switching Authority: Local |
| ↑ | »Remote« | Switching Authority: Remote |
| ↑ | »NonInterl« | Non-Interlocking is active |
| ↑ | »SG Indeterm« | (At least one) Switchgear is moving (Position cannot be determined). |
| ↑ | »SG Disturb« | (At least one) Switchgear is disturbed. |
| ↑ | »CES SAuthority« | Command Execution Supervision: Number of rejected Commands because of missing switching authority. |
| ↑ | »CES DoubleOperating« | Command Execution Supervision: Number of rejected Commands because a second switch command is in conflict with a pending one. |
| ↓ | »NonInterl-I« | Non-Interlocking |

3.1.4.6.2 Operation / Status Display / Control / SG[1]

| | | |
|---|------------------------|---|
|  | »SI SingleContactInd« | Signal: The Position of the Switchgear is detected by one auxiliary contact (pole) only. Thus indeterminate and disturbed Positions cannot be detected. |
|  | »Pos not ON« | Signal: Pos not ON |
|  | »Pos ON« | Signal: Circuit Breaker is in ON-Position |
|  | »Pos OFF« | Signal: Circuit Breaker is in OFF-Position |
|  | »Pos Indeterm« | Signal: Circuit Breaker is in Indeterminate Position |
|  | »Pos Disturb« | Signal: Circuit Breaker Disturbed - Undefined Breaker Position. The Position Indicators contradict themselves. After expiring of a supervision timer this signal becomes true. |
|  | »Pos« | Signal: Circuit Breaker Position (0 = Indeterminate, 1 = OFF, 2 = ON, 3 = Disturbed) |
|  | »Ready« | Signal: Circuit breaker is ready for operation. |
|  | »t-Dwell« | Signal: Dwell time |
|  | »Removed« | Signal: The withdrawable circuit breaker is Removed |
|  | »Interl ON« | Signal: One or more IL_On inputs are active. |
|  | »Interl OFF« | Signal: One or more IL_Off inputs are active. |
|  | »CES succesf« | Signal: Command Execution Supervision: Switching command executed successfully. |
|  | »CES Disturbed« | Signal: Command Execution Supervision: Switching Command unsuccessful. Switchgear in disturbed position. |
|  | »CES Fail TripCmd« | Signal: Command Execution Supervision: Command execution failed because trip command is pending. |
|  | »CES SwitchDir« | Signal: Command Execution Supervision respectively Switching Direction Control: This signal becomes true, if a switch command is issued even though the switchgear is already in the requested position. Example: A switchgear that is already OFF should be switched OFF again (doubly). The same applies to CLOSE commands. |
|  | »CES ON d OFF« | Signal: Command Execution Supervision: On Command during a pending OFF Command. |
|  | »CES SG not ready« | Signal: Command Execution Supervision: Switchgear not ready |
|  | »CES Fiel Interl« | Signal: Command Execution Supervision: Switching Command not executed because of field interlocking. |
|  | »CES SG removed« | Signal: Command Execution Supervision: Switching Command unsuccessful, Switchgear removed. |
|  | »TripCmd« | Signal: Trip Command |
|  | »Ack TripCmd« | Signal: Acknowledge Trip Command |
|  | »OFF incl TripCmd« | Signal: The OFF Command includes the OFF Command issued by the Protection module. |
|  | »Position Ind manipul« | Signal: Position Indicators faked |
|  | »SGwear Slow SG« | Signal: Alarm, the circuit breaker (load-break switch) becomes slower |
|  | »Res SGwear SI SG« | Signal: Resetting the slow Switchgear Alarm |

3 Menu

3.1.4.6.2 Operation / Status Display / Control / SG[1]

| | | |
|---|------------------------|---|
| ↑ | »ON Cmd« | Signal: ON Command issued to the switchgear. Depending on the setting the signal may include the ON command of the Prot module. |
| ↑ | »OFF Cmd« | Signal: OFF Command issued to the switchgear. Depending on the setting the signal may include the OFF command of the Prot module. |
| ↑ | »ON Cmd manual« | Signal: ON Cmd manual |
| ↑ | »OFF Cmd manual« | Signal: OFF Cmd manual |
| ↑ | »Test Trip Cmd« | A trip command has been triggered manually (for testing purposes). |
| ↑ | »Operations Alarm« | Signal: Too many Operations. (The operations counter »TripCmd Cr« has exceeded the limit set at »Operations Alarm«.) |
| ↑ | »Isum Intr trip: IL1« | Signal: Maximum permissible Summation of the interrupting (tripping) currents exceeded: IL1 |
| ↑ | »Isum Intr trip: IL2« | Signal: Maximum permissible Summation of the interrupting (tripping) currents exceeded: IL2 |
| ↑ | »Isum Intr trip: IL3« | Signal: Maximum permissible Summation of the interrupting (tripping) currents exceeded: IL3 |
| ↑ | »Isum Intr trip« | Signal: Maximum permissible Summation of the interrupting (tripping) currents exceeded in at least one phase. |
| ↑ | »Res TripCmd Cr« | Signal: Resetting of the Counter: Total number of trips of the switchgear |
| ↑ | »Res Sum trip« | Signal: Reset summation of the tripping currents |
| ↑ | »WearLevel Alarm« | Signal: Threshold for the Alarm |
| ↑ | »WearLevel Lockout« | Signal: Threshold for the Lockout Level |
| ↑ | »Res CB OPEN capacity« | Signal: Reset of the wear maintenance curve (i. e. of the counter for the Circuit Breaker OPEN capacity). |
| ↑ | »Isum Intr ph Alm« | Signal: Alarm, the per hour Sum (Limit) of interrupting currents has been exceeded. |
| ↑ | »Res Isum Intr ph Alm« | Signal: Reset of the Alarm, "the per hour Sum (Limit) of interrupting currents has been exceeded". |
| ↓ | »Interl ON1-I« | State of the module input: Interlocking of the ON command |
| ↓ | »Interl ON2-I« | State of the module input: Interlocking of the ON command |
| ↓ | »Interl ON3-I« | State of the module input: Interlocking of the ON command |
| ↓ | »Interl OFF1-I« | State of the module input: Interlocking of the OFF command |
| ↓ | »Interl OFF2-I« | State of the module input: Interlocking of the OFF command |
| ↓ | »Interl OFF3-I« | State of the module input: Interlocking of the OFF command |
| ↓ | »SCmd ON-I« | State of the module input: Switching ON Command, e.g. the state of the Logics or the state of the digital input |
| ↓ | »SCmd OFF-I« | State of the module input: Switching OFF Command, e.g. the state of the Logics or the state of the digital input |
| ↓ | »Aux ON-I« | Module Input State: Position indicator/check-back signal of the CB (52a) |
| ↓ | »Aux OFF-I« | Module input state: Position indicator/check-back signal of the CB (52b) |
| ↓ | »Ready-I« | Module input state: CB ready |
| ↓ | »Removed-I« | State of the module input: The withdrawable circuit breaker is Removed |

| | | |
|---|-----------------|--|
| ↓ | »Ack TripCmd-I« | State of the module input: Acknowledgement Signal (for the Trip Command) Module input signal |
|---|-----------------|--|

3.1.4.7 Operation / Status Display / MStart

3.1.4.7.1 Operation / Status Display / MStart / Start Control

| | | |
|---|------------------------|--|
| ↑ | »Start« | Signal: Motor is in start mode |
| ↑ | »Run« | Signal: Motor is in run mode |
| ↑ | »Stop« | Signal: Motor is in stop mode |
| ↑ | »Blo« | Signal: Motor is blocked for starting or transition to Run mode |
| ↑ | »SPHBlocked« | Signal: Motor is prohibited to start due to starts per hour limits |
| ↑ | »SPHBlockAlarm« | Signal: Motor is prohibited to start due to starts per hour limits, would come active in the next stop |
| ↑ | »TBSBlocked« | Signal: Motor is prohibited to start due to time between starts limits |
| ↑ | »ThermalBlo« | Signal: Thermal block |
| ↑ | »RemBlockStart« | Signal: Motor is prohibited to start due to external blocking through digital input DI |
| ↑ | »TransitionTrip« | Signal: Start transition fail trip |
| ↑ | »ZSSTrip« | Signal: Zero speed trip (possible locked rotor) |
| ↑ | »InSq Stop2Start Fail« | Signal: Fail to transit from stop to start based on reported back time |
| ↑ | »InSq Start2Run Fail« | Signal: Fail to transit from start to run based on reported back time |
| ↑ | »LATBlock« | Signal: Long acceleration timer enforced |
| ↑ | »Active« | Signal: active |
| ↑ | »Blo TripCmd« | Signal: Trip Command blocked |
| ↑ | »Trip« | Signal: Trip |
| ↑ | »TripCmd« | Signal: Trip Command |
| ↑ | »ColdStartSeq« | Signal: Motor cold start sequence flag |
| ↑ | »ForcedStart« | Signal: Motor being forced to start |
| ↑ | »TripPhaseReverse« | Signal: Relay tripped because of phase reverse detection |
| ↑ | »EmergOverrideDI« | Signal: Emergency override start blocking through digital input DI |
| ↑ | »EmergOverrideUI« | Signal: Emergency override start blocking through front panel |
| ↑ | »ABSActive« | Signal: Anti-backspin is active. For certain applications, such as pumping a fluid up a pipe, the motor may be driven backward for a period of time after it stops. The anti-backspin timer prevents starting the motor while it is spinning in the reverse direction. |
| ↑ | »I_Transit« | Signal: Current transition signal |
| ↑ | »T_Transit« | Signal: Time transition signal |
| ↑ | »MotorStopBlo« | Signal: Motor stop block other protection functions |

3 Menu

3.1.4.7.2 Operation / Status Display / MStart / Motor Inputs

| | | |
|---|---------------------|---|
| ↑ | »Rotating forward« | Signal: Rotation Direction forward |
| ↑ | »Rotating backward« | Signal: Rotation Direction reverse |
| ↑ | »NOCSBlocked« | Signal: Motor is prohibited to start due to number of cold start limits |
| ↓ | »ExBlo TripCmd-I« | Module input state: External Blocking of the Trip Command |

3.1.4.7.2 Operation / Status Display / MStart / Motor Inputs

| | | |
|---|-------------------|---|
| ↓ | »RemStartBlock-I« | State of the module input: Remote Motor Start Blocking |
| ↓ | »EmgOvr-I« | State of the module input: Emergency Override. Signal has to be active in order to release the thermal capacity of the motor. Please notice that by doing this you run the risk of damaging the motor. "EMGOVR" has to be set to "DI" or "DI or UI" for this input to take effect |
| ↓ | »InSq-I« | State of the module input: Incomplete Sequence |
| ↓ | »ZSS-I« | State of the module input: Zero Speed Switch |
| ↓ | »STPC Blo-I« | State of the module input: With this setting a Digital Input keeps the Motor in the RUN mode, even when the motor current drops below STPC (motor stop current). |

3.1.4.7.3 Operation / Status Display / MStart / Start Delay Timer

| | | |
|---|----------------|---|
| ↑ | »Blo-IOCStart« | Signal: Phase Instantaneous Overcurrent Start Delay. IOC (Instantaneous Overcurrent) elements are blocked for the time programmed under this parameter |
| ↑ | »Blo-GOCStart« | Signal: Ground Instantaneous Overcurrent Start Delay. GOC (Instantaneous Overcurrent) elements are blocked for the time programmed under this parameter |
| ↑ | »Blo-I<Start« | Signal: Underload Start Delay. Underload(Instantaneous Overcurrent) elements are blocked for the time programmed under this parameter |
| ↑ | »Blo-I2>Start« | Signal: Motor start block current unbalance signal |
| ↑ | »Blo-JamStart« | Signal: JAM Start Delay. JAM(Instantaneous Overcurrent) elements are blocked for the time programmed under this parameter |
| ↑ | »Blo-Generic1« | Generic Start Delay. This value can be used to block any protective element.1 |
| ↑ | »Blo-Generic2« | Generic Start Delay. This value can be used to block any protective element.2 |
| ↑ | »Blo-Generic3« | Generic Start Delay. This value can be used to block any protective element.3 |
| ↑ | »Blo-Generic4« | Generic Start Delay. This value can be used to block any protective element.4 |
| ↑ | »Blo-Generic5« | Generic Start Delay. This value can be used to block any protective element.5 |

3.1.4.8 Operation / Status Display / I-Prot

3.1.4.8.1 Operation / Status Display / I-Prot / I[1]

| | | |
|---|-----------------|---------------------------------------|
| ↑ | »Active« | Signal: active |
| ↑ | »ExBlo« | Signal: External Blocking |
| ↑ | »Ex rev Interl« | Signal: External reverse Interlocking |

| | | |
|---|-------------------|---|
| ↑ | »Blo TripCmd« | Signal: Trip Command blocked |
| ↑ | »ExBlo TripCmd« | Signal: External Blocking of the Trip Command |
| ↑ | »Alarm L1« | Signal: Alarm L1 |
| ↑ | »Alarm L2« | Signal: Alarm L2 |
| ↑ | »Alarm L3« | Signal: Alarm L3 |
| ↑ | »Alarm« | Signal: Alarm |
| ↑ | »Trip L1« | Signal: General Trip Phase L1 |
| ↑ | »Trip L2« | Signal: General Trip Phase L2 |
| ↑ | »Trip L3« | Signal: General Trip Phase L3 |
| ↑ | »Trip« | Signal: Trip |
| ↑ | »TripCmd« | Signal: Trip Command |
| ↑ | »DefaultSet« | Signal: Default Parameter Set |
| ↑ | »AdaptSet 1« | Signal: Adaptive Parameter 1 |
| ↑ | »AdaptSet 2« | Signal: Adaptive Parameter 2 |
| ↑ | »AdaptSet 3« | Signal: Adaptive Parameter 3 |
| ↑ | »AdaptSet 4« | Signal: Adaptive Parameter 4 |
| ↓ | »ExBlo1-I« | Module input state: External blocking1 |
| ↓ | »ExBlo2-I« | Module input state: External blocking2 |
| ↓ | »ExBlo TripCmd-I« | Module input state: External Blocking of the Trip Command |
| ↓ | »Ex rev Interl-I« | Module input state: External reverse interlocking |
| ↓ | »AdaptSet1-I« | Module input state: Adaptive Parameter1 |
| ↓ | »AdaptSet2-I« | Module input state: Adaptive Parameter2 |
| ↓ | »AdaptSet3-I« | Module input state: Adaptive Parameter3 |
| ↓ | »AdaptSet4-I« | Module input state: Adaptive Parameter4 |

3.1.4.8.2 Operation / Status Display / I-Prot / I[2]

| | | |
|---|-----------------|---|
| ↑ | »Active« | Signal: active |
| ↑ | »ExBlo« | Signal: External Blocking |
| ↑ | »Ex rev Interl« | Signal: External reverse Interlocking |
| ↑ | »Blo TripCmd« | Signal: Trip Command blocked |
| ↑ | »ExBlo TripCmd« | Signal: External Blocking of the Trip Command |
| ↑ | »Alarm L1« | Signal: Alarm L1 |
| ↑ | »Alarm L2« | Signal: Alarm L2 |
| ↑ | »Alarm L3« | Signal: Alarm L3 |

3 Menu

3.1.4.8.3 Operation / Status Display / I-Prot / I[3]

| | | |
|---|-------------------|---|
| ↑ | »Alarm« | Signal: Alarm |
| ↑ | »Trip L1« | Signal: General Trip Phase L1 |
| ↑ | »Trip L2« | Signal: General Trip Phase L2 |
| ↑ | »Trip L3« | Signal: General Trip Phase L3 |
| ↑ | »Trip« | Signal: Trip |
| ↑ | »TripCmd« | Signal: Trip Command |
| ↑ | »DefaultSet« | Signal: Default Parameter Set |
| ↑ | »AdaptSet 1« | Signal: Adaptive Parameter 1 |
| ↑ | »AdaptSet 2« | Signal: Adaptive Parameter 2 |
| ↑ | »AdaptSet 3« | Signal: Adaptive Parameter 3 |
| ↑ | »AdaptSet 4« | Signal: Adaptive Parameter 4 |
| ↓ | »ExBlo1-I« | Module input state: External blocking1 |
| ↓ | »ExBlo2-I« | Module input state: External blocking2 |
| ↓ | »ExBlo TripCmd-I« | Module input state: External Blocking of the Trip Command |
| ↓ | »Ex rev Interl-I« | Module input state: External reverse interlocking |
| ↓ | »AdaptSet1-I« | Module input state: Adaptive Parameter1 |
| ↓ | »AdaptSet2-I« | Module input state: Adaptive Parameter2 |
| ↓ | »AdaptSet3-I« | Module input state: Adaptive Parameter3 |
| ↓ | »AdaptSet4-I« | Module input state: Adaptive Parameter4 |

3.1.4.8.3 Operation / Status Display / I-Prot / I[3]

| | | |
|---|-----------------|---|
| ↑ | »Active« | Signal: active |
| ↑ | »ExBlo« | Signal: External Blocking |
| ↑ | »Ex rev Interl« | Signal: External reverse Interlocking |
| ↑ | »Blo TripCmd« | Signal: Trip Command blocked |
| ↑ | »ExBlo TripCmd« | Signal: External Blocking of the Trip Command |
| ↑ | »Alarm L1« | Signal: Alarm L1 |
| ↑ | »Alarm L2« | Signal: Alarm L2 |
| ↑ | »Alarm L3« | Signal: Alarm L3 |
| ↑ | »Alarm« | Signal: Alarm |
| ↑ | »Trip L1« | Signal: General Trip Phase L1 |
| ↑ | »Trip L2« | Signal: General Trip Phase L2 |
| ↑ | »Trip L3« | Signal: General Trip Phase L3 |
| ↑ | »Trip« | Signal: Trip |

| | | |
|---|-------------------|---|
| ↑ | »TripCmd« | Signal: Trip Command |
| ↑ | »DefaultSet« | Signal: Default Parameter Set |
| ↑ | »AdaptSet 1« | Signal: Adaptive Parameter 1 |
| ↑ | »AdaptSet 2« | Signal: Adaptive Parameter 2 |
| ↑ | »AdaptSet 3« | Signal: Adaptive Parameter 3 |
| ↑ | »AdaptSet 4« | Signal: Adaptive Parameter 4 |
| ↓ | »ExBlo1-I« | Module input state: External blocking1 |
| ↓ | »ExBlo2-I« | Module input state: External blocking2 |
| ↓ | »ExBlo TripCmd-I« | Module input state: External Blocking of the Trip Command |
| ↓ | »Ex rev Interl-I« | Module input state: External reverse interlocking |
| ↓ | »AdaptSet1-I« | Module input state: Adaptive Parameter1 |
| ↓ | »AdaptSet2-I« | Module input state: Adaptive Parameter2 |
| ↓ | »AdaptSet3-I« | Module input state: Adaptive Parameter3 |
| ↓ | »AdaptSet4-I« | Module input state: Adaptive Parameter4 |

3.1.4.8.4 Operation / Status Display / I-Prot / I[4]

| | | |
|---|-----------------|---|
| ↑ | »Active« | Signal: active |
| ↑ | »ExBlo« | Signal: External Blocking |
| ↑ | »Ex rev Interl« | Signal: External reverse Interlocking |
| ↑ | »Blo TripCmd« | Signal: Trip Command blocked |
| ↑ | »ExBlo TripCmd« | Signal: External Blocking of the Trip Command |
| ↑ | »Alarm L1« | Signal: Alarm L1 |
| ↑ | »Alarm L2« | Signal: Alarm L2 |
| ↑ | »Alarm L3« | Signal: Alarm L3 |
| ↑ | »Alarm« | Signal: Alarm |
| ↑ | »Trip L1« | Signal: General Trip Phase L1 |
| ↑ | »Trip L2« | Signal: General Trip Phase L2 |
| ↑ | »Trip L3« | Signal: General Trip Phase L3 |
| ↑ | »Trip« | Signal: Trip |
| ↑ | »TripCmd« | Signal: Trip Command |
| ↑ | »DefaultSet« | Signal: Default Parameter Set |
| ↑ | »AdaptSet 1« | Signal: Adaptive Parameter 1 |
| ↑ | »AdaptSet 2« | Signal: Adaptive Parameter 2 |
| ↑ | »AdaptSet 3« | Signal: Adaptive Parameter 3 |

3 Menu

3.1.4.8.5 Operation / Status Display / I-Prot / I[5]

| | | |
|---|-------------------|---|
| ↑ | »AdaptSet 4« | Signal: Adaptive Parameter 4 |
| ↓ | »ExBlo1-I« | Module input state: External blocking1 |
| ↓ | »ExBlo2-I« | Module input state: External blocking2 |
| ↓ | »ExBlo TripCmd-I« | Module input state: External Blocking of the Trip Command |
| ↓ | »Ex rev Interl-I« | Module input state: External reverse interlocking |
| ↓ | »AdaptSet1-I« | Module input state: Adaptive Parameter1 |
| ↓ | »AdaptSet2-I« | Module input state: Adaptive Parameter2 |
| ↓ | »AdaptSet3-I« | Module input state: Adaptive Parameter3 |
| ↓ | »AdaptSet4-I« | Module input state: Adaptive Parameter4 |

3.1.4.8.5 Operation / Status Display / I-Prot / I[5]

| | | |
|---|-------------------|---|
| ↑ | »Active« | Signal: active |
| ↑ | »ExBlo« | Signal: External Blocking |
| ↑ | »Ex rev Interl« | Signal: External reverse Interlocking |
| ↑ | »Blo TripCmd« | Signal: Trip Command blocked |
| ↑ | »ExBlo TripCmd« | Signal: External Blocking of the Trip Command |
| ↑ | »Alarm L1« | Signal: Alarm L1 |
| ↑ | »Alarm L2« | Signal: Alarm L2 |
| ↑ | »Alarm L3« | Signal: Alarm L3 |
| ↑ | »Alarm« | Signal: Alarm |
| ↑ | »Trip L1« | Signal: General Trip Phase L1 |
| ↑ | »Trip L2« | Signal: General Trip Phase L2 |
| ↑ | »Trip L3« | Signal: General Trip Phase L3 |
| ↑ | »Trip« | Signal: Trip |
| ↑ | »TripCmd« | Signal: Trip Command |
| ↑ | »DefaultSet« | Signal: Default Parameter Set |
| ↑ | »AdaptSet 1« | Signal: Adaptive Parameter 1 |
| ↑ | »AdaptSet 2« | Signal: Adaptive Parameter 2 |
| ↑ | »AdaptSet 3« | Signal: Adaptive Parameter 3 |
| ↑ | »AdaptSet 4« | Signal: Adaptive Parameter 4 |
| ↓ | »ExBlo1-I« | Module input state: External blocking1 |
| ↓ | »ExBlo2-I« | Module input state: External blocking2 |
| ↓ | »ExBlo TripCmd-I« | Module input state: External Blocking of the Trip Command |
| ↓ | »Ex rev Interl-I« | Module input state: External reverse interlocking |

| | | |
|---|---------------|---|
| ↓ | »AdaptSet1-I« | Module input state: Adaptive Parameter1 |
| ↓ | »AdaptSet2-I« | Module input state: Adaptive Parameter2 |
| ↓ | »AdaptSet3-I« | Module input state: Adaptive Parameter3 |
| ↓ | »AdaptSet4-I« | Module input state: Adaptive Parameter4 |

3.1.4.8.6 Operation / Status Display / I-Prot / I[6]

| | | |
|---|-------------------|---|
| ↑ | »Active« | Signal: active |
| ↑ | »ExBlo« | Signal: External Blocking |
| ↑ | »Ex rev Interl« | Signal: External reverse Interlocking |
| ↑ | »Blo TripCmd« | Signal: Trip Command blocked |
| ↑ | »ExBlo TripCmd« | Signal: External Blocking of the Trip Command |
| ↑ | »Alarm L1« | Signal: Alarm L1 |
| ↑ | »Alarm L2« | Signal: Alarm L2 |
| ↑ | »Alarm L3« | Signal: Alarm L3 |
| ↑ | »Alarm« | Signal: Alarm |
| ↑ | »Trip L1« | Signal: General Trip Phase L1 |
| ↑ | »Trip L2« | Signal: General Trip Phase L2 |
| ↑ | »Trip L3« | Signal: General Trip Phase L3 |
| ↑ | »Trip« | Signal: Trip |
| ↑ | »TripCmd« | Signal: Trip Command |
| ↑ | »DefaultSet« | Signal: Default Parameter Set |
| ↑ | »AdaptSet 1« | Signal: Adaptive Parameter 1 |
| ↑ | »AdaptSet 2« | Signal: Adaptive Parameter 2 |
| ↑ | »AdaptSet 3« | Signal: Adaptive Parameter 3 |
| ↑ | »AdaptSet 4« | Signal: Adaptive Parameter 4 |
| ↓ | »ExBlo1-I« | Module input state: External blocking1 |
| ↓ | »ExBlo2-I« | Module input state: External blocking2 |
| ↓ | »ExBlo TripCmd-I« | Module input state: External Blocking of the Trip Command |
| ↓ | »Ex rev Interl-I« | Module input state: External reverse interlocking |
| ↓ | »AdaptSet1-I« | Module input state: Adaptive Parameter1 |
| ↓ | »AdaptSet2-I« | Module input state: Adaptive Parameter2 |
| ↓ | »AdaptSet3-I« | Module input state: Adaptive Parameter3 |
| ↓ | »AdaptSet4-I« | Module input state: Adaptive Parameter4 |

3 Menu

3.1.4.8.7 Operation / Status Display / I-Prot / IG[1]

3.1.4.8.7 Operation / Status Display / I-Prot / IG[1]

| | | |
|---|-------------------|---|
| ↑ | »Active« | Signal: active |
| ↑ | »ExBlo« | Signal: External Blocking |
| ↑ | »Ex rev Interl« | Signal: External reverse Interlocking |
| ↑ | »Blo TripCmd« | Signal: Trip Command blocked |
| ↑ | »ExBlo TripCmd« | Signal: External Blocking of the Trip Command |
| ↑ | »Alarm« | Signal: The alarm threshold has been exceeded. |
| ↑ | »Trip« | Signal: Trip |
| ↑ | »TripCmd« | Signal: Trip Command |
| ↑ | »DefaultSet« | Signal: Default Parameter Set |
| ↑ | »AdaptSet 1« | Signal: Adaptive Parameter 1 |
| ↑ | »AdaptSet 2« | Signal: Adaptive Parameter 2 |
| ↑ | »AdaptSet 3« | Signal: Adaptive Parameter 3 |
| ↑ | »AdaptSet 4« | Signal: Adaptive Parameter 4 |
| ↓ | »ExBlo1-I« | Module input state: External blocking1 |
| ↓ | »ExBlo2-I« | Module input state: External blocking2 |
| ↓ | »ExBlo TripCmd-I« | Module input state: External Blocking of the Trip Command |
| ↓ | »Ex rev Interl-I« | Module input state: External reverse interlocking |
| ↓ | »AdaptSet1-I« | Module input state: Adaptive Parameter1 |
| ↓ | »AdaptSet2-I« | Module input state: Adaptive Parameter2 |
| ↓ | »AdaptSet3-I« | Module input state: Adaptive Parameter3 |
| ↓ | »AdaptSet4-I« | Module input state: Adaptive Parameter4 |

3.1.4.8.8 Operation / Status Display / I-Prot / IG[2]

| | | |
|---|-------------------|---|
| ↑ | »Active« | Signal: active |
| ↑ | »ExBlo« | Signal: External Blocking |
| ↑ | »Ex rev Interl« | Signal: External reverse Interlocking |
| ↑ | »Blo TripCmd« | Signal: Trip Command blocked |
| ↑ | »ExBlo TripCmd« | Signal: External Blocking of the Trip Command |
| ↑ | »Alarm« | Signal: The alarm threshold has been exceeded. |
| ↑ | »Trip« | Signal: Trip |
| ↑ | »TripCmd« | Signal: Trip Command |
| ↑ | »DefaultSet« | Signal: Default Parameter Set |
| ↑ | »AdaptSet 1« | Signal: Adaptive Parameter 1 |
| ↑ | »AdaptSet 2« | Signal: Adaptive Parameter 2 |
| ↑ | »AdaptSet 3« | Signal: Adaptive Parameter 3 |
| ↑ | »AdaptSet 4« | Signal: Adaptive Parameter 4 |
| ↓ | »ExBlo1-I« | Module input state: External blocking1 |
| ↓ | »ExBlo2-I« | Module input state: External blocking2 |
| ↓ | »ExBlo TripCmd-I« | Module input state: External Blocking of the Trip Command |
| ↓ | »Ex rev Interl-I« | Module input state: External reverse interlocking |
| ↓ | »AdaptSet1-I« | Module input state: Adaptive Parameter1 |
| ↓ | »AdaptSet2-I« | Module input state: Adaptive Parameter2 |
| ↓ | »AdaptSet3-I« | Module input state: Adaptive Parameter3 |
| ↓ | »AdaptSet4-I« | Module input state: Adaptive Parameter4 |

3 Menu

3.1.4.8.9 Operation / Status Display / I-Prot / IG[3]

3.1.4.8.9 Operation / Status Display / I-Prot / IG[3]

| | | |
|---|-------------------|---|
| ↑ | »Active« | Signal: active |
| ↑ | »ExBlo« | Signal: External Blocking |
| ↑ | »Ex rev Interl« | Signal: External reverse Interlocking |
| ↑ | »Blo TripCmd« | Signal: Trip Command blocked |
| ↑ | »ExBlo TripCmd« | Signal: External Blocking of the Trip Command |
| ↑ | »Alarm« | Signal: The alarm threshold has been exceeded. |
| ↑ | »Trip« | Signal: Trip |
| ↑ | »TripCmd« | Signal: Trip Command |
| ↑ | »DefaultSet« | Signal: Default Parameter Set |
| ↑ | »AdaptSet 1« | Signal: Adaptive Parameter 1 |
| ↑ | »AdaptSet 2« | Signal: Adaptive Parameter 2 |
| ↑ | »AdaptSet 3« | Signal: Adaptive Parameter 3 |
| ↑ | »AdaptSet 4« | Signal: Adaptive Parameter 4 |
| ↓ | »ExBlo1-I« | Module input state: External blocking1 |
| ↓ | »ExBlo2-I« | Module input state: External blocking2 |
| ↓ | »ExBlo TripCmd-I« | Module input state: External Blocking of the Trip Command |
| ↓ | »Ex rev Interl-I« | Module input state: External reverse interlocking |
| ↓ | »AdaptSet1-I« | Module input state: Adaptive Parameter1 |
| ↓ | »AdaptSet2-I« | Module input state: Adaptive Parameter2 |
| ↓ | »AdaptSet3-I« | Module input state: Adaptive Parameter3 |
| ↓ | »AdaptSet4-I« | Module input state: Adaptive Parameter4 |

3.1.4.8.10 Operation / Status Display / I-Prot / IG[4]

| | | |
|---|-------------------|---|
| ↑ | »Active« | Signal: active |
| ↑ | »ExBlo« | Signal: External Blocking |
| ↑ | »Ex rev Interl« | Signal: External reverse Interlocking |
| ↑ | »Blo TripCmd« | Signal: Trip Command blocked |
| ↑ | »ExBlo TripCmd« | Signal: External Blocking of the Trip Command |
| ↑ | »Alarm« | Signal: The alarm threshold has been exceeded. |
| ↑ | »Trip« | Signal: Trip |
| ↑ | »TripCmd« | Signal: Trip Command |
| ↑ | »DefaultSet« | Signal: Default Parameter Set |
| ↑ | »AdaptSet 1« | Signal: Adaptive Parameter 1 |
| ↑ | »AdaptSet 2« | Signal: Adaptive Parameter 2 |
| ↑ | »AdaptSet 3« | Signal: Adaptive Parameter 3 |
| ↑ | »AdaptSet 4« | Signal: Adaptive Parameter 4 |
| ↓ | »ExBlo1-I« | Module input state: External blocking1 |
| ↓ | »ExBlo2-I« | Module input state: External blocking2 |
| ↓ | »ExBlo TripCmd-I« | Module input state: External Blocking of the Trip Command |
| ↓ | »Ex rev Interl-I« | Module input state: External reverse interlocking |
| ↓ | »AdaptSet1-I« | Module input state: Adaptive Parameter1 |
| ↓ | »AdaptSet2-I« | Module input state: Adaptive Parameter2 |
| ↓ | »AdaptSet3-I« | Module input state: Adaptive Parameter3 |
| ↓ | »AdaptSet4-I« | Module input state: Adaptive Parameter4 |

3 Menu

3.1.4.8.11 Operation / Status Display / I-Prot / ThR

3.1.4.8.11 Operation / Status Display / I-Prot / ThR

| | | |
|---|-------------------|--|
| ↑ | »Active« | Signal: active |
| ↑ | »ExBlo« | Signal: External Blocking |
| ↑ | »Blo TripCmd« | Signal: Trip Command blocked |
| ↑ | »ExBlo TripCmd« | Signal: External Blocking of the Trip Command |
| ↑ | »Alarm« | Signal: Alarm |
| ↑ | »Trip« | Signal: Trip |
| ↑ | »TripCmd« | Signal: Trip Command |
| ↑ | »Alarm Pickup« | Signal: Alarm Pickup |
| ↑ | »Alarm Timeout« | Signal: Alarm Timeout |
| ↑ | »RTD effective« | This state becomes true if the following conditions are all fulfilled: - the state "Load above SF" is true, - the Winding Temperature Trip has been activated in the RTD module, - for at least one temperature a valid value above 0°C (32°F) is being displayed. |
| ↑ | »Load above SF« | "Load above Service Factor": If the current exceeds the set value of "UTC" ("Ultimate trip threshold") then the used thermal capacity counts up and the state "Load above SF" is becoming true. If the current is below the "UTC" value this state is false. |
| ↓ | »ExBlo1-I« | Module input state: External blocking |
| ↓ | »ExBlo2-I« | Module input state: External blocking |
| ↓ | »ExBlo TripCmd-I« | Module input state: External Blocking of the Trip Command |

3.1.4.8.12 Operation / Status Display / I-Prot / I2>[1]

| | | |
|---|-------------------|---|
| ↑ | »Active« | Signal: active |
| ↑ | »ExBlo« | Signal: External Blocking |
| ↑ | »Blo TripCmd« | Signal: Trip Command blocked |
| ↑ | »ExBlo TripCmd« | Signal: External Blocking of the Trip Command |
| ↑ | »Alarm« | Signal: Alarm Negative Sequence |
| ↑ | »Trip« | Signal: Trip |
| ↑ | »TripCmd« | Signal: Trip Command |
| ↓ | »ExBlo1-I« | Module input state: External blocking1 |
| ↓ | »ExBlo2-I« | Module input state: External blocking2 |
| ↓ | »ExBlo TripCmd-I« | Module input state: External Blocking of the Trip Command |

3.1.4.8.13 Operation / Status Display / I-Prot / I2>[2]

| | | |
|---|-------------------|---|
| ↑ | »Active« | Signal: active |
| ↑ | »ExBlo« | Signal: External Blocking |
| ↑ | »Blo TripCmd« | Signal: Trip Command blocked |
| ↑ | »ExBlo TripCmd« | Signal: External Blocking of the Trip Command |
| ↑ | »Alarm« | Signal: Alarm Negative Sequence |
| ↑ | »Trip« | Signal: Trip |
| ↑ | »TripCmd« | Signal: Trip Command |
| ↓ | »ExBlo1-l« | Module input state: External blocking1 |
| ↓ | »ExBlo2-l« | Module input state: External blocking2 |
| ↓ | »ExBlo TripCmd-l« | Module input state: External Blocking of the Trip Command |

3.1.4.9 Operation / Status Display / JAM-Prot

3.1.4.9.1 Operation / Status Display / JAM-Prot / Jam[1]

| | | |
|---|-------------------|---|
| ↑ | »Active« | Signal: active |
| ↑ | »ExBlo« | Signal: External Blocking |
| ↑ | »Blo TripCmd« | Signal: Trip Command blocked |
| ↑ | »ExBlo TripCmd« | Signal: External Blocking of the Trip Command |
| ↑ | »Alarm« | Signal: Alarm |
| ↑ | »Trip« | Signal: Trip |
| ↑ | »TripCmd« | Signal: Trip Command |
| ↓ | »ExBlo1-l« | Module input state: External blocking1 |
| ↓ | »ExBlo2-l« | Module input state: External blocking2 |
| ↓ | »ExBlo TripCmd-l« | Module input state: External Blocking of the Trip Command |

3 Menu

3.1.4.9.2 Operation / Status Display / JAM-Prot / Jam[2]

3.1.4.9.2 Operation / Status Display / JAM-Prot / Jam[2]

| | | |
|---|-------------------|---|
| ↑ | »Active« | Signal: active |
| ↑ | »ExBlo« | Signal: External Blocking |
| ↑ | »Blo TripCmd« | Signal: Trip Command blocked |
| ↑ | »ExBlo TripCmd« | Signal: External Blocking of the Trip Command |
| ↑ | »Alarm« | Signal: Alarm |
| ↑ | »Trip« | Signal: Trip |
| ↑ | »TripCmd« | Signal: Trip Command |
| ↓ | »ExBlo1-l« | Module input state: External blocking1 |
| ↓ | »ExBlo2-l« | Module input state: External blocking2 |
| ↓ | »ExBlo TripCmd-l« | Module input state: External Blocking of the Trip Command |

3.1.4.10 Operation / Status Display / Underload-Prot

3.1.4.10.1 Operation / Status Display / Underload-Prot / l<[1]

| | | |
|---|-------------------|---|
| ↑ | »Active« | Signal: active |
| ↑ | »ExBlo« | Signal: External Blocking |
| ↑ | »Blo TripCmd« | Signal: Trip Command blocked |
| ↑ | »ExBlo TripCmd« | Signal: External Blocking of the Trip Command |
| ↑ | »Alarm« | Signal: Alarm |
| ↑ | »Trip« | Signal: Trip |
| ↑ | »TripCmd« | Signal: Trip Command |
| ↓ | »ExBlo1-l« | Module input state: External blocking1 |
| ↓ | »ExBlo2-l« | Module input state: External blocking2 |
| ↓ | »ExBlo TripCmd-l« | Module input state: External Blocking of the Trip Command |

3.1.4.10.2 Operation / Status Display / Underload-Prot / I<[2]

| | | |
|---|-------------------|---|
| ↑ | »Active« | Signal: active |
| ↑ | »ExBlo« | Signal: External Blocking |
| ↑ | »Blo TripCmd« | Signal: Trip Command blocked |
| ↑ | »ExBlo TripCmd« | Signal: External Blocking of the Trip Command |
| ↑ | »Alarm« | Signal: Alarm |
| ↑ | »Trip« | Signal: Trip |
| ↑ | »TripCmd« | Signal: Trip Command |
| ↓ | »ExBlo1-I« | Module input state: External blocking1 |
| ↓ | »ExBlo2-I« | Module input state: External blocking2 |
| ↓ | »ExBlo TripCmd-I« | Module input state: External Blocking of the Trip Command |

3.1.4.10.3 Operation / Status Display / Underload-Prot / I<[3]

| | | |
|---|-------------------|---|
| ↑ | »Active« | Signal: active |
| ↑ | »ExBlo« | Signal: External Blocking |
| ↑ | »Blo TripCmd« | Signal: Trip Command blocked |
| ↑ | »ExBlo TripCmd« | Signal: External Blocking of the Trip Command |
| ↑ | »Alarm« | Signal: Alarm |
| ↑ | »Trip« | Signal: Trip |
| ↑ | »TripCmd« | Signal: Trip Command |
| ↓ | »ExBlo1-I« | Module input state: External blocking1 |
| ↓ | »ExBlo2-I« | Module input state: External blocking2 |
| ↓ | »ExBlo TripCmd-I« | Module input state: External Blocking of the Trip Command |

3.1.4.11 Operation / Status Display / MLS

| | | |
|---|------------|--|
| ↑ | »Active« | Signal: active |
| ↑ | »ExBlo« | Signal: External Blocking |
| ↑ | »Alarm« | Signal: Alarm |
| ↑ | »Trip« | Signal: Trip |
| ↓ | »ExBlo1-I« | Module input state: External blocking1 |
| ↓ | »ExBlo2-I« | Module input state: External blocking2 |

3.1.4.12 Operation / Status Display / ExP

3.1.4.12.1 Operation / Status Display / ExP / ExP[1]

| | | |
|---|-------------------|---|
| ↑ | »Active« | Signal: active |
| ↑ | »ExBlo« | Signal: External Blocking |
| ↑ | »Blo TripCmd« | Signal: Trip Command blocked |
| ↑ | »ExBlo TripCmd« | Signal: External Blocking of the Trip Command |
| ↑ | »Alarm« | Signal: Alarm |
| ↑ | »Trip« | Signal: Trip |
| ↑ | »TripCmd« | Signal: Trip Command |
| ↓ | »ExBlo1-l« | Module input state: External blocking1 |
| ↓ | »ExBlo2-l« | Module input state: External blocking2 |
| ↓ | »ExBlo TripCmd-l« | Module input state: External Blocking of the Trip Command |
| ↓ | »Alarm-l« | Module input state: Alarm |
| ↓ | »Trip-l« | Module input state: Trip |

3.1.4.12.2 Operation / Status Display / ExP / ExP[2]

| | | |
|---|-------------------|---|
| ↑ | »Active« | Signal: active |
| ↑ | »ExBlo« | Signal: External Blocking |
| ↑ | »Blo TripCmd« | Signal: Trip Command blocked |
| ↑ | »ExBlo TripCmd« | Signal: External Blocking of the Trip Command |
| ↑ | »Alarm« | Signal: Alarm |
| ↑ | »Trip« | Signal: Trip |
| ↑ | »TripCmd« | Signal: Trip Command |
| ↓ | »ExBlo1-l« | Module input state: External blocking1 |
| ↓ | »ExBlo2-l« | Module input state: External blocking2 |
| ↓ | »ExBlo TripCmd-l« | Module input state: External Blocking of the Trip Command |
| ↓ | »Alarm-l« | Module input state: Alarm |
| ↓ | »Trip-l« | Module input state: Trip |

3.1.4.12.3 Operation / Status Display / ExP / ExP[3]

| | | |
|---|-------------------|---|
| ↑ | »Active« | Signal: active |
| ↑ | »ExBlo« | Signal: External Blocking |
| ↑ | »Blo TripCmd« | Signal: Trip Command blocked |
| ↑ | »ExBlo TripCmd« | Signal: External Blocking of the Trip Command |
| ↑ | »Alarm« | Signal: Alarm |
| ↑ | »Trip« | Signal: Trip |
| ↑ | »TripCmd« | Signal: Trip Command |
| ↓ | »ExBlo1-l« | Module input state: External blocking1 |
| ↓ | »ExBlo2-l« | Module input state: External blocking2 |
| ↓ | »ExBlo TripCmd-l« | Module input state: External Blocking of the Trip Command |
| ↓ | »Alarm-l« | Module input state: Alarm |
| ↓ | »Trip-l« | Module input state: Trip |

3.1.4.12.4 Operation / Status Display / ExP / ExP[4]

| | | |
|---|-------------------|---|
| ↑ | »Active« | Signal: active |
| ↑ | »ExBlo« | Signal: External Blocking |
| ↑ | »Blo TripCmd« | Signal: Trip Command blocked |
| ↑ | »ExBlo TripCmd« | Signal: External Blocking of the Trip Command |
| ↑ | »Alarm« | Signal: Alarm |
| ↑ | »Trip« | Signal: Trip |
| ↑ | »TripCmd« | Signal: Trip Command |
| ↓ | »ExBlo1-l« | Module input state: External blocking1 |
| ↓ | »ExBlo2-l« | Module input state: External blocking2 |
| ↓ | »ExBlo TripCmd-l« | Module input state: External Blocking of the Trip Command |
| ↓ | »Alarm-l« | Module input state: Alarm |
| ↓ | »Trip-l« | Module input state: Trip |

3.1.4.13 Operation / Status Display / Temp-Prot

3.1.4.13.1 Operation / Status Display / Temp-Prot / URTD

| | | |
|---|---------------------|--|
| ↑ | »Windg1 Superv« | Signal: Windg1, Channel Supervision. The value "1" reports a detected channel failure. (The value "0" means that this RTD channel is healthy.) |
| ↑ | »Windg2 Superv« | Signal: Windg2, Channel Supervision. The value "1" reports a detected channel failure. (The value "0" means that this RTD channel is healthy.) |
| ↑ | »Windg3 Superv« | Signal: Windg3, Channel Supervision. The value "1" reports a detected channel failure. (The value "0" means that this RTD channel is healthy.) |
| ↑ | »Windg4 Superv« | Signal: Windg4, Channel Supervision. The value "1" reports a detected channel failure. (The value "0" means that this RTD channel is healthy.) |
| ↑ | »Windg5 Superv« | Signal: Windg5, Channel Supervision. The value "1" reports a detected channel failure. (The value "0" means that this RTD channel is healthy.) |
| ↑ | »Windg6 Superv« | Signal: Windg6, Channel Supervision. The value "1" reports a detected channel failure. (The value "0" means that this RTD channel is healthy.) |
| ↑ | »MotBear1 Superv« | Signal: MotBear1, Channel Supervision. The value "1" reports a detected channel failure. (The value "0" means that this RTD channel is healthy.) |
| ↑ | »MotBear2 Superv« | Signal: MotBear2, Channel Supervision. The value "1" reports a detected channel failure. (The value "0" means that this RTD channel is healthy.) |
| ↑ | »LoadBear1 Superv« | Signal: LoadBear1, Channel Supervision. The value "1" reports a detected channel failure. (The value "0" means that this RTD channel is healthy.) |
| ↑ | »LoadBear2 Superv« | Signal: LoadBear2, Channel Supervision. The value "1" reports a detected channel failure. (The value "0" means that this RTD channel is healthy.) |
| ↑ | »Aux1 Superv« | Signal: Aux1, Channel Supervision. The value "1" reports a detected channel failure. (The value "0" means that this RTD channel is healthy.) |
| ↑ | »Aux2 Superv« | Signal: Aux2, Channel Supervision. The value "1" reports a detected channel failure. (The value "0" means that this RTD channel is healthy.) |
| ↑ | »Superv« | Signal: URTD Channel Supervision. The value "1" reports a detected channel failure of at least one channel. (The value "0" means that all RTD channels are healthy.) |
| ↑ | »Connection active« | Signal: There is an active connection between the Temperature Detector (URTD) and the protective relay. |
| ↑ | »Outs forced« | Signal: The State of at least one Relay Output has been set by force. That means that the state of at least one Relay is forced and hence does not show the state of the assigned signals. |

3.1.4.13.2 Operation / Status Display / Temp-Prot / RTD

3.1.4.13.2.1 Operation / Status Display / Temp-Prot / RTD / General

| | | |
|---|-------------------|---|
| ↑ | »Active« | Signal: active |
| ↑ | »ExBlo« | Signal: External Blocking |
| ↑ | »Blo TripCmd« | Signal: Trip Command blocked |
| ↑ | »ExBlo TripCmd« | Signal: External Blocking of the Trip Command |
| ↑ | »Alarm« | Alarm RTD Temperature Protection |
| ↑ | »Trip« | Signal: Trip |
| ↑ | »TripCmd« | Signal: Trip Command |
| ↓ | »ExBlo1-I« | Module input state: External blocking1 |
| ↓ | »ExBlo2-I« | Module input state: External blocking2 |
| ↓ | »ExBlo TripCmd-I« | Module input state: External Blocking of the Trip Command |
| ↑ | »Timeout Alarm« | Alarm timeout expired |

3.1.4.13.2.2 Operation / Status Display / Temp-Prot / RTD / Windg 1

| | | |
|---|-------------------------|---|
| ↑ | »Windg 1 Trip« | Winding 1 Signal: Trip |
| ↑ | »Windg 1 Alarm« | Winding 1 Alarm RTD Temperature Protection |
| ↑ | »Windg 1 Timeout Alarm« | Winding 1 Timeout Alarm |
| ↑ | »Windg 1 Invalid« | Winding 1 Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement) |

3.1.4.13.2.3 Operation / Status Display / Temp-Prot / RTD / Windg 2

| | | |
|---|-------------------------|---|
| ↑ | »Windg 2 Trip« | Winding 2 Signal: Trip |
| ↑ | »Windg 2 Alarm« | Winding 2 Alarm RTD Temperature Protection |
| ↑ | »Windg 2 Timeout Alarm« | Winding 2 Timeout Alarm |
| ↑ | »Windg 2 Invalid« | Winding 2 Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement) |





3.1.4.13.2.4 Operation / Status Display / Temp-Prot / RTD / Windg 3

| | | |
|---|-------------------------|---|
| ↑ | »Windg 3 Trip« | Winding 3 Signal: Trip |
| ↑ | »Windg 3 Alarm« | Winding 3 Alarm RTD Temperature Protection |
| ↑ | »Windg 3 Timeout Alarm« | Winding 3 Timeout Alarm |
| ↑ | »Windg 3 Invalid« | Winding 3 Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement) |





3 Menu

3.1.4.13.2.5 Operation / Status Display / Temp-Prot / RTD / Windg 4





3.1.4.13.2.5 Operation / Status Display / Temp-Prot / RTD / Windg 4

| | | |
|---|-------------------------|---|
|  | »Windg 4 Trip« | Winding 4 Signal: Trip |
|  | »Windg 4 Alarm« | Winding 4 Alarm RTD Temperature Protection |
|  | »Windg 4 Timeout Alarm« | Winding 4 Timeout Alarm |
|  | »Windg 4 Invalid« | Winding 4 Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement) |




3.1.4.13.2.6 Operation / Status Display / Temp-Prot / RTD / Windg 5

| | | |
|---|-------------------------|---|
|  | »Windg 5 Trip« | Winding 5 Signal: Trip |
|  | »Windg 5 Alarm« | Winding 5 Alarm RTD Temperature Protection |
|  | »Windg 5 Timeout Alarm« | Winding 5 Timeout Alarm |
|  | »Windg 5 Invalid« | Winding 5 Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement) |





3.1.4.13.2.7 Operation / Status Display / Temp-Prot / RTD / Windg 6

| | | |
|---|-------------------------|---|
|  | »Windg 6 Trip« | Winding 6 Signal: Trip |
|  | »Windg 6 Alarm« | Winding 6 Alarm RTD Temperature Protection |
|  | »Windg 6 Timeout Alarm« | Winding 6 Timeout Alarm |
|  | »Windg 6 Invalid« | Winding 6 Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement) |





3.1.4.13.2.8 Operation / Status Display / Temp-Prot / RTD / MotBear 1

| | | |
|---|---------------------------|---|
|  | »MotBear 1 Trip« | Motor Bearing 1 Signal: Trip |
|  | »MotBear 1 Alarm« | Motor Bearing 1 Alarm RTD Temperature Protection |
|  | »MotBear 1 Timeout Alarm« | Motor Bearing 1 Timeout Alarm |
|  | »MotBear 1 Invalid« | Motor Bearing 1 Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement) |



3.1.4.13.2.9 Operation / Status Display / Temp-Prot / RTD / MotBear 2

| | | |
|---|---------------------------|---|
|  | »MotBear 2 Trip« | Motor Bearing 2 Signal: Trip |
|  | »MotBear 2 Alarm« | Motor Bearing 2 Alarm RTD Temperature Protection |
|  | »MotBear 2 Timeout Alarm« | Motor Bearing 2 Timeout Alarm |
|  | »MotBear 2 Invalid« | Motor Bearing 2 Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement) |





3.1.4.13.2.10 Operation / Status Display / Temp-Prot / RTD / LoadBear 1

| | | |
|---|----------------------------|--|
|  | »LoadBear 1 Trip« | Load Bearing 1 Signal: Trip |
|  | »LoadBear 1 Alarm« | Load Bearing 1 Alarm RTD Temperature Protection |
|  | »LoadBear 1 Timeout Alarm« | Load Bearing 1 Timeout Alarm |
|  | »LoadBear 1 Invalid« | Load Bearing 1 Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement) |





3.1.4.13.2.11 Operation / Status Display / Temp-Prot / RTD / LoadBear 2

| | | |
|---|----------------------------|--|
|  | »LoadBear 2 Trip« | Load Bearing 2 Signal: Trip |
|  | »LoadBear 2 Alarm« | Load Bearing 2 Alarm RTD Temperature Protection |
|  | »LoadBear 2 Timeout Alarm« | Load Bearing 2 Timeout Alarm |
|  | »LoadBear 2 Invalid« | Load Bearing 2 Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement) |

3.1.4.13.2.12 Operation / Status Display / Temp-Prot / RTD / Aux1

| | | |
|---|----------------------|---|
|  | »Aux1 Trip« | Auxiliary 1 Signal: Trip |
|  | »Aux1 Alarm« | Auxiliary 1 Alarm RTD Temperature Protection |
|  | »Aux1 Timeout Alarm« | Auxiliary 1 Timeout Alarm |
|  | »Aux1 Invalid« | Auxiliary 1 Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement) |

3.1.4.13.2.13 Operation / Status Display / Temp-Prot / RTD / Aux2

| | | |
|---|----------------------|---|
|  | »Aux2 Trip« | Auxiliary 2 Signal: Trip |
|  | »Aux2 Alarm« | Auxiliary 2 Alarm RTD Temperature Protection |
|  | »Aux2 Timeout Alarm« | Auxiliary 2 Timeout Alarm |
|  | »Aux2 Invalid« | Auxiliary 2 Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement) |

3.1.4.13.2.14 Operation / Status Display / Temp-Prot / RTD / Windg Group

| | | |
|---|-----------------------|---|
|  | »Trip WD Group« | Trip all Windings |
|  | »Alarm WD Group« | Alarm all Windings |
|  | »TimeoutAlmWDGrp« | Timeout Alarm all Windings |
|  | »Windg Group Invalid« | Winding Group Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement) |

3 Menu

3.1.4.13.2.15 Operation / Status Display / Temp-Prot / RTD / MotBear Group



3.1.4.13.2.15 Operation / Status Display / Temp-Prot / RTD / MotBear Group

| | | |
|---|-------------------------|---|
|  | »Trip MB Group« | Trip all Motor Bearings |
|  | »Alarm MB Group« | Alarm all Motor Bearings |
|  | »TimeoutAlmMBGrp« | Timeout Alarm all Motor Bearings |
|  | »MotBear Group Invalid« | Motor Bearing Group Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement) |

3.1.4.13.2.16 Operation / Status Display / Temp-Prot / RTD / LoadBear Group

| | | |
|---|--------------------------|--|
|  | »Trip LB Group« | Trip all Load Bearings |
|  | »Alarm LB Group« | Alarm all Load Bearings |
|  | »TimeoutAlmLBGrp« | Timeout Alarm all Load Bearings |
|  | »LoadBear Group Invalid« | Load Bearing Group Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement) |

3.1.4.13.2.17 Operation / Status Display / Temp-Prot / RTD / Aux Group

| | | |
|---|--------------------|-------------------------------|
|  | »Trip Aux Group« | Trip Auxiliary Group |
|  | »Alarm Aux Group« | Alarm Auxiliary Group |
|  | »TimeoutAlmAuxGrp« | Timeout Alarm Auxiliary Group |
|  | »AuxGrpInvalid« | Invalid Auxiliary Group |

3.1.4.13.2.18 Operation / Status Display / Temp-Prot / RTD / Any Group

| | | |
|---|--------------------|-------------------------|
|  | »Trip Any Group« | Trip Any Group |
|  | »Alarm Any Group« | Alarm Any Group |
|  | »TimeoutAlmAnyGrp« | Timeout Alarm Any Group |

3.1.4.13.2.19 Operation / Status Display / Temp-Prot / RTD / Voting

| | | |
|---|----------------|--------------|
|  | »Trip Group 1« | Trip Group 1 |
|  | »Trip Group 2« | Trip Group 2 |

3.1.4.14 Operation / Status Display / Supervision

3.1.4.14.1 Operation / Status Display / Supervision / CBF

| | | |
|---|-----------------------|---|
| ↑ | »Active« | Signal: active |
| ↑ | »ExBlo« | Signal: External Blocking |
| ↑ | »Waiting for Trigger« | Waiting for Trigger |
| ↑ | »running« | Signal: CBF-Module started |
| ↑ | »Alarm« | Signal: Circuit Breaker Failure |
| ↑ | »Lockout« | Signal: Lockout |
| ↑ | »Res Lockout« | Signal: Reset Lockout |
| ↓ | »ExBlo1-l« | Module input state: External blocking1 |
| ↓ | »ExBlo2-l« | Module input state: External blocking2 |
| ↓ | »Trigger1-l« | Module Input: Trigger that will start the CBF |
| ↓ | »Trigger2-l« | Module Input: Trigger that will start the CBF |
| ↓ | »Trigger3-l« | Module Input: Trigger that will start the CBF |

3.1.4.14.2 Operation / Status Display / Supervision / TCS

| | | |
|---|----------------|--|
| ↑ | »Active« | Signal: active |
| ↑ | »ExBlo« | Signal: External Blocking |
| ↑ | »Alarm« | Signal: Alarm Trip Circuit Supervision |
| ↑ | »Not Possible« | Not possible because no state indicator assigned to the breaker. |
| ↓ | »Aux ON-l« | Module Input State: Position indicator/check-back signal of the CB (52a) |
| ↓ | »Aux OFF-l« | Module input state: Position indicator/check-back signal of the CB (52b) |
| ↓ | »ExBlo1-l« | Module input state: External blocking1 |
| ↓ | »ExBlo2-l« | Module input state: External blocking2 |

3.1.4.14.3 Operation / Status Display / Supervision / CTS

| | | |
|---|------------|---|
| ↑ | »Active« | Signal: active |
| ↑ | »ExBlo« | Signal: External Blocking |
| ↑ | »Alarm« | Signal: Alarm Current Transformer Measuring Circuit Supervision |
| ↓ | »ExBlo1-l« | Module input state: External blocking1 |
| ↓ | »ExBlo2-l« | Module input state: External blocking2 |

3 Menu

3.1.4.14.4 Operation / Status Display / Supervision / Phase Sequence

3.1.4.14.4 Operation / Status Display / Supervision / Phase Sequence

| | | |
|---|-------------------------|--|
| ↑ | »CT . Phase seq. wrong« | Signal that the device has detected a phase sequence (L1-L2-L3 / L1-L3-L2) that is different from the one that had been set at [Field settings / General Settings] »Phase Sequence«. |
|---|-------------------------|--|

3.1.4.15 Operation / Status Display / Logics

| | | |
|---|--|---|
| ↑ | »LE1.Gate Out« ... »LE80.Gate Out« | Signal: Output of the logic gate |
| ↑ | »LE1.Timer Out« ... »LE80.Timer Out« | Signal: Timer Output |
| ↑ | »LE1.Out« ... »LE80.Out« | Signal: Latched Output (Q) |
| ↑ | »LE1.Out inverted« ... »LE80.Out inverted« | Signal: Negated Latched Output (Q NOT) |
| ↓ | »LE1.Gate In1-I« ... »LE80.Gate In4-I« | State of the module input: Assignment of the Input Signal |
| ↓ | »LE1.Reset Latch-I« ... »LE80.Reset Latch-I« | State of the module input: Reset Signal for the Latching |

3.1.4.16 Operation / Status Display / DI Slot X1

| | | |
|---|--------|-----------------------|
| ↑ | »DI 1« | Signal: Digital Input |
| ↑ | »DI 2« | Signal: Digital Input |
| ↑ | »DI 3« | Signal: Digital Input |
| ↑ | »DI 4« | Signal: Digital Input |
| ↑ | »DI 5« | Signal: Digital Input |
| ↑ | »DI 6« | Signal: Digital Input |
| ↑ | »DI 7« | Signal: Digital Input |
| ↑ | »DI 8« | Signal: Digital Input |

3.1.4.17 Operation / Status Display / DI Slot X1

| | | |
|---|--------|-----------------------|
| ↑ | »DI 1« | Signal: Digital Input |
| ↑ | »DI 2« | Signal: Digital Input |
| ↑ | »DI 3« | Signal: Digital Input |
| ↑ | »DI 4« | Signal: Digital Input |

3.1.4.18 Operation / Status Display / BO Slot X2


| | | |
|---|---------------|---|
| ↑ | »BO 1« | Signal: Binary Output Relay |
| ↑ | »BO 2« | Signal: Binary Output Relay |
| ↑ | »BO 3« | Signal: Binary Output Relay |
| ↑ | »BO 4« | Signal: Binary Output Relay |
| ↑ | »BO 5« | Signal: Binary Output Relay |
| ↑ | »DISARMED!« | Signal: CAUTION! RELAYS DISARMED in order to safely perform maintenance while eliminating the risk of taking an entire process off-line. (Note: The Self Supervision Contact cannot be disarmed). YOU MUST ENSURE that the relays are ARMED AGAIN after maintenance |
| ↑ | »Outs forced« | Signal: The State of at least one Relay Output has been set by force. That means that the state of at least one Relay is forced and hence does not show the state of the assigned signals. |

3.1.4.19 Operation / Status Display / BO Slot X2

| | | |
|---|---------------|---|
|  | »BO 1« | Signal: Binary Output Relay |
|  | »BO 2« | Signal: Binary Output Relay |
|  | »BO 3« | Signal: Binary Output Relay |
|  | »DISARMED!« | Signal: CAUTION! RELAYS DISARMED in order to safely perform maintenance while eliminating the risk of taking an entire process off-line. (Note: The Self Supervision Contact cannot be disarmed). YOU MUST ENSURE that the relays are ARMED AGAIN after maintenance |
|  | »Outs forced« | Signal: The State of at least one Relay Output has been set by force. That means that the state of at least one Relay is forced and hence does not show the state of the assigned signals. |


3.1.4.20 Operation / Status Display / Analog Outputs

3.1.4.20.1 Operation / Status Display / Analog Outputs / AnOut[1]

















| | | |
|---|--------------|---|
|  | »Force Mode« | For commissioning purposes or for maintenance, Analog Outputs can be set by force. By means of this function the normal Analog Outputs can be overwritten (forced). |
|---|--------------|---|

3.1.4.21 Operation / Status Display / Recorders


3.1.4.21.1 Operation / Status Display / Recorders / Event rec

| | | |
|---|-------------------|--|
|  | »Res all records« | Signal: All records are being deleted. (Remark: Immediately afterwards, this signal becomes inactive again.) |
|---|-------------------|--|


3.1.4.21.2 Operation / Status Display / Recorders / Disturb rec

| | | |
|---|-------------------|--|
|  | »Rec state« | Recording state |
|  | »Error code« | Error code |
|  | »recording« | Signal: Recording |
|  | »memory full« | Signal: Memory full |
|  | »Clear fail« | Signal: Clear failure in memory |
|  | »Res all records« | Signal: All records are being deleted. (Remark: Immediately afterwards, this signal becomes inactive again.) |
|  | »Res record« | Signal: Delete record |
|  | »Man Trigger« | Signal: Manual Trigger |
|  | »Start1-l« | State of the module input:: Trigger event / start recording |
|  | »Start2-l« | State of the module input:: Trigger event / start recording |
|  | »Start3-l« | State of the module input:: Trigger event / start recording |
|  | »Start4-l« | State of the module input:: Trigger event / start recording |
|  | »Start5-l« | State of the module input:: Trigger event / start recording |
|  | »Start6-l« | State of the module input:: Trigger event / start recording |
|  | »Start7-l« | State of the module input:: Trigger event / start recording |
|  | »Start8-l« | State of the module input:: Trigger event / start recording |


3.1.4.21.3 Operation / Status Display / Recorders / Fault rec

| | | |
|---|--------------|-----------------------|
|  | »Res record« | Signal: Delete record |
|---|--------------|-----------------------|



3.1.4.21.4 Operation / Status Display / Recorders / Start rec

| | | |
|---|-----------|------------------------|
|  | »Storing« | Signal: Data are saved |
|---|-----------|------------------------|

3.1.4.21.5 Operation / Status Display / Recorders / Trend rec

| | | |
|---|-------------------|--|
|  | »Res all records« | Signal: All records are being deleted. (Remark: Immediately afterwards, this signal becomes inactive again.) |
|---|-------------------|--|

3.1.4.22 Operation / Status Display / Scada

| | | |
|---|-----------------------|---|
|  | »SCADA connected« | At least one SCADA System is connected to the device. |
|  | »SCADA not connected« | No SCADA System is connected to the device |

3.1.4.23 Operation / Status Display / DNP3

3.1.4.23.1 Operation / Status Display / DNP3 / State

| | | |
|---|----------|---|
| ↑ | »busy« | This message is set if the protocol is started. It will be reset if the protocol is shut down. |
| ↑ | »ready« | The message will be set if the protocol is successfully started and ready for data exchange. |
| ↑ | »Active« | The communication with the Master (SCADA) is active. Note that for TCP/UDP, this state is permanently "Low" unless »DataLink confirm« is set to "Always". |

3.1.4.23.2 Operation / Status Display / DNP3 / Binary Inputs

| | | |
|---|--|--|
| ↓ | »BinaryInput0-I« ... »BinaryInput63-I« | Virtual Digital Input (DNP). This corresponds to a virtual binary output of the protective device. |
|---|--|--|

3.1.4.23.3 Operation / Status Display / DNP3 / Double Bit Inputs

| | | |
|---|---------------------|--|
| ↓ | »DoubleBitInput0-I« | Double Bit Digital Input (DNP). This corresponds to a double bit binary output of the protective device. |
| ↓ | »DoubleBitInput1-I« | Double Bit Digital Input (DNP). This corresponds to a double bit binary output of the protective device. |
| ↓ | »DoubleBitInput2-I« | Double Bit Digital Input (DNP). This corresponds to a double bit binary output of the protective device. |
| ↓ | »DoubleBitInput3-I« | Double Bit Digital Input (DNP). This corresponds to a double bit binary output of the protective device. |
| ↓ | »DoubleBitInput4-I« | Double Bit Digital Input (DNP). This corresponds to a double bit binary output of the protective device. |
| ↓ | »DoubleBitInput5-I« | Double Bit Digital Input (DNP). This corresponds to a double bit binary output of the protective device. |

3.1.4.24 Operation / Status Display / Modbus

3.1.4.24.1 Operation / Status Display / Modbus / State

| | | |
|---|--------------------|--|
| ↑ | »Transmission RTU« | Signal: SCADA active |
| ↑ | »Transmission TCP« | Signal: SCADA active |
| ↑ | »Device Type« | Device type code for relationship between device name and its Modbus code. HighPROTEC: MRI4 - 1000 MRU4 - 1001 MRA4 - 1002 MCA4 - 1003 MRDT4 - 1005 MCDTV4 - 1006 MCDGV4 - 1007 MRM4 - 1009 MRMV4 - 1010 MCDLV4 - 1011 |
| ↑ | »Comm Version« | Modbus Communication version. This version number changes if something becomes incompatible between different Modbus releases. |

3.1.4.24.2 Operation / Status Display / Modbus / Commands

| | | |
|---|----------------|---------------|
| ↑ | »Scada Cmd 1« | Scada Command |
| ↑ | »Scada Cmd 2« | Scada Command |
| ↑ | »Scada Cmd 3« | Scada Command |
| ↑ | »Scada Cmd 4« | Scada Command |
| ↑ | »Scada Cmd 5« | Scada Command |
| ↑ | »Scada Cmd 6« | Scada Command |
| ↑ | »Scada Cmd 7« | Scada Command |
| ↑ | »Scada Cmd 8« | Scada Command |
| ↑ | »Scada Cmd 9« | Scada Command |
| ↑ | »Scada Cmd 10« | Scada Command |
| ↑ | »Scada Cmd 11« | Scada Command |
| ↑ | »Scada Cmd 12« | Scada Command |
| ↑ | »Scada Cmd 13« | Scada Command |
| ↑ | »Scada Cmd 14« | Scada Command |
| ↑ | »Scada Cmd 15« | Scada Command |
| ↑ | »Scada Cmd 16« | Scada Command |

3.1.4.24.3 Operation / Status Display / Modbus / Config Registers

| | | |
|---|----------------------|---|
| ↓ | »Config Bin Inp1-I« | State of the module input: Config Bin Inp |
| | ... | |
| | »Config Bin Inp32-I« | |

3.1.4.25 Operation / Status Display / IEC 61850

3.1.4.25.1 Operation / Status Display / IEC 61850 / State

| | | |
|---|-------------------------------|--|
| 🔗 | »GoosePublisherState« | State of the GOOSE Publisher (on or off) |
| 🔗 | »GooseSubscriberState« | State of the GOOSE Subscriber (on or off) |
| 🔗 | »MmsServerState« | State of MMS Server (on or off) |
| ↑ | »MMS Client connected« | At least one MMS client is connected to the device |
| ↑ | »All Goose Subscriber active« | All Goose subscriber in the device are working |

3 Menu

3.1.4.25.2 Operation / Status Display / IEC 61850 / ControllInputs

3.1.4.25.2 Operation / Status Display / IEC 61850 / ControllInputs

| | | |
|---|--|--|
| ↑ | »CTLGGIO1.SPCSO1.stVal« ... »CTLGGIO1.SPCSO32.stVal« | Status bit that can be set by clients like e.g. SCADA (Single Point Controllable Status Output). |
|---|--|--|

3.1.4.25.3 Operation / Status Display / IEC 61850 / Virtual Inputs 1

| | | |
|---|--|---|
| ↑ | »GOSINGGIO1.Ind1.stVal« ... »GOSINGGIO1.Ind32.stVal« | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| ↑ | »GOSINGGIO1.Ind1.q« ... »GOSINGGIO1.Ind32.q« | Signal: Virtual Input (IEC61850 GGIO Ind): Self-Supervision of the GGIO Input |

3.1.4.25.4 Operation / Status Display / IEC 61850 / Virtual Inputs 2

| | | |
|---|--|---|
| ↑ | »GOSINGGIO2.Ind1.stVal« ... »GOSINGGIO2.Ind32.stVal« | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| ↑ | »GOSINGGIO2.Ind1.q« ... »GOSINGGIO2.Ind32.q« | Signal: Virtual Input (IEC61850 GGIO Ind): Self-Supervision of the GGIO Input |

3.1.4.25.5 Operation / Status Display / IEC 61850 / Virtual Outputs 1

| | | |
|---|--|---|
| ↓ | »COUTGGIO1.Ind1.stVal-l« ... »COUTGGIO1.Ind32.stVal-l« | Module input state: Binary state of the Virtual Output (GGIO) |
|---|--|---|

3.1.4.25.6 Operation / Status Display / IEC 61850 / Virtual Outputs 2

| | | |
|---|--|---|
| ↓ | »COUTGGIO2.Ind1.stVal-l« ... »COUTGGIO2.Ind32.stVal-l« | Module input state: Binary state of the Virtual Output (GGIO) |
|---|--|---|

3.1.4.26 Operation / Status Display / IEC103














| | | |
|---|----------------------|--|
| ↑ | »Scada Cmd 1« | Scada Command |
| ↑ | »Scada Cmd 2« | Scada Command |
| ↑ | »Scada Cmd 3« | Scada Command |
| ↑ | »Scada Cmd 4« | Scada Command |
| ↑ | »Scada Cmd 5« | Scada Command |
| ↑ | »Scada Cmd 6« | Scada Command |
| ↑ | »Scada Cmd 7« | Scada Command |
| ↑ | »Scada Cmd 8« | Scada Command |
| ↑ | »Scada Cmd 9« | Scada Command |
| ↑ | »Scada Cmd 10« | Scada Command |
| ↑ | »Transmission« | Signal: SCADA active |
| ↑ | »Failure Event lost« | Failure event lost |
| ↑ | »Test mode active« | Signal: IEC103 communication has been switched over into Test Mode. |
| ↑ | »Block MD active« | Signal: The blocking of IEC103 transmission in monitor direction has been activated. |

3.1.4.27 Operation / Status Display / IEC104

| | | |
|---|--|--|
| ↑ | »Scada Cmd 1« ... »Scada Cmd 16« | Scada Command |
| ↑ | »busy« | This message is set if the protocol is started. It will be reset if the protocol is shut down. |
| ↑ | »ready« | The message will be set if the protocol is successfully started and ready for data exchange. |
| ↑ | »Transmission« | Signal: SCADA active |
| ↑ | »Failure Event lost« | Failure event lost |

3.1.4.28 Operation / Status Display / Profibus

3.1.4.28.1 Operation / Status Display / Profibus / State

| | | |
|---|---------------------|---|
|  | »Data OK« | Data within the Input field are OK (Yes=1) |
|  | »SubModul Err« | Assignable Signal, Failure in Sub-Module, Communication Failure. |
|  | »Connection active« | Connection active |
|  | »Slave State« | Communication State between Slave and Master. |
|  | »Baud rate« | The baud rate that has been detected lastly, will still be shown after a connection issue. |
|  | »PNO Id« | PNO Identification Number. GSD Identification Number. |
|  | »Master ID« | Device address (Master ID) within the bus system. Each device address has to be unique within a bus system. |
|  | »HO Id PSub« | Handoff Id of PbSub |
|  | »t-WatchDog« | The Profibus Chip detects a communication issue if this timer is expired without any communication (Parameterising telegram). |
|  | »Config info« | Configuration comment (entered by the user during SCADA configuration) |
|  | »Config version« | Version of the user-defined SCADA configuration |
|  | »Config status« | Status of the user-defined SCADA configuration. Possible values: |
|  | »Slave ID« | Device address (Slave ID) within the bus system. Each device address has to be unique within a bus system. |

3.1.4.28.2 Operation / Status Display / Profibus / Commands

| | | |
|---|----------------|---------------|
| ↑ | »Scada Cmd 1« | Scada Command |
| ↑ | »Scada Cmd 2« | Scada Command |
| ↑ | »Scada Cmd 3« | Scada Command |
| ↑ | »Scada Cmd 4« | Scada Command |
| ↑ | »Scada Cmd 5« | Scada Command |
| ↑ | »Scada Cmd 6« | Scada Command |
| ↑ | »Scada Cmd 7« | Scada Command |
| ↑ | »Scada Cmd 8« | Scada Command |
| ↑ | »Scada Cmd 9« | Scada Command |
| ↑ | »Scada Cmd 10« | Scada Command |
| ↑ | »Scada Cmd 11« | Scada Command |
| ↑ | »Scada Cmd 12« | Scada Command |
| ↑ | »Scada Cmd 13« | Scada Command |
| ↑ | »Scada Cmd 14« | Scada Command |
| ↑ | »Scada Cmd 15« | Scada Command |
| ↑ | »Scada Cmd 16« | Scada Command |

3 Menu

3.1.4.28.3 Operation / Status Display / Profibus / ConfigBinInp 1-16

3.1.4.28.3 Operation / Status Display / Profibus / ConfigBinInp 1-16

| | | |
|---|-------------------|--------------------------------------|
| ↓ | »Assignment 1-l« | Module input state: Scada Assignment |
| ↓ | »Assignment 2-l« | Module input state: Scada Assignment |
| ↓ | »Assignment 3-l« | Module input state: Scada Assignment |
| ↓ | »Assignment 4-l« | Module input state: Scada Assignment |
| ↓ | »Assignment 5-l« | Module input state: Scada Assignment |
| ↓ | »Assignment 6-l« | Module input state: Scada Assignment |
| ↓ | »Assignment 7-l« | Module input state: Scada Assignment |
| ↓ | »Assignment 8-l« | Module input state: Scada Assignment |
| ↓ | »Assignment 9-l« | Module input state: Scada Assignment |
| ↓ | »Assignment 10-l« | Module input state: Scada Assignment |
| ↓ | »Assignment 11-l« | Module input state: Scada Assignment |
| ↓ | »Assignment 12-l« | Module input state: Scada Assignment |
| ↓ | »Assignment 13-l« | Module input state: Scada Assignment |
| ↓ | »Assignment 14-l« | Module input state: Scada Assignment |
| ↓ | »Assignment 15-l« | Module input state: Scada Assignment |
| ↓ | »Assignment 16-l« | Module input state: Scada Assignment |

3.1.4.28.4 Operation / Status Display / Profibus / ConfigBinInp 17-32

| | | |
|---|-------------------|--------------------------------------|
| ↓ | »Assignment 17-I« | Module input state: Scada Assignment |
| ↓ | »Assignment 18-I« | Module input state: Scada Assignment |
| ↓ | »Assignment 19-I« | Module input state: Scada Assignment |
| ↓ | »Assignment 20-I« | Module input state: Scada Assignment |
| ↓ | »Assignment 21-I« | Module input state: Scada Assignment |
| ↓ | »Assignment 22-I« | Module input state: Scada Assignment |
| ↓ | »Assignment 23-I« | Module input state: Scada Assignment |
| ↓ | »Assignment 24-I« | Module input state: Scada Assignment |
| ↓ | »Assignment 25-I« | Module input state: Scada Assignment |
| ↓ | »Assignment 26-I« | Module input state: Scada Assignment |
| ↓ | »Assignment 27-I« | Module input state: Scada Assignment |
| ↓ | »Assignment 28-I« | Module input state: Scada Assignment |
| ↓ | »Assignment 29-I« | Module input state: Scada Assignment |
| ↓ | »Assignment 30-I« | Module input state: Scada Assignment |
| ↓ | »Assignment 31-I« | Module input state: Scada Assignment |
| ↓ | »Assignment 32-I« | Module input state: Scada Assignment |

3.1.4.29 Operation / Status Display / TimeSync

3.1.4.29.1 Operation / Status Display / TimeSync / IRIG-B

| | | |
|---|--|--|
| ↑ | »IRIG-B active« | Signal: If there is no valid IRIG-B signal for 60 sec, IRIG-B is regarded as inactive. |
| ↑ | »High-Low Invert« | Signal: The High and Low signals of the IRIG-B are inverted. This does NOT mean that the wiring is faulty. If the wiring is faulty no IRIG-B signal will be detected. |
| ↑ | »Control Signal1« ... »Control Signal18« | Signal: IRIG-B Control Signal. The external IRIG-B generator can set these signals. They can be used for further control procedures inside the device (e.g. logic funtions). |

3 Menu

3.1.4.29.2 Operation / Status Display / TimeSync / SNTP

3.1.4.29.2 Operation / Status Display / TimeSync / SNTP

| | | |
|---|------------------|---|
| ↑ | »SNTP active« | Signal: If there is no valid SNTP signal for 120 sec, SNTP is regarded as inactive. |
| 🔗 | »Used Server« | Which Server is used for SNTP synchronization. |
| # | »StratumServer1« | Stratum of Server 1 |
| 🔗 | »PrecServer1« | Precision of Server 1 |
| # | »StratumServer2« | Stratum of Server 2 |
| 🔗 | »PrecServer2« | Precision of Server 2 |
| 🔗 | »ServerQty« | Quality of Server used for Synchronization (GOOD, SUFFICIENT, BAD) |
| 🔗 | »NetConn« | Quality of Network Connection (GOOD, SUFFICIENT, BAD). |

3.1.4.29.3 Operation / Status Display / TimeSync / TimeSync

| | | |
|---|----------------|------------------------|
| ↑ | »synchronized« | Clock is synchronized. |
|---|----------------|------------------------|

3.1.4.30 Operation / Status Display / SysA

| | | |
|---|---------------------------|---|
| ↑ | »Active« | Signal: active |
| ↑ | »ExBlo« | Signal: External Blocking |
| ↑ | »Alm Current avg (Demd)« | Signal: Alarm: Averaged demand current exceeded |
| ↑ | »Alarm I THD« | Signal: Alarm Total Harmonic Distortion Current |
| ↑ | »Trip Current avg (Demd)« | Signal: Trip: Averaged demand current exceeded |
| ↑ | »Trip I THD« | Signal: Trip Total Harmonic Distortion Current |
| ↓ | »ExBlo-I« | Module input state: External blocking |

3.1.4.31 Operation / Status Display / Syslog

| | | |
|---|----------|----------------|
| ↑ | »Active« | Signal: active |
|---|----------|----------------|

3.1.4.32 Operation / Status Display / Statistics

| | | |
|---|----------------------|--|
| ↑ | »ResFc all« | Signal: Resetting of all Statistic values (Current Demand, Power Demand, Min, Max) |
| ↑ | »ResFc I Demand« | Signal: Resetting of Statistics - Current Demand (avg, peak avg) |
| ↑ | »ResFc Max« | Signal: Resetting of all Maximum values |
| ↑ | »ResFc Min« | Signal: Resetting of all Minimum values |
| ↓ | »StartFc I Demand-I« | State of the module input: Start of the Statistics of the Current Demand |

3.1.4.33 Operation / Status Display / Sys

| | | |
|---|-----------------------|---|
| ↑ | »Reboot« | Signal: Rebooting the device. Device Start-up Codes: 1=Normal Start-up; 2=Reboot by the Operator; 3=Reboot by means of Super Reset; 4=outdated; 5=outdated; 6=Unknown Error Source; 7=Forced Reboot (initiated by the main processor); 8=Exceeded Time Limit of the Protection Cycle; 9= Forced Reboot (initiated by the digital signal processor); 10=Exceeded Time Limit of the Measured Value Processing; 11=Sags of the Supply Voltage; 12=Illegal Memory Access. |
| ↑ | »Act Set« | Signal: Active Parameter Set |
| ↑ | »PS 1« | Signal: The currently active Parameter Set is PS 1 |
| ↑ | »PS 2« | Signal: The currently active Parameter Set is PS 2 |
| ↑ | »PS 3« | Signal: The currently active Parameter Set is PS 3 |
| ↑ | »PS 4« | Signal: The currently active Parameter Set is PS 4 |
| ↑ | »PSS manual« | Signal: Manual Switch over of a Parameter Set |
| ↑ | »PSS via Scada« | Signal: Parameter Set Switch via Scada. Write into this output byte the integer of the parameter set that should become active (e.g. 4 => Switch onto parameter set 4). |
| ↑ | »PSS via Inp fct« | Signal: Parameter Set Switch via input function |
| ↑ | »min 1 param changed« | Signal: At least one parameter has been changed |
| ↑ | »Setting Lock Bypass« | Signal: Short-period unlock of the Setting Lock |
| ↑ | »Maint Mode Active« | Signal: Arc Flash Reduction Maintenance Active |
| ↑ | »Maint Mode Inactive« | Signal: Arc Flash Reduction Maintenance Inactive |
| ↑ | »MaintMode Manually« | Signal: Arc Flash Reduction Maintenance Manual Mode |
| ↑ | »Maint Mode SCADA« | Signal: Arc Flash Reduction Maintenance SCADA Mode |
| ↑ | »Maint Mode DI« | Signal: Arc Flash Reduction Maintenance Digital Input Mode |
| ↑ | »Ack LED« | Signal: LEDs acknowledgement |
| ↑ | »Ack BO« | Signal: Acknowledgement of the Binary Outputs |
| ↑ | »Ack Scada« | Signal: Acknowledge latched SCADA signals |
| ↑ | »Ack TripCmd« | Signal: Reset Trip Command |
| ↑ | »Ack LED-HMI« | Signal: LEDs acknowledgement, triggered at the HMI |
| ↑ | »Ack BO-HMI« | Signal: Acknowledgement of the Binary Outputs, triggered at the HMI |

3 Menu

3.1.4.33 Operation / Status Display / Sys

| | | |
|---|--------------------|--|
| ↑ | »Ack Scada-HMI« | Signal: Acknowledge latched SCADA signals, triggered at the HMI |
| ↑ | »Ack TripCmd-HMI« | Signal: Reset Trip Command, triggered at the HMI |
| ↑ | »Ack LED-Sca« | Signal: LEDs acknowledgement, triggered via SCADA |
| ↑ | »Ack BO-Sca« | Signal: Acknowledgement of the Binary Outputs, triggered via SCADA |
| ↑ | »Ack Counter-Sca« | Signal: Reset of all Counters, triggered via SCADA |
| ↑ | »Ack Scada-Sca« | Signal: Acknowledge latched SCADA signals, triggered via SCADA |
| ↑ | »Ack TripCmd-Sca« | Signal: Reset Trip Command, triggered via SCADA |
| ↑ | »Res OperationsCr« | Signal:: Res OperationsCr |
| ↑ | »Res AlarmCr« | Signal:: Res AlarmCr |
| ↑ | »Res TripCmdCr« | Signal:: Res TripCmdCr |
| ↑ | »Res TotalCr« | Signal:: Res TotalCr |
| ↓ | »Ack LED-I« | Module input state: LEDs acknowledgement by digital input |
| ↓ | »Ack BO-I« | Module input state: Acknowledgement of the binary Output Relays |
| ↓ | »Ack Scada-I« | Module input state: Acknowledge latched SCADA signals. |
| ↓ | »PS1-I« | State of the module input respectively of the signal, that should activate this Parameter Setting Group. |
| ↓ | »PS2-I« | State of the module input respectively of the signal, that should activate this Parameter Setting Group. |
| ↓ | »PS3-I« | State of the module input respectively of the signal, that should activate this Parameter Setting Group. |
| ↓ | »PS4-I« | State of the module input respectively of the signal, that should activate this Parameter Setting Group. |
| ↓ | »Maint Mode-I« | Module Input State: Arc Flash Reduction Maintenance Switch |

3.1.4.34 Operation / Status Display / Sgen

| | | |
|---|-------------------------|--|
| ↑ | »Manual Start« | Fault Simulation has been started manually. |
| ↑ | »Manual Stop« | Fault Simulation has been stopped manually. |
| ↑ | »Running« | Signal: Measuring value simulation is running |
| ↑ | »Started« | Fault Simulation has been started |
| ↑ | »Stopped« | Fault Simulation has been stopped |
| ↑ | »State« | Signal: Wave generation states: 0=Off, 1=PreFault, 2=Fault, 3=PostFault, 4=InitReset |
| ↓ | »Ex Start Simulation-l« | State of the module input:External Start of Fault Simulation (Using the test parameters) |
| ↓ | »ExBlo1-l« | Module input state: External blocking1 |
| ↓ | »ExBlo2-l« | Module input state: External blocking2 |
| ↓ | »Ex ForcePost-l« | State of the module input:Force Post state. Abort simulation. |

3.1.5 Operation / Count and RevData

3.1.5.1 Operation / Count and RevData / Prot

| | | |
|---|-------------|--------------|
| ↑ | »Fault No.« | Fault number |
|---|-------------|--------------|

3.1.5.2 Operation / Count and RevData / Control







3.1.5.2.1 Operation / Count and RevData / Control / Ctrl

| | | |
|---|----------------------|---|
| ⊗ | »Switch.Cmds per s« | The number of switching commands per second. (This is mainly an internal diagnosis value.) |
| ⊗ | »Rej. Switch.Cmds« | The percentage of rejected switching commands per second. (This is mainly an internal diagnosis value.) |
| ⊗ | »Switch.Cmds max« | The maximum number of switching commands per second. (This is mainly an internal diagnosis value.) |
| ⊗ | »Rej.Swtch.Cmds max« | The maximum percentage of rejected switching commands per second. (This is mainly an internal diagnosis value.) |






3 Menu

3.1.5.2.2 Operation / Count and RevData / Control / SG[1]








3.1.5.2.2 Operation / Count and RevData / Control / SG[1]

| | | |
|---|----------------------|--|
|  | »Sum trip IL1« | Summation of the tripping currents phase |
|  | »Sum trip IL2« | Summation of the tripping currents phase |
|  | »Sum trip IL3« | Summation of the tripping currents phase |
|  | »TripCmd Cr« | Counter: Total number of trips of the switchgear. |
|  | »Isum Intr per hour« | Sum per hour of interrupting currents. |
|  | »Bkr Wear Level« | Wear level of the circuit breaker. (100% means that the circuit breaker has to be maintained.) |

3.1.5.3 Operation / Count and RevData / Profibus

| | | |
|---|------------------------|--|
|  | »Fr Sync Err« | Frames, that were sent from the Master to the Slave are faulty. |
|  | »Num. CRC err.« | Number of CRC errors that the subsystem manager has recognized in the received response frames from the subsystem. (Each error caused a subsystem reset.) |
|  | »Num. frame loss err.« | Number of frame loss errors that the subsystem manager has recognized in the received response frames from the subsystem. (Each error caused a subsystem reset.) |
|  | »Num. trig. CRC err.« | Number of CRC errors that the subsystem has recognized in the received trigger frames from the host. |
|  | »Num. subsys. res.« | Number of subsystem restarts or resets that the subsystem manager has caused. |

3.1.5.4 Operation / Count and RevData / DNP3

| | | |
|---|-------------------|--|
|  | »NReceived« | Diagnostic counter: Number of received characters |
|  | »NSent« | Diagnostic counter: Number of sent characters |
|  | »NBadFramings« | Diagnostic counter: Number of bad framings. A large number indicates a disturbed serial connection. |
|  | »NBadParities« | Diagnostic counter: Number of parity errors. A large number indicates a disturbed serial connection. |
|  | »NBreakSignals« | Diagnostic counter: Number of break signals. A large number indicates a disturbed serial connection. |
|  | »NBadChecksum« | Diagnostic counter: Number of frames received with bad checksum. |
|  | »Res all Diag Cr« | Reset all diagnosis counters |

3.1.5.5 Operation / Count and RevData / Modbus

3.1.5.5.1 Operation / Count and RevData / Modbus / TCP

| | | |
|---|---------------------|--|
| # | »NoOfRequestsTotal« | Total number of requests. Includes requests for other slaves. |
| # | »NoOfReqForMe« | Total Number of requests for this slave. |
| # | »NoOfResponse« | Total number of requests having been responded. |
| # | »NoOfQueryInvalid« | Total number of Request errors. Request could not be interpreted |
| # | »NoOfInternalError« | Total Number of Internal errors while interpreting the request. |

















3.1.5.5.2 Operation / Count and RevData / Modbus / RTU

| | | |
|---|------------------------|---|
| # | »NoOfRequestsTotal« | Total number of requests. Includes requests for other slaves. |
| # | »NoOfReqForMe« | Total Number of requests for this slave. |
| # | »NoOfResponse« | Total number of requests having been responded. |
| # | »NoOfFrameErrors« | Total Number of Frame Errors. Physically corrupted Frame. |
| # | »NoOfParityErrors« | Total number of parity errors. Physically corrupted Frame. |
| # | »NoOfRespTimeOVERRUNS« | Total number of requests with exceeded response time. Physically corrupted Frame. |
| # | »NoOfOverrunErrors« | Total Number of Overrun Failures. Physically corrupted Frame. |
| # | »NoOfBreaks« | Number of detected communication aborts |

3 Menu

3.1.5.5.3 Operation / Count and RevData / Modbus / Measured Values

3.1.5.5.3 Operation / Count and RevData / Modbus / Measured Values

| | | |
|---|------------------|---|
|  | »Mapped Meas 1« | Mapped Measured Values. They can be used to provide measured values to the Modbus Master. |
|  | »Mapped Meas 2« | Mapped Measured Values. They can be used to provide measured values to the Modbus Master. |
|  | »Mapped Meas 3« | Mapped Measured Values. They can be used to provide measured values to the Modbus Master. |
|  | »Mapped Meas 4« | Mapped Measured Values. They can be used to provide measured values to the Modbus Master. |
|  | »Mapped Meas 5« | Mapped Measured Values. They can be used to provide measured values to the Modbus Master. |
|  | »Mapped Meas 6« | Mapped Measured Values. They can be used to provide measured values to the Modbus Master. |
|  | »Mapped Meas 7« | Mapped Measured Values. They can be used to provide measured values to the Modbus Master. |
|  | »Mapped Meas 8« | Mapped Measured Values. They can be used to provide measured values to the Modbus Master. |
|  | »Mapped Meas 9« | Mapped Measured Values. They can be used to provide measured values to the Modbus Master. |
|  | »Mapped Meas 10« | Mapped Measured Values. They can be used to provide measured values to the Modbus Master. |
|  | »Mapped Meas 11« | Mapped Measured Values. They can be used to provide measured values to the Modbus Master. |
|  | »Mapped Meas 12« | Mapped Measured Values. They can be used to provide measured values to the Modbus Master. |
|  | »Mapped Meas 13« | Mapped Measured Values. They can be used to provide measured values to the Modbus Master. |
|  | »Mapped Meas 14« | Mapped Measured Values. They can be used to provide measured values to the Modbus Master. |
|  | »Mapped Meas 15« | Mapped Measured Values. They can be used to provide measured values to the Modbus Master. |
|  | »Mapped Meas 16« | Mapped Measured Values. They can be used to provide measured values to the Modbus Master. |

3.1.5.6 Operation / Count and RevData / IEC 61850

| | | |
|---|------------------------------|--|
| # | »NoOfGooseRxAll« | Total number of received GOOSE messages including messages for other devices (subscribed and not subscribed messages). |
| # | »NoOfGooseRxSubscribed« | Total Number of subscribed GOOSE messages including messages with incorrect content. |
| # | »NoOfGooseRxCorrect« | Total Number of subscribed and correctly received GOOSE messages. |
| # | »NoOfGooseRxNew« | Number of subscribed and correctly received GOOSE messages with new content. |
| # | »NoOfGooseTxAll« | Total Number of GOOSE messages that have been published by this device. |
| # | »NoOfGooseTxNew« | Total Number of new GOOSE messages (modified content) that have been published by this device. |
| # | »NoOf Srv.Req.All« | Total number of MMS Server requests including incorrect requests. |
| # | »NoOfDataReadAll« | Total Number of values read from this device including incorrect requests. |
| # | »NoOfDataReadCorrect« | Total Number of correctly read values from this device. |
| # | »NoOfDataWrittenAll« | Total Number of values written by this device including incorrect ones. |
| # | »NoOfDataWrittenCorrect« | Total Number of correctly written values by this device. |
| # | »NoOfDataChangeNotification« | Number of detected changes within the datasets that are published with GOOSE messages. |
| # | »No of Client Connections« | Number of active MMS client connections |

3.1.5.7 Operation / Count and RevData / IEC103

| | | |
|---|--------------------|---|
| # | »NReceived« | Total Number of received Messages |
| # | »NSent« | Total Number of sent Messages |
| # | »NBadFramings« | Number of bad Messages |
| # | »NBadParities« | Number of Parity Errors |
| # | »NBreakSignals« | Number of transmission errors with respect to the (electric) signal transport (physical layer). If the counter value gets increased constantly you should check for problems with the electrical connection (e.g. missing termination impedance of the serial interface), and make sure the transmission parameters (especially the baud rate) are correct. |
| # | »NInternalError« | Number of Internal Errors |
| # | »NBadCharChecksum« | Number of Checksum Errors |

3.1.5.8 Operation / Count and RevData / IEC104

| | | |
|---|----------------------|--|
| # | »NReceived« | Diagnostic counter: Number of received characters |
| # | »NSent« | Diagnostic counter: Number of sent characters |
| # | »Num. of lost conn.« | Diagnostic counter: Number of lost connections |
| # | »NBadChecksum« | Diagnostic counter: Number of frames received with bad checksum. |

3.1.5.9 Operation / Count and RevData / TimeSync

3.1.5.9.1 Operation / Count and RevData / TimeSync / IRIG-B

| | | |
|---|-------------------|--|
| # | »NoOfFramesOK« | Total Number valid Frames. |
| # | »NoOfFrameErrors« | Total Number of Frame Errors. Physically corrupted Frame. |
| # | »Edges« | Edges: Total number of rising and falling edges. This signal indicates if a signal is available at the IRIG-B input. |


3.1.5.9.2 Operation / Count and RevData / TimeSync / SNTP

| | | |
|---|-------------------|---|
| # | »NoOfSyncs« | Total Number of Synchronizations. |
| # | »NoOfConnectLost« | Total Number of lost SNTP Connections (no sync for 120 sec). |
| # | »NoOfSmallSyncs« | Service counter: Total Number of very small Time Corrections. |
| # | »NoOfNormSyncs« | Service counter: Total Number of normal Time Corrections |
| # | »NoOfBigSyncs« | Service counter: Total Number of big Time Corrections |
| # | »NoOfFiltSyncs« | Service counter: Total Number of filtered Time Corrections |
| # | »NoOfSlowTrans« | Service counter: Total Number of slow Transfers. |
| # | »NoOfHighOffs« | Service counter: Total Number of high Offsets. |
| # | »NoOfIntTimeouts« | Service counter: Total Number of internal timeouts. |







3.1.5.10 Operation / Count and RevData / Trend rec

| | | |
|---|---------------------|--|
| # | »Max avail Entries« | Maximum available entries in the current configuration |
|---|---------------------|--|


3.1.5.11 Operation / Count and RevData / Sys

| | | |
|---|----------------------|--|
|  | »Operating hours Cr« | Operating hours counter of the protective device |
|---|----------------------|--|


3.1.6 Operation / Recorders

| | | |
|---|-----------------|--|
|  | »Event rec« | The event recorder logs all events like switching operations, change of parameters, alarms, trips, operating mode selections, blockings and state transitions of inputs and outputs. |
|  | »Disturb rec« | After a trigger event has become true, the disturbance recorder writes analogue and digital tracks |
|  | »Fault rec« | The values measured at the time of tripping are saved by the Fault Recorder. |
|  | »Start rec« | Startrecorder |
|  | »Statistic rec« | Statistic recorder |
|  | »Trend rec« | Trend Recorder |








3.1.6.1 Operation / Recorders / Man Trigger

| | | |
|---|-----------------------------|----------------|
|  | »Disturb rec . Man Trigger« | Manual Trigger |
|---|-----------------------------|----------------|

3.1.7 Operation / Security

| | | |
|---|-------------------|---------------------------|
|  | »Security Logger« | Security-related messages |
|---|-------------------|---------------------------|

3.1.7.1 Operation / Security / Security States

| | | |
|---|----------------------------------|---|
|  | »Sys . Smart view via USB« | Information whether or not the Smart view access via the USB interface is activated (allowed). |
|  | »Sys . Smart view via Eth« | Information whether or not the Smart view access via the Ethernet interface is activated (allowed). |
|  | »Modbus . Smart view via Modbus« | Activate (allow) or inactivate (disallow) the Smart view access via the Modbus tunnel. |
|  | »Sys . Passw. for USB conn.« | Type / Security-level of the connection password that is used for a USB connection. |
|  | »Sys . Passw.remote net.conn.« | Type / Security-level of the connection password that is used for a Smart view connection via some network interface. |
|  | »Sys . TLS Certificate« | Type of certificate that the device uses for the encrypted communication. This value is directly related to the security-level of the communication. |
|  | »Ctrl . Switching Authority« | Switching Authority |
|  | »HMI . Conf. Dev. Reset« | If the »C« key is pressed while the device is performing a cold restart a general Reset Dialog appears on the screen. Select which options shall be available with this dialog. |

3.1.8 Operation / Self-Supervision

| | | |
|---|------------|-------------------|
|  | »Messages« | Internal messages |
|---|------------|-------------------|

3.1.8.1 Operation / Self-Supervision / System State

| | | |
|---|---------------------------|--|
| ↑ | »System Error« | Signal: Device Failure |
| ↑ | »New error« | Signal: A new error message has been issued. |
| ↑ | »New warning« | Signal: A new warning message has been issued. |
| ↑ | »Test SC« | A drop of SelfSuperVision Contact (SC) has been triggered manually (for testing purposes). |
| ↑ | »SelfSuperVision Contact« | Signal: SelfSuperVision Contact |
| # | »Cr No of free sockets« | Counter for network diagnosis. Number of free sockets. |

3.1.9 Operation / Reset/Acknowledge

3.1.9.1 Operation / Reset/Acknowledge / Acknowledge

| | | |
|---|------------------------------|--|
| ⊙ | »Sys . Ack BO LED Scd Trips« | Acknowledge (reset) latched binary output relays, LEDs, SCADA and Trips. |
| ⊙ | »Sys . Ack LED« | All acknowledgeable LEDs will be acknowledged. |
| ⊙ | »Sys . Ack BO« | All acknowledgeable binary output relays are acknowledged. |
| ⊙ | »Sys . Ack Scada« | Latched SCADA signals are acknowledged. |
| ⊙ | »SG[1] . Ack TripCmd« | Acknowledge Trip Command |
| ⊙ | »SSV . Ack System LED « | Acknowledge System LED (red/green flashing LED) |

3.1.9.2 Operation / Reset/Acknowledge / Reset

| | | |
|---|------------------------------------|---|
| ⊙ | »Prot . Res FaultNo a GridFaultNo« | Resetting of fault number and grid fault number. |
| ⊙ | »Ctrl . Reset max values« | Direct Command to reset the maximum values of: switching comands per second, and percentage of rejected commands. |
| ⊙ | »SG[1] . Res SGwear Sl SG« | Resetting the slow Switchgear Alarm |
| ⊙ | »SG[1] . Res TripCmd Cr« | Resetting of the Counter: Total number of trips of the switchgear |
| ⊙ | »SG[1] . Res Sum trip« | Reset summation of the tripping currents |
| ⊙ | »SG[1] . Res CB OPEN capacity« | Reset the CB OPEN capacity. (Remark: A »CB OPEN capacity« value of 100% means that the circuit breaker has to be maintained.) |
| ⊙ | »SG[1] . Res Isum Intr per hour« | Reset of the Sum per hour of interrupting currents. |
| ⊙ | »CBF . Res Lockout« | Reset Lockout |
| ⊙ | »Statistics . ResFc all« | Resetting of all Statistic values (Current Demand, Power Demand, Min, Max) |
| ⊙ | »Statistics . ResFc Max« | Resetting of all Maximum values |
| ⊙ | »Statistics . ResFc Min« | Resetting of all Minimum values |
| ⊙ | »Statistics . ResFc I Demand« | Resetting of Statistics - Current Demand (avg, peak avg) |

| | | |
|---|---------------------------------|---|
| ⊙ | »Prot . Reset I-Prot« | Reset all overcurrent protection functions (ANSI 50/51/46/67) |
| ⊙ | »ThR . Res I2T Used« | Reset thermal capacity used. |
| ⊙ | »MStart . RstForcedStart« | Reset Forced Start flag |
| ⊙ | »DNP3 . Res all Diag Cr« | Reset all diagnosis counters |
| ⊙ | »Modbus . Res Blue Diagn Cr« | All Modbus Diagnosis Counters will be reset. |
| ⊙ | »Profibus . Reset Comds« | All Profibus Commands will be reset. |
| ⊙ | »IEC103 . Res all Diag Cr« | Reset all diagnosis counters |
| ⊙ | »IEC104 . Res all Diag Cr« | Reset all diagnosis counters |
| ⊙ | »IRIG-B . Res IRIG-B Cr« | Resetting of the Diagnosis Counters: IRIG-B |
| ⊙ | »SNTP . Res Counter« | Reset all Counters. |
| ⊙ | »IEC 61850 . ResetStatistic« | Reset of all IEC61850 diagnostic counters |
| ⊙ | »Event rec . Res all rec« | Reset all records |
| ⊙ | »Disturb rec . Res all rec« | Reset all records |
| ⊙ | »Fault rec . Res all rec« | Reset all records |
| ⊙ | »Trend rec . Res all rec« | Reset all records |
| ⊙ | »Start rec . ClearStartRec« | Delete all start recorder records |
| ⊙ | »Start rec . ClearStatisticRec« | Delete all statistic recorder records (start trending) |

3.1.9.3 Operation / Reset/Acknowledge / History

| | | |
|---|--------------------------|---|
| ⊙ | »Sys . Res OperationsCr« | Reset all counters in history group operations |
| ⊙ | »Sys . Res AlarmCr« | Reset all counters in history group alarms |
| ⊙ | »Sys . Res TripCmdCr« | Reset all counters in history group Trip Commands |
| ⊙ | »Sys . Res TotalCr« | Reset all counters in history group total |
| ⊙ | »Sys . Res All« | Reset of all Counters |

3.1.9.4 Operation / Reset/Acknowledge / EmgOvr

| | | |
|---|-------------------------|--|
| ⊙ | »MStart . EmergOverHMI« | Emergency override through front display |
|---|-------------------------|--|


3.2 Device planning

3.2.1 Device planning / Projected Elements























| | | |
|---|---------------|---|
| ⌘ | »I[1] . Mode« | Phase Overcurrent Stage, general operation mode |
|---|---------------|---|

3 Menu

3.2.1 Device planning / Projected Elements

| | | |
|---|-----------------------------|---|
|  | »I[2] . Mode« | Phase Overcurrent Stage, general operation mode |
|  | »I[3] . Mode« | Phase Overcurrent Stage, general operation mode |
|  | »I[4] . Mode« | Phase Overcurrent Stage, general operation mode |
|  | »I[5] . Mode« | Phase Overcurrent Stage, general operation mode |
|  | »I[6] . Mode« | Phase Overcurrent Stage, general operation mode |
|  | »IG[1] . Mode« | Earth current protection stage, general operation mode |
|  | »IG[2] . Mode« | Earth current protection stage, general operation mode |
|  | »IG[3] . Mode« | Earth current protection stage, general operation mode |
|  | »IG[4] . Mode« | Earth current protection stage, general operation mode |
|  | »Jam[1] . Mode« | Locked Rotor (JAM), general operation mode |
|  | »Jam[2] . Mode« | Locked Rotor (JAM), general operation mode |
|  | »I<[1] . Mode« | Underload / Undercurrent, general operation mode |
|  | »I<[2] . Mode« | Underload / Undercurrent, general operation mode |
|  | »I<[3] . Mode« | Underload / Undercurrent, general operation mode |
|  | »MLS . Mode« | Mechanical Load Shedding, general operation mode |
|  | »I2>[1] . Mode« | Unbalanced Load-Stage, general operation mode |
|  | »I2>[2] . Mode« | Unbalanced Load-Stage, general operation mode |
|  | »Exp[1] . Mode« | External Protection - Module, general operation mode |
|  | »Exp[2] . Mode« | External Protection - Module, general operation mode |
|  | »Exp[3] . Mode« | External Protection - Module, general operation mode |
|  | »Exp[4] . Mode« | External Protection - Module, general operation mode |
|  | »RTD . Mode« | general operation mode |
|  | »CBF . Mode« | Module Circuit Breaker Failure protection, general operation mode |
|  | »TCS . Mode« | Trip Circuit Supervision, general operation mode |
|  | »CTS . Mode« | CT Supervision, general operation mode |
|  | »SysA . Mode« | general operation mode |
|  | »Syslog . Mode« | Syslog [Module for sending (device-internal) log messages to some server computer via network (UDP/IP)], general operation mode |
|  | »Scada . Protocol« | Select the SCADA protocol to be used. |
|  | »IRIG-B . Mode« | IRIG-B-Module, general operation mode |
|  | »SNTP . Mode« | SNTP-Module, general operation mode |
|  | »Logics . No of Equations:« | Number of required Logic Equations: |
|  | »Sgen . Mode« | Sine wave generator, general operation mode |



3.2.2 Device planning / Definition

| | | |
|---|-------------------------|---|
|  | »I[1] . Superv. only« | Phase Overcurrent Stage, if set to "Yes": Restriction of the function to a supervision functionality, i.e. there is no general alarm, no general trip and no trip command. |
|  | »I[2] . Superv. only« | Phase Overcurrent Stage, if set to "Yes": Restriction of the function to a supervision functionality, i.e. there is no general alarm, no general trip and no trip command. |
|  | »I[3] . Superv. only« | Phase Overcurrent Stage, if set to "Yes": Restriction of the function to a supervision functionality, i.e. there is no general alarm, no general trip and no trip command. |
|  | »I[4] . Superv. only« | Phase Overcurrent Stage, if set to "Yes": Restriction of the function to a supervision functionality, i.e. there is no general alarm, no general trip and no trip command. |
|  | »I[5] . Superv. only« | Phase Overcurrent Stage, if set to "Yes": Restriction of the function to a supervision functionality, i.e. there is no general alarm, no general trip and no trip command. |
|  | »I[6] . Superv. only« | Phase Overcurrent Stage, if set to "Yes": Restriction of the function to a supervision functionality, i.e. there is no general alarm, no general trip and no trip command. |
|  | »IG[1] . Superv. only« | Earth current protection stage, if set to "Yes": Restriction of the function to a supervision functionality, i.e. there is no general alarm, no general trip and no trip command. |
|  | »IG[2] . Superv. only« | Earth current protection stage, if set to "Yes": Restriction of the function to a supervision functionality, i.e. there is no general alarm, no general trip and no trip command. |
|  | »IG[3] . Superv. only« | Earth current protection stage, if set to "Yes": Restriction of the function to a supervision functionality, i.e. there is no general alarm, no general trip and no trip command. |
|  | »IG[4] . Superv. only« | Earth current protection stage, if set to "Yes": Restriction of the function to a supervision functionality, i.e. there is no general alarm, no general trip and no trip command. |
|  | »Jam[1] . Superv. only« | Locked Rotor (JAM), if set to "Yes": Restriction of the function to a supervision functionality, i.e. there is no general alarm, no general trip and no trip command. |
|  | »Jam[2] . Superv. only« | Locked Rotor (JAM), if set to "Yes": Restriction of the function to a supervision functionality, i.e. there is no general alarm, no general trip and no trip command. |
|  | »I<[1] . Superv. only« | Underload / Undercurrent, if set to "Yes": Restriction of the function to a supervision functionality, i.e. there is no general alarm, no general trip and no trip command. |
|  | »I<[2] . Superv. only« | Underload / Undercurrent, if set to "Yes": Restriction of the function to a supervision functionality, i.e. there is no general alarm, no general trip and no trip command. |
|  | »I<[3] . Superv. only« | Underload / Undercurrent, if set to "Yes": Restriction of the function to a supervision functionality, i.e. there is no general alarm, no general trip and no trip command. |
|  | »I2>[1] . Superv. only« | Unbalanced Load-Stage, if set to "Yes": Restriction of the function to a supervision functionality, i.e. there is no general alarm, no general trip and no trip command. |
|  | »I2>[2] . Superv. only« | Unbalanced Load-Stage, if set to "Yes": Restriction of the function to a supervision functionality, i.e. there is no general alarm, no general trip and no trip command. |
|  | »Exp[1] . Superv. only« | External Protection - Module, if set to "Yes": Restriction of the function to a supervision functionality, i.e. there is no general alarm, no general trip and no trip command. |
|  | »Exp[2] . Superv. only« | External Protection - Module, if set to "Yes": Restriction of the function to a supervision functionality, i.e. there is no general alarm, no general trip and no trip command. |
|  | »Exp[3] . Superv. only« | External Protection - Module, if set to "Yes": Restriction of the function to a supervision functionality, i.e. there is no general alarm, no general trip and no trip command. |
|  | »Exp[4] . Superv. only« | External Protection - Module, if set to "Yes": Restriction of the function to a supervision functionality, i.e. there is no general alarm, no general trip and no trip command. |
|  | »RTD . Superv. only« | Temperature Protection Module, if set to "Yes": Restriction of the function to a supervision functionality, i.e. there is no general alarm, no general trip and no trip command. |





3.3 Device Para

3.3.1 Device Para / Measurem Display

3.3.1.1 Device Para / Measurem Display / General Settings

| | | |
|---|--------------------|---|
|  | »Scaling« | Display of the measured values as primary, secondary or per unit values |
|  | »Temperature Unit« | Temperature Unit |




3.3.1.2 Device Para / Measurem Display / Current

| | | |
|---|------------------------------|--|
|  | »IL1, IL2, IL3 Cutoff Level« | The Current shown in the Display or within the PC Software will be displayed as zero, if the Current falls below this Cutoff Level. This parameter has no impact on recorders. |
|  | »IG meas Cutoff Level« | The measured Earth Current shown in the Display or within the PC Software will be displayed as zero, if the measured Earth Current falls below this Cutoff Level. This parameter has no impact on recorders. |
|  | »IG calc Cutoff Level« | The calculated Earth Current shown in the Display or within the PC Software will be displayed as zero, if the calculated Earth Current falls below this Cutoff Level. This parameter has no impact on recorders. |
|  | »I012 Cutoff Level« | The Symmetrical Component shown in the Display or within the PC Software will be displayed as zero, if the Symmetrical Component falls below this Cutoff Level. This parameter has no impact on recorders. |




3.3.2 Device Para / Digital Inputs

3.3.2.1 Device Para / Digital Inputs / DI Slot X1














3.3.2.1.1 Device Para / Digital Inputs / DI Slot X1 / Group 1

| | | |
|---|---------------------|--|
|  | »Nom voltage« | Nominal voltage of the digital inputs |
|  | »Inverting 1« | Inverting the input signals. |
|  | »Debouncing time 1« | A change of the state of a digital input will only be recognized after the debouncing time has expired (become effective). Thus, transient signals will not be misinterpreted. |














3.3.2.1.2 Device Para / Digital Inputs / DI Slot X1 / Group 2

| | | |
|---|---------------------|--|
|  | »Nom voltage« | Nominal voltage of the digital inputs |
|  | »Inverting 2« | Inverting the input signals. |
|  | »Debouncing time 2« | A change of the state of a digital input will only be recognized after the debouncing time has expired (become effective). Thus, transient signals will not be misinterpreted. |

3.3.2.1.3 Device Para / Digital Inputs / DI Slot X1 / Group 3

| | | |
|---|---------------------|--|
|  | »Nom voltage« | Nominal voltage of the digital inputs |
|  | »Inverting 3« | Inverting the input signals. |
|  | »Inverting 4« | Inverting the input signals. |
|  | »Inverting 5« | Inverting the input signals. |
|  | »Inverting 6« | Inverting the input signals. |
|  | »Inverting 7« | Inverting the input signals. |
|  | »Inverting 8« | Inverting the input signals. |
|  | »Debouncing time 3« | A change of the state of a digital input will only be recognized after the debouncing time has expired (become effective). Thus, transient signals will not be misinterpreted. |
|  | »Debouncing time 4« | A change of the state of a digital input will only be recognized after the debouncing time has expired (become effective). Thus, transient signals will not be misinterpreted. |
|  | »Debouncing time 5« | A change of the state of a digital input will only be recognized after the debouncing time has expired (become effective). Thus, transient signals will not be misinterpreted. |
|  | »Debouncing time 6« | A change of the state of a digital input will only be recognized after the debouncing time has expired (become effective). Thus, transient signals will not be misinterpreted. |
|  | »Debouncing time 7« | A change of the state of a digital input will only be recognized after the debouncing time has expired (become effective). Thus, transient signals will not be misinterpreted. |
|  | »Debouncing time 8« | A change of the state of a digital input will only be recognized after the debouncing time has expired (become effective). Thus, transient signals will not be misinterpreted. |









3.3.2.2 Device Para / Digital Inputs / DI Slot X1

| | | |
|---|---------------------|--|
|  | »Nom voltage« | Nominal voltage of the digital inputs |
|  | »Inverting 3« | Inverting the input signals. |
|  | »Inverting 4« | Inverting the input signals. |
|  | »Inverting 1« | Inverting the input signals. |
|  | »Inverting 2« | Inverting the input signals. |
|  | »Inverting 3« | Inverting the input signals. |
|  | »Inverting 4« | Inverting the input signals. |
|  | »Debouncing time 3« | A change of the state of a digital input will only be recognized after the debouncing time has expired (become effective). Thus, transient signals will not be misinterpreted. |
|  | »Debouncing time 4« | A change of the state of a digital input will only be recognized after the debouncing time has expired (become effective). Thus, transient signals will not be misinterpreted. |
|  | »Debouncing time 1« | A change of the state of a digital input will only be recognized after the debouncing time has expired (become effective). Thus, transient signals will not be misinterpreted. |
|  | »Debouncing time 2« | A change of the state of a digital input will only be recognized after the debouncing time has expired (become effective). Thus, transient signals will not be misinterpreted. |
|  | »Debouncing time 3« | A change of the state of a digital input will only be recognized after the debouncing time has expired (become effective). Thus, transient signals will not be misinterpreted. |
|  | »Debouncing time 4« | A change of the state of a digital input will only be recognized after the debouncing time has expired (become effective). Thus, transient signals will not be misinterpreted. |

3.3.3 Device Para / Binary Outputs

3.3.3.1 Device Para / Binary Outputs / BO Slot X2









3.3.3.1.1 Device Para / Binary Outputs / BO Slot X2 / BO 1

| | | |
|---|---|--|
|  | »Operating Mode« | Operating Mode |
|  | »t-hold« | To clearly identify the state transition of a binary output relay, the "new state" is being hold, at least for the duration of the hold time. |
|  | »t-Off Delay« | Switch Off Delay |
|  | »Latched« | Defines whether the Relay Output will be latched when it picks up. |
|  | »Acknowledgement« | Acknowledgement Signal - An acknowledgement signal (that acknowledges the corresponding binary output relay) can be assigned to each output relay. The acknowledgement-signal is only effective if the parameter "Latched" is set to active. |
|  | »Inverting« | Inverting of the collective signal (OR-gate/disjunction). In combination with inverted input signals an AND-gate can be programmed (Conjunction). |
|  | »Assignment 1« ... »Assignment 7« | Assignment |
|  | »Inverting 1« ... »Inverting 7« | Inverting of the state of the assigned signal. |









3 Menu

3.3.3.1.2 Device Para / Binary Outputs / BO Slot X2 / BO 2









3.3.3.1.2 Device Para / Binary Outputs / BO Slot X2 / BO 2

| | | |
|---|---|--|
|  | »Operating Mode« | Operating Mode |
|  | »t-hold« | To clearly identify the state transition of a binary output relay, the "new state" is being hold, at least for the duration of the hold time. |
|  | »t-Off Delay« | Switch Off Delay |
|  | »Latched« | Defines whether the Relay Output will be latched when it picks up. |
|  | »Acknowledgement« | Acknowledgement Signal - An acknowledgement signal (that acknowledges the corresponding binary output relay) can be assigned to each output relay. The acknowledgement-signal is only effective if the parameter "Latched" is set to active. |
|  | »Inverting« | Inverting of the collective signal (OR-gate/disjunction). In combination with inverted input signals an AND-gate can be programmed (Conjunction). |
|  | »Assignment 1« ... »Assignment 7« | Assignment |
|  | »Inverting 1« ... »Inverting 7« | Inverting of the state of the assigned signal. |









3.3.3.1.3 Device Para / Binary Outputs / BO Slot X2 / BO 3

| | | |
|---|---|--|
|  | »Operating Mode« | Operating Mode |
|  | »t-hold« | To clearly identify the state transition of a binary output relay, the "new state" is being hold, at least for the duration of the hold time. |
|  | »t-Off Delay« | Switch Off Delay |
|  | »Latched« | Defines whether the Relay Output will be latched when it picks up. |
|  | »Acknowledgement« | Acknowledgement Signal - An acknowledgement signal (that acknowledges the corresponding binary output relay) can be assigned to each output relay. The acknowledgement-signal is only effective if the parameter "Latched" is set to active. |
|  | »Inverting« | Inverting of the collective signal (OR-gate/disjunction). In combination with inverted input signals an AND-gate can be programmed (Conjunction). |
|  | »Assignment 1« ... »Assignment 7« | Assignment |
|  | »Inverting 1« ... »Inverting 7« | Inverting of the state of the assigned signal. |

3.3.3.1.4 Device Para / Binary Outputs / BO Slot X2 / BO 4









| | | |
|---|---|--|
|  | »Operating Mode« | Operating Mode |
|  | »t-hold« | To clearly identify the state transition of a binary output relay, the "new state" is being hold, at least for the duration of the hold time. |
|  | »t-Off Delay« | Switch Off Delay |
|  | »Latched« | Defines whether the Relay Output will be latched when it picks up. |
|  | »Acknowledgement« | Acknowledgement Signal - An acknowledgement signal (that acknowledges the corresponding binary output relay) can be assigned to each output relay. The acknowledgement-signal is only effective if the parameter "Latched" is set to active. |
|  | »Inverting« | Inverting of the collective signal (OR-gate/disjunction). In combination with inverted input signals an AND-gate can be programmed (Conjunction). |
|  | »Assignment 1« ... »Assignment 7« | Assignment |
|  | »Inverting 1« ... »Inverting 7« | Inverting of the state of the assigned signal. |

3.3.3.1.5 Device Para / Binary Outputs / BO Slot X2 / BO 5









| | | |
|---|---|--|
|  | »Operating Mode« | Operating Mode |
|  | »t-hold« | To clearly identify the state transition of a binary output relay, the "new state" is being hold, at least for the duration of the hold time. |
|  | »t-Off Delay« | Switch Off Delay |
|  | »Latched« | Defines whether the Relay Output will be latched when it picks up. |
|  | »Acknowledgement« | Acknowledgement Signal - An acknowledgement signal (that acknowledges the corresponding binary output relay) can be assigned to each output relay. The acknowledgement-signal is only effective if the parameter "Latched" is set to active. |
|  | »Inverting« | Inverting of the collective signal (OR-gate/disjunction). In combination with inverted input signals an AND-gate can be programmed (Conjunction). |
|  | »Assignment 1« ... »Assignment 7« | Assignment |
|  | »Inverting 1« ... »Inverting 7« | Inverting of the state of the assigned signal. |

3.3.3.2 Device Para / Binary Outputs / BO Slot X2









3.3.3.2.1 Device Para / Binary Outputs / BO Slot X2 / BO 1

| | | |
|---|---|--|
|  | »Operating Mode« | Operating Mode |
|  | »t-hold« | To clearly identify the state transition of a binary output relay, the "new state" is being hold, at least for the duration of the hold time. |
|  | »t-Off Delay« | Switch Off Delay |
|  | »Latched« | Defines whether the Relay Output will be latched when it picks up. |
|  | »Acknowledgement« | Acknowledgement Signal - An acknowledgement signal (that acknowledges the corresponding binary output relay) can be assigned to each output relay. The acknowledgement-signal is only effective if the parameter "Latched" is set to active. |
|  | »Inverting« | Inverting of the collective signal (OR-gate/disjunction). In combination with inverted input signals an AND-gate can be programmed (Conjunction). |
|  | »Assignment 1« ... »Assignment 7« | Assignment |
|  | »Inverting 1« ... »Inverting 7« | Inverting of the state of the assigned signal. |

3.3.3.2.2 Device Para / Binary Outputs / BO Slot X2 / BO 2

| | | |
|---|---|--|
|  | »Operating Mode« | Operating Mode |
|  | »t-hold« | To clearly identify the state transition of a binary output relay, the "new state" is being hold, at least for the duration of the hold time. |
|  | »t-Off Delay« | Switch Off Delay |
|  | »Latched« | Defines whether the Relay Output will be latched when it picks up. |
|  | »Acknowledgement« | Acknowledgement Signal - An acknowledgement signal (that acknowledges the corresponding binary output relay) can be assigned to each output relay. The acknowledgement-signal is only effective if the parameter "Latched" is set to active. |
|  | »Inverting« | Inverting of the collective signal (OR-gate/disjunction). In combination with inverted input signals an AND-gate can be programmed (Conjunction). |
|  | »Assignment 1« ... »Assignment 7« | Assignment |
|  | »Inverting 1« ... »Inverting 7« | Inverting of the state of the assigned signal. |

3.3.3.2.3 Device Para / Binary Outputs / BO Slot X2 / BO 3

| | | |
|---|---|--|
|  | »Operating Mode« | Operating Mode |
|  | »t-hold« | To clearly identify the state transition of a binary output relay, the "new state" is being hold, at least for the duration of the hold time. |
|  | »t-Off Delay« | Switch Off Delay |
|  | »Latched« | Defines whether the Relay Output will be latched when it picks up. |
|  | »Acknowledgement« | Acknowledgement Signal - An acknowledgement signal (that acknowledges the corresponding binary output relay) can be assigned to each output relay. The acknowledgement-signal is only effective if the parameter "Latched" is set to active. |
|  | »Inverting« | Inverting of the collective signal (OR-gate/disjunction). In combination with inverted input signals an AND-gate can be programmed (Conjunction). |
|  | »Assignment 1« ... »Assignment 7« | Assignment |
|  | »Inverting 1« ... »Inverting 7« | Inverting of the state of the assigned signal. |















3.3.4 Device Para / Analog Outputs

3.3.4.1 Device Para / Analog Outputs / AnOut[1]















| | | |
|---|--------------|---------------------------|
|  | »Assignment« | Assignment |
|  | »Range « | Adjustable range |
|  | »Range max« | Adjustable range maximum. |
|  | »Range min« | Adjustable range minimum. |

3.3.5 Device Para / LEDs















3.3.5.1 Device Para / LEDs / LED 1

| | | |
|---|----------------------|--|
|  | »Latched« | Defines whether the LED will be latched when it picks up. |
|  | »Ack signal« | Acknowledgement signal for the LED. If latching is set to active the LED can only be acknowledged if those signals that initiated the setting are no longer present. |
|  | »LED active color« | The LED lights up in this color if the state of the OR-assignment of the signals is true. |
|  | »LED inactive color« | The LED lights up in this color if the state of the OR-assignment of the signals is untrue. |
|  | »Assignment 1« | Assignment |
|  | »Assignment 2« | Assignment |
|  | »Assignment 3« | Assignment |
|  | »Assignment 4« | Assignment |
|  | »Assignment 5« | Assignment |
|  | »Inverting 1« | Inverting of the state of the assigned signal. |
|  | »Inverting 2« | Inverting of the state of the assigned signal. |
|  | »Inverting 3« | Inverting of the state of the assigned signal. |
|  | »Inverting 4« | Inverting of the state of the assigned signal. |
|  | »Inverting 5« | Inverting of the state of the assigned signal. |















3.3.5.2 Device Para / LEDs / LED 2

| | | |
|---|----------------------|--|
|  | »Latched« | Defines whether the LED will be latched when it picks up. |
|  | »Ack signal« | Acknowledgement signal for the LED. If latching is set to active the LED can only be acknowledged if those signals that initiated the setting are no longer present. |
|  | »LED active color« | The LED lights up in this color if the state of the OR-assignment of the signals is true. |
|  | »LED inactive color« | The LED lights up in this color if the state of the OR-assignment of the signals is untrue. |
|  | »Assignment 1« | Assignment |
|  | »Assignment 2« | Assignment |
|  | »Assignment 3« | Assignment |
|  | »Assignment 4« | Assignment |
|  | »Assignment 5« | Assignment |
|  | »Inverting 1« | Inverting of the state of the assigned signal. |
|  | »Inverting 2« | Inverting of the state of the assigned signal. |
|  | »Inverting 3« | Inverting of the state of the assigned signal. |
|  | »Inverting 4« | Inverting of the state of the assigned signal. |
|  | »Inverting 5« | Inverting of the state of the assigned signal. |















3.3.5.3 Device Para / LEDs / LED 3

| | | |
|---|----------------------|--|
|  | »Latched« | Defines whether the LED will be latched when it picks up. |
|  | »Ack signal« | Acknowledgement signal for the LED. If latching is set to active the LED can only be acknowledged if those signals that initiated the setting are no longer present. |
|  | »LED active color« | The LED lights up in this color if the state of the OR-assignment of the signals is true. |
|  | »LED inactive color« | The LED lights up in this color if the state of the OR-assignment of the signals is untrue. |
|  | »Assignment 1« | Assignment |
|  | »Assignment 2« | Assignment |
|  | »Assignment 3« | Assignment |
|  | »Assignment 4« | Assignment |
|  | »Assignment 5« | Assignment |
|  | »Inverting 1« | Inverting of the state of the assigned signal. |
|  | »Inverting 2« | Inverting of the state of the assigned signal. |
|  | »Inverting 3« | Inverting of the state of the assigned signal. |
|  | »Inverting 4« | Inverting of the state of the assigned signal. |
|  | »Inverting 5« | Inverting of the state of the assigned signal. |















3.3.5.4 Device Para / LEDs / LED 4

| | | |
|---|----------------------|--|
|  | »Latched« | Defines whether the LED will be latched when it picks up. |
|  | »Ack signal« | Acknowledgement signal for the LED. If latching is set to active the LED can only be acknowledged if those signals that initiated the setting are no longer present. |
|  | »LED active color« | The LED lights up in this color if the state of the OR-assignment of the signals is true. |
|  | »LED inactive color« | The LED lights up in this color if the state of the OR-assignment of the signals is untrue. |
|  | »Assignment 1« | Assignment |
|  | »Assignment 2« | Assignment |
|  | »Assignment 3« | Assignment |
|  | »Assignment 4« | Assignment |
|  | »Assignment 5« | Assignment |
|  | »Inverting 1« | Inverting of the state of the assigned signal. |
|  | »Inverting 2« | Inverting of the state of the assigned signal. |
|  | »Inverting 3« | Inverting of the state of the assigned signal. |
|  | »Inverting 4« | Inverting of the state of the assigned signal. |
|  | »Inverting 5« | Inverting of the state of the assigned signal. |














3.3.5.5 Device Para / LEDs / LED 5

| | | |
|---|----------------------|--|
|  | »Latched« | Defines whether the LED will be latched when it picks up. |
|  | »Ack signal« | Acknowledgement signal for the LED. If latching is set to active the LED can only be acknowledged if those signals that initiated the setting are no longer present. |
|  | »LED active color« | The LED lights up in this color if the state of the OR-assignment of the signals is true. |
|  | »LED inactive color« | The LED lights up in this color if the state of the OR-assignment of the signals is untrue. |
|  | »Assignment 1« | Assignment |
|  | »Assignment 2« | Assignment |
|  | »Assignment 3« | Assignment |
|  | »Assignment 4« | Assignment |
|  | »Assignment 5« | Assignment |
|  | »Inverting 1« | Inverting of the state of the assigned signal. |
|  | »Inverting 2« | Inverting of the state of the assigned signal. |
|  | »Inverting 3« | Inverting of the state of the assigned signal. |
|  | »Inverting 4« | Inverting of the state of the assigned signal. |
|  | »Inverting 5« | Inverting of the state of the assigned signal. |






3.3.5.6 Device Para / LEDs / LED 6

| | | |
|---|----------------------|--|
|  | »Latched« | Defines whether the LED will be latched when it picks up. |
|  | »Ack signal« | Acknowledgement signal for the LED. If latching is set to active the LED can only be acknowledged if those signals that initiated the setting are no longer present. |
|  | »LED active color« | The LED lights up in this color if the state of the OR-assignment of the signals is true. |
|  | »LED inactive color« | The LED lights up in this color if the state of the OR-assignment of the signals is untrue. |
|  | »Assignment 1« | Assignment |
|  | »Assignment 2« | Assignment |
|  | »Assignment 3« | Assignment |
|  | »Assignment 4« | Assignment |
|  | »Assignment 5« | Assignment |
|  | »Inverting 1« | Inverting of the state of the assigned signal. |
|  | »Inverting 2« | Inverting of the state of the assigned signal. |
|  | »Inverting 3« | Inverting of the state of the assigned signal. |
|  | »Inverting 4« | Inverting of the state of the assigned signal. |
|  | »Inverting 5« | Inverting of the state of the assigned signal. |

3.3.5.7 Device Para / LEDs / LED 7

| | | |
|---|----------------------|--|
|  | »Latched« | Defines whether the LED will be latched when it picks up. |
|  | »Ack signal« | Acknowledgement signal for the LED. If latching is set to active the LED can only be acknowledged if those signals that initiated the setting are no longer present. |
|  | »LED active color« | The LED lights up in this color if the state of the OR-assignment of the signals is true. |
|  | »LED inactive color« | The LED lights up in this color if the state of the OR-assignment of the signals is untrue. |
|  | »Assignment 1« | Assignment |
|  | »Assignment 2« | Assignment |
|  | »Assignment 3« | Assignment |
|  | »Assignment 4« | Assignment |
|  | »Assignment 5« | Assignment |
|  | »Inverting 1« | Inverting of the state of the assigned signal. |
|  | »Inverting 2« | Inverting of the state of the assigned signal. |
|  | »Inverting 3« | Inverting of the state of the assigned signal. |
|  | »Inverting 4« | Inverting of the state of the assigned signal. |
|  | »Inverting 5« | Inverting of the state of the assigned signal. |






3.3.6 Device Para / Acknowledge

| | | |
|---|-------------------|---|
|  | »Ack via »C« key« | Select which acknowledgeable elements can be reset via pressing the »C« key. |
|  | »Remote Reset« | Enables or disables the option to acknowledge from external/remote via signals (assignments) and SCADA. |
|  | »Ack LED« | All acknowledgeable LEDs will be acknowledged if the state of the assigned signal becomes true. |
|  | »Ack BO« | All acknowledgeable binary output relays will be acknowledged if the state of the assigned signal becomes true. |
|  | »Ack Scada« | Latched SCADA signals are acknowledged if the state of the assigned signal becomes true. |



3.3.7 Device Para / Statistics

3.3.7.1 Device Para / Statistics / Demand




3.3.7.1.1 Device Para / Statistics / Demand / Current Demand

| | | |
|---|-----------------------|---|
|  | »Start I Demand via:« | Statistics/Demand Management: Start Current demand by the set trigger. |
|  | »Start I Demand Fc« | If the trigger for Current Demand has been set to "StartFct": Start of the calculation as soon as the assigned signal becomes true. |
|  | »ResFc I Demand« | Resetting of Statistics - Current Demand (avg, peak avg) |
|  | »Duration I Demand« | Recording time |
|  | »Window I Demand« | Window configuration |



3.3.7.2 Device Para / Statistics / Min / Max

| | | |
|---|-------------|---------------------------------|
|  | »ResFc Max« | Resetting of all Maximum values |
|  | »ResFc Min« | Resetting of all Minimum values |



3.3.8 Device Para / HMI

| | | |
|---|---------------------------|--|
|  | »Contrast« | Contrast |
|  | »Display Off« | The display back light will be turned off when this timer has expired. |
|  | »Menu language« | Selection of the language |
|  | »Display ANSI Device No.« | Display ANSI Device Numbers |




3.3.9 Device Para / Security

| | | |
|---|----------------|-----------------------|
|  | »Password« | Changing the password |
|  | »Access Level« | Access Level |







3.3.9.1 Device Para / Security / General Settings

| | | |
|---|---------------------|---|
|  | »t-max Edit/Access« | If no other key(s) is pressed at the panel, after expiration of this time, all cached (changed) parameters are canceled. The device access will be locked by falling back into Read-only level Lv0. |
|  | »Conf. Dev. Reset« | If the »C« key is pressed while the device is performing a cold restart a general Reset Dialog appears on the screen. Select which options shall be available with this dialog. |

3.3.9.2 Device Para / Security / Communication


| | | |
|---|-------------------------|---|
|  | »Smart view via USB« | Activate (allow) or inactivate (disallow) the Smart view access via the USB interface. |
|  | »Smart view via Eth« | Activate (allow) or inactivate (disallow) the Smart view access via the Ethernet interface. |
|  | »Smart view via Modbus« | Activate (allow) or inactivate (disallow) the Smart view access via the Modbus tunnel. |

3.3.9.3 Device Para / Security / Syslog



| | | |
|---|----------------------|--|
|  | »Function« | Permanent activation or deactivation of module/stage. |
|  | »IP port number« | IP port number. This is the port on which the Syslog server computer listens and receives log messages. (Since the default, port 514, is a general protocol standard it is recommended to keep this default, unless there are network-related or security-related reasons against it.) |
|  | »IP address, part 1« | IP address (IPv4) of the Syslog server computer, that receives the log messages. IP1.IP2.IP3.IP4 |
|  | »IP address, part 2« | IP address (IPv4) of the Syslog server computer, that receives the log messages. IP1.IP2.IP3.IP4 |
|  | »IP address, part 3« | IP address (IPv4) of the Syslog server computer, that receives the log messages. IP1.IP2.IP3.IP4 |
|  | »IP address, part 4« | IP address (IPv4) of the Syslog server computer, that receives the log messages. IP1.IP2.IP3.IP4 |

3.3.10 Device Para / Recorders


3.3.10.1 Device Para / Recorders / Disturb rec

| | | |
|--|---------------------|--|
|  | »Start: 1« | Start recording if the assigned signal is true. |
|  | »Start: 2« | Start recording if the assigned signal is true. |
|  | »Start: 3« | Start recording if the assigned signal is true. |
|  | »Start: 4« | Start recording if the assigned signal is true. |
|  | »Start: 5« | Start recording if the assigned signal is true. |
|  | »Start: 6« | Start recording if the assigned signal is true. |
|  | »Start: 7« | Start recording if the assigned signal is true. |
|  | »Start: 8« | Start recording if the assigned signal is true. |
|  | »Auto overwriting« | If there is no more free memory capacity left, the oldest file will be overwritten. |
|  | »Pre-trigger time« | The pre trigger time is set in percent of the »Max file size« value. It corresponds to the part of recording before the onset of the trigger event. |
|  | »Post-trigger time« | The post trigger time is set in percent of the »Max file size« value. It is the remaining time of the »Max file size«, depending on the »Pre-trigger time« setting and the duration of the trigger event, but at maximum the »Post-trigger time« set here. |
|  | »Max file size« | The maximum storage capacity per record, including pre-trigger and post-trigger time. The amount of records depends on the size of each record, on the max. file size (set here), and on the total storage capacity. |












3.3.10.2 Device Para / Recorders / Fault rec

| | | |
|---|----------------|--|
|  | »Record-Mode« | Recorder Mode (Set the behaviour of the recorder) |
|  | »t-meas-delay« | After the Trip, the measurement will be delayed for this time. |


3.3.10.3 Device Para / Recorders / Start rec

| | | |
|---|--------------|----------------------------------|
|  | »Resolution« | Resolution (recording frequency) |
|---|--------------|----------------------------------|




3.3.10.4 Device Para / Recorders / Trend rec

| | | |
|---|--------------|----------------------------------|
|  | »Resolution« | Resolution (recording frequency) |
|  | »Trend1« | Observed Value1 |
|  | »Trend2« | Observed Value2 |
|  | »Trend3« | Observed Value3 |
|  | »Trend4« | Observed Value4 |
|  | »Trend5« | Observed Value5 |
|  | »Trend6« | Observed Value6 |
|  | »Trend7« | Observed Value7 |
|  | »Trend8« | Observed Value8 |
|  | »Trend9« | Observed Value9 |
|  | »Trend10« | Observed Value10 |

3.3.11 Device Para / TCP/IP




| | | |
|---|-----------------|--------------------------------------|
|  | »TCP/IP config« | configuration of the TCP/IP protocol |
|---|-----------------|--------------------------------------|

3.3.11.1 Device Para / TCP/IP / Advanced Settings


| | | |
|---|-----------------------|--|
|  | »Keep Alive Time« | Keep Alive Time is the duration between two keep alive transmissions in idle condition |
|  | »Keep Alive Interval« | Keep Alive Interval is the duration between two successive keep alive retransmissions, if the acknowledgement to the previous keepalive transmission was not received. |
|  | »Keep Alive Retry« | Keep alive retry is the number of retransmissions to be carried out before declaring that the remote end is not available. |

3.3.12 Device Para / IEC 61850


3.3.12.1 Device Para / IEC 61850 / Communication

| | | |
|---|---------------------|--|
|  | »Function« | Permanent activation or deactivation of module/stage. |
|  | »Deadb integr time« | Deadband integration time. |
|  | »Simulation Mode« | Direct Command to activate the IEC61850 Simulation Mode, so that the "test" flag is set in all GOOSE messages that the device transmits. Moreover, the device reacts in Simulation Mode to only those messages that have this "test" flag set. |

3.3.12.2 Device Para / IEC 61850 / Virtual Outputs 1

















| | | |
|---|-------------------------|---|
|  | »COUTGGIO1.Ind1.stVal« | Virtual Output. This signal can be assigned or visualized via the SCD file to other devices within the IEC61850 substation. |
| | ... | |
| | »COUTGGIO1.Ind32.stVal« | |








3.3.12.3 Device Para / IEC 61850 / Virtual Outputs 2

| | | |
|---|-------------------------|---|
|  | »COUTGGIO2.Ind1.stVal« | Virtual Output. This signal can be assigned or visualized via the SCD file to other devices within the IEC61850 substation. |
| | ... | |
| | »COUTGGIO2.Ind32.stVal« | |

3.3.13 Device Para / DNP3


3.3.13.1 Device Para / DNP3 / Communication

| | | |
|---|-------------------------|--|
|  | »Function« | Permanent activation or deactivation of module/stage. |
|  | »IP Port Number« | IP Port Number. In general it is recommended to keep the default value. If this is not possible then select a number out of the private range 49152-52151 or 52164-65535 that is not yet in use within your network. |
|  | »Baud rate« | Baud rate for communication |
|  | »Frame Layout« | Frame Layout |
|  | »Optical rest position« | Optical rest position |
| <input checked="" type="radio"/> | »Slave Id« | SlaveId defines the DNP3 address of this device (Outstation) |
| <input checked="" type="radio"/> | »Master Id« | MasterId defines the DNP3 address of master (SCADA) |
|  | »SelfAddress« | Support of self (automatic) addresses |
|  | »DataLink confirm« | Enables or disables the data layer confirmation (ack). |
|  | »t-DataLink confirm« | Data layer confirmation timeout |
|  | »DataLink num retries« | Number of repetition of data link packet sending after failing |
|  | »Direction Bit« | Enables Direction Bit functionality. The Direction Bit is 0 for SlaveStation and 1 for MasterStation |
|  | »Max Frame Size« | This value is used to limit the net Frame Size |
|  | »Test Link Period« | This value specifies the time period when to send a Test Link-Frame |
|  | »AppLink confirm« | Determines if the device will request that the Application Layer response be confirmed or not |
|  | »t-AppLink confirm« | Application layer response timeout |
|  | »AppLink num retries« | The number of times the device will retransmit an Application Layer fragment |
|  | »Unsol Reporting« | Enables unsolicited reporting. This is available only for DNP3 TCP connections, and for DNP3 RTU in case of a peer-to-peer connection. |







| | | |
|---|---------------------------|---|
|  | »Unsol Reporting Timeout« | Set the amount of time that the outstation will wait for an Application Layer confirmation back from the master indicating that the master received the unsolicited response message. |
|  | »Unsol Reporting Retry« | Set the number of retries that an outstation transmits in each unsolicited response series if it does not receive confirmation back from the master. |
|  | »TestSeqNo« | Test if sequence number of request is incremented. If it is not correctly incremented the request will be ignored. It is recommended to have it inactive but some older DNP implementations need it activated. |
|  | »TestSBO« | It enables a stricter comparing of SBO and operate command. For older DNP versions it is recommended to deactivated it. |
|  | »Timeout SBO« | DNP Outputs can be controlled in a two stage procedure (SBO: Select Before Operate). These outputs are to be selected first by a Select command. After this the bit is reserved for this Operate request. This setting defines the timer for this reservation: After the timer has elapsed the bit is released. |
|  | »ColdRestart« | Enables support for Cold Restart function. |
|  | »Deadb integr time« | Deadband integration time. |

3.3.13.2 Device Para / DNP3 / Point map

3.3.13.2.1 Device Para / DNP3 / Point map / Binary Inputs

| | | |
|---|--|--|
|  | »BinaryInput 0« ... »BinaryInput 63« | Virtual Digital Input (DNP). This corresponds to a virtual binary output of the protective device. |
|---|--|--|




3.3.13.2.2 Device Para / DNP3 / Point map / Double Bit Inputs

| | | |
|---|--------------------|--|
|  | »DoubleBitInput 0« | Double Bit Digital Input (DNP). This corresponds to a double bit binary output of the protective device. |
|  | »DoubleBitInput 1« | Double Bit Digital Input (DNP). This corresponds to a double bit binary output of the protective device. |
|  | »DoubleBitInput 2« | Double Bit Digital Input (DNP). This corresponds to a double bit binary output of the protective device. |
|  | »DoubleBitInput 3« | Double Bit Digital Input (DNP). This corresponds to a double bit binary output of the protective device. |
|  | »DoubleBitInput 4« | Double Bit Digital Input (DNP). This corresponds to a double bit binary output of the protective device. |
|  | »DoubleBitInput 5« | Double Bit Digital Input (DNP). This corresponds to a double bit binary output of the protective device. |

3.3.13.2.3 Device Para / DNP3 / Point map / BinaryCounter

| | | |
|---|-------------------|---|
|  | »BinaryCounter 0« | Counter can be used to report counter values to the DNP master. |
|  | »BinaryCounter 1« | Counter can be used to report counter values to the DNP master. |
|  | »BinaryCounter 2« | Counter can be used to report counter values to the DNP master. |
|  | »BinaryCounter 3« | Counter can be used to report counter values to the DNP master. |
|  | »BinaryCounter 4« | Counter can be used to report counter values to the DNP master. |
|  | »BinaryCounter 5« | Counter can be used to report counter values to the DNP master. |
|  | »BinaryCounter 6« | Counter can be used to report counter values to the DNP master. |
|  | »BinaryCounter 7« | Counter can be used to report counter values to the DNP master. |

3.3.13.2.4 Device Para / DNP3 / Point map / Analog Input

| | | |
|---|--|---|
|  | »Analog value 0« ... »Analog value 31« | Analog value can be used to report values to the master (DNP) |
|  | »Scale Factor 0« ... »Scale Factor 31« | The scale factor is used to convert the measured value in an integer format |
|  | »Dead Band 0« ... »Dead Band 31« | If a change of measured value is greater than the deadband value it will be reported to the master. |



3.3.14 Device Para / Modbus

3.3.14.1 Device Para / Modbus / Communication




3.3.14.1.1 Device Para / Modbus / Communication / General Settings

| | | |
|---|-------------------------|--|
|  | »t-call« | If there is no request telegram sent from Scada to the device after expiry of this time - the device concludes a communication failure within the Scada system. |
|  | »Scada CmdBlo« | Activating (allowing)/ Deactivating (disallowing) the blocking of the Scada Commands |
|  | »Disable Latching« | Disable Latching: If this parameter is active (true), none of the Modbus states will be latched. That means that trip signals wont be latched by Modbus. |
|  | »AllowGap« | If this parameter is active (True), the user can request a set of modbus register without getting an exception, because of invalid address in the requested array. The invalid addresses have a special value 0xFAFA, but the user is responsible for ignoring invalid addresses. Attention: This special value can be valid, if address is valid. |
|  | »Optical rest position« | Optical rest position |

3.3.14.1.2 Device Para / Modbus / Communication / TCP



| | | |
|---|-------------------|--|
| <input checked="" type="radio"/> | »Unit ID« | The Unit Identifier is used for routing. This parameter is to be set, if a Modbus RTU and a Modbus TCP network should be coupled. |
|  | »TCP Port Config« | TCP Port Configuration. This parameter needs to be set to "Private" only if another TCP Port than the default one shall be used. |
|  | »Port« | IP Port Number. In general it is recommended to keep the default value. if this is not possible then select a number out of the private range 49152-52151 or 52164-65535 that is not yet in use within your network. |

3.3.14.1.3 Device Para / Modbus / Communication / RTU



| | | |
|---|---------------------|---|
| <input checked="" type="radio"/> | »Slave ID« | Device address (Slave ID) within the bus system. Each device address has to be unique within a bus system. |
|  | »t-timeout« | Maximum time that is available to the device for sending an answer to the SCADA system. If the device detects that this time has elapsed (i.e. it failed to send its answer within this time) then it cancels the answer. The time set here must not be longer than the corresponding timeout set for the SCADA system. |
|  | »Baud rate« | Baud rate |
|  | »Physical Settings« | Digit 1: Number of bits. Digit 2: E=even parity, O=odd parity, N=no parity. Digit 3: Number of stop bits. More information on the parity: It is possible that the last data bit is followed by a parity bit which is used for recognition of communication errors. The parity bit ensures that with even parity ("EVEN") always an even number of bits with valence "1" or with odd parity ("ODD") an odd number of "1" valence bits are transmitted. But it is also possible to transmit no parity bits (here the setting is "Parity = None"). More information on the stop-bits: The end of a data byte is terminated by the stop-bits. |

3.3.14.2 Device Para / Modbus / Configb Registers





3.3.14.2.1 Device Para / Modbus / Configb Registers / States

| | | |
|---|--|--|
|  | »Config Bin Inp1« ... »Config Bin Inp32« | Virtual Digital Input. This corresponds to a virtual binary output of the protective device. |
|  | »Latched Config Bin Inp1« ... »Latched Config Bin Inp32« | Latched Configurable Binary Input |

3.3.14.2.2 Device Para / Modbus / Configb Registers / Measured Values










| | | |
|---|------------------|---|
|  | »Mapped Meas 1« | Mapped Measured Values. They can be used to provide measured values to the Modbus Master. |
|  | »Mapped Meas 2« | Mapped Measured Values. They can be used to provide measured values to the Modbus Master. |
|  | »Mapped Meas 3« | Mapped Measured Values. They can be used to provide measured values to the Modbus Master. |
|  | »Mapped Meas 4« | Mapped Measured Values. They can be used to provide measured values to the Modbus Master. |
|  | »Mapped Meas 5« | Mapped Measured Values. They can be used to provide measured values to the Modbus Master. |
|  | »Mapped Meas 6« | Mapped Measured Values. They can be used to provide measured values to the Modbus Master. |
|  | »Mapped Meas 7« | Mapped Measured Values. They can be used to provide measured values to the Modbus Master. |
|  | »Mapped Meas 8« | Mapped Measured Values. They can be used to provide measured values to the Modbus Master. |
|  | »Mapped Meas 9« | Mapped Measured Values. They can be used to provide measured values to the Modbus Master. |
|  | »Mapped Meas 10« | Mapped Measured Values. They can be used to provide measured values to the Modbus Master. |
|  | »Mapped Meas 11« | Mapped Measured Values. They can be used to provide measured values to the Modbus Master. |
|  | »Mapped Meas 12« | Mapped Measured Values. They can be used to provide measured values to the Modbus Master. |
|  | »Mapped Meas 13« | Mapped Measured Values. They can be used to provide measured values to the Modbus Master. |
|  | »Mapped Meas 14« | Mapped Measured Values. They can be used to provide measured values to the Modbus Master. |
|  | »Mapped Meas 15« | Mapped Measured Values. They can be used to provide measured values to the Modbus Master. |
|  | »Mapped Meas 16« | Mapped Measured Values. They can be used to provide measured values to the Modbus Master. |

3.3.14.3 Device Para / Modbus / Config. Data Obj.





| | | |
|---|-------------------------|---|
|  | »Type of SCADA mapping« | This setting decides whether the communication protocol shall use the default mapping of data objects, or some user-defined mapping that has been loaded from a *.HptSMap file. |
|  | »Config info« | Configuration comment (entered by the user during SCADA configuration) |
|  | »Config version« | Version of the user-defined SCADA configuration |
|  | »Config status« | Status of the user-defined SCADA configuration. Possible values: - New SCADA configuration is being loaded, but not active yet. - The SCADA configuration is active. - The user-defined SCADA configuration is not available (e.g. has not been loaded into the device). - Unexpected error. Please contact our service-team. |

3.3.15 Device Para / IEC103

3.3.15.1 Device Para / IEC103 / General Settings







| | | |
|---|------------------------|---|
|  | »Function« | Activation or deactivation of the IEC103 communication. |
|  | »Slave ID« | Device address (Slave ID) within the bus system. Each device address has to be unique within a bus system. |
|  | »Baud rate« | Baud rate |
|  | »Physical Settings« | Digit 1: Number of bits. Digit 2: E=even parity, O=odd parity, N=no parity. Digit 3: Number of stop bits. More information on the parity: It is possible that the last data bit is followed by a parity bit which is used for recognition of communication errors. The parity bit ensures that with even parity ("EVEN") always an even number of bits with valence "1" or with odd parity ("ODD") an odd number of "1" valence bits are transmitted. But it is also possible to transmit no parity bits (here the setting is "Parity = None"). More information on the stop-bits: The end of a data byte is terminated by the stop-bits. |
|  | »Timezone« | Selection whether the timestamps in IEC103 messages shall be given as UTC or local time. ("Local time" always includes the actual daylight saving settings.) |
|  | »Transfer Disturb Rec« | Activates the transmission of disturbance records |
|  | »Energy Pulse Rate« | The energy values are always transmitted as counter values (i.e. as integer numbers). This setting defines the unit: If "1" is set then each counter increment is 1 kWh, if "2" is set then each counter increment is 2 kWh, etc. The setting "0" has the effect that no energy values are transmitted. |
|  | »t-call« | If there is no request telegram sent from Scada to the device after expiry of this time - the device concludes a communication failure within the Scada system. |
|  | »DFC-Compat.« | This setting is only required for certain substation implementations. If there should be communication problems related to the Command Response Queue this setting switches the device over to a different behavior. |

3.3.15.2 Device Para / IEC103 / Config. Data Obj.





| | | |
|---|-------------------------|--|
|  | »Type of SCADA mapping« | This setting decides whether the communication protocol shall use the default mapping of data objects, or some user-defined mapping that has been loaded from a *.HptSMap file. |
|  | »Config info« | Configuration comment (entered by the user during SCADA configuration) |
|  | »Config version« | Version of the user-defined SCADA configuration |
|  | »Config status« | Status of the user-defined SCADA configuration. Possible values: - Changing: New SCADA configuration is being loaded, but not active yet. - OK: The SCADA configuration is active. - Config. not avail.: The user-defined SCADA configuration is not available (e.g. has not been loaded into the device). - Error: Unexpected error. Please contact our service-team. |

3.3.16 Device Para / IEC104





3.3.16.1 Device Para / IEC104 / General Settings

| | | |
|---|---------------------|--|
|  | »Function« | Activation or deactivation of the IEC104 communication. |
|  | »TCP Port Config« | TCP Port Configuration. This parameter needs to be set to "Private" only if another TCP Port than the default one shall be used. |
|  | »Port« | IP Port Number. In general it is recommended to keep the default value. if this is not possible then select a number out of the private range 49152-52151 or 52164-65535 that is not yet in use within your network. |
| <input checked="" type="radio"/> | »Common address« | Common Address of the ASDU |
|  | »Timezone« | Selection whether the timestamps in the transmitted communication telegrams shall be given as UTC or local time. ("Local time" always includes the actual daylight saving settings.) |
|  | »Deadb integr time« | Deadband integration time. |
|  | »Timeout SBE« | The communication outputs can be controlled in a two-stage procedure (SBE: Select Before Execute). These outputs have to be selected first by a Select command. After this the bit is reserved for this Execute request. This setting defines the timer for this reservation: After the timer has elapsed the bit is released. |

3.3.16.2 Device Para / IEC104 / Advanced



| | | |
|---|--------------------------|--|
|  | »Timeout t0« | Timeout of connection establishment |
|  | »Timeout t1« | Timeout of send or test APDUs |
|  | »Timeout t2« | Timeout for acknowledges in case of no data messages |
|  | »Timeout t3« | Timeout for sending test frames in case of a long idle state |
|  | »Param k« | Protocol parameter k |
|  | »Param w« | Protocol parameter w |
|  | »Length of address« | Number of bytes of the Common Address of the ASDU |
|  | »Length of CoT« | Number of bytes of the Cause of Transmission |
|  | »Length of Inf Obj addr« | Number of bytes of the address of the Information Object |
|  | »Update time« | This setting specifies the time after which measurement values are refreshed. If cyclic transmission is selected new values are reported after this time has elapsed. |
|  | »Transmit Int. State« | If this parameter is set to “active” (default) then the intermediate position of a switchgear, too, is transmitted. This needs to be changed to “inactive” only in the rare case that the substation communication does not support the reporting of intermediate positions. |
|  | »Trans. Cmd. State« | _ If false it suppress change events for command states (Same address as cmd) |

3.3.16.3 Device Para / IEC104 / Config. Data Obj.



| | | |
|---|-------------------------|--|
|  | »Type of SCADA mapping« | This setting decides whether the communication protocol shall use the default mapping of data objects, or some user-defined mapping that has been loaded from a *.HptSMap file. |
|  | »Config info« | Configuration comment (entered by the user during SCADA configuration) |
|  | »Config version« | Version of the user-defined SCADA configuration |
|  | »Config status« | Status of the user-defined SCADA configuration. Possible values: - Changing: New SCADA configuration is being loaded, but not active yet. - OK: The SCADA configuration is active. - Config. not avail.: The user-defined SCADA configuration is not available (e.g. has not been loaded into the device). - Error: Unexpected error. Please contact our service-team. |

3.3.17 Device Para / Profibus



3.3.17.1 Device Para / Profibus / Bus parameters

| | | |
|---|-----------------|--|
|  | »Slave ID« | Device address (Slave ID) within the bus system. Each device address has to be unique within a bus system. |
|  | »Little Endian« | If this setting is “active” all numbers are transmitted with the byte order Little Endian, otherwise the byte order Big Endian is used. (If all numbers received by your SCADA system should be completely wrong, changing this setting might help.) |





3.3.17.2 Device Para / Profibus / ConfigBinInp 1-16

| | | |
|---|--|--|
|  | »ConfigBinInp 1« ... »ConfigBinInp 16« | Virtual Digital Input. This corresponds to a virtual binary output of the protective device. |
|  | »Latched 1« ... »Latched 16« | Defines whether the Input is latched. |


3.3.17.3 Device Para / Profibus / ConfigBinInp 17-32

| | | |
|---|---|--|
|  | »ConfigBinInp 17« ... »ConfigBinInp 32« | Virtual Digital Input. This corresponds to a virtual binary output of the protective device. |
|  | »Latched 17« ... »Latched 32« | Defines whether the Input is latched. |













3.3.17.4 Device Para / Profibus / Config. Data Obj.

| | | |
|---|-------------------------|---|
|  | »Type of SCADA mapping« | This setting decides whether the communication protocol shall use the default mapping of data objects, or some user-defined mapping that has been loaded from a *.HptSMap file. |
|  | »Config info« | Configuration comment (entered by the user during SCADA configuration) |
|  | »Config version« | Version of the user-defined SCADA configuration |
|  | »Config status« | Status of the user-defined SCADA configuration. Possible values: |

3.3.18 Device Para / Time


| | | |
|---|-----------------|----------------------------|
|  | »Date and Time« | (Re-)setting Date and Time |
|---|-----------------|----------------------------|

3.3.18.1 Device Para / Time / Timezone



| | | |
|---|------------------|--|
|  | »Time Zones« | Time Zones |
|  | »DST offset« | Difference to wintertime |
|  | »DST manual« | Manual setting of the Daylight Saving Time |
|  | »Summertime« | Daylight Saving Time |
|  | »Summertime m« | Month of clock change summertime |
|  | »Summertime d« | Day of clock change summertime |
|  | »Summertime w« | Place of selected day in month (for clock change summertime) |
|  | »Summertime h« | Hour of clock change summertime |
|  | »Summertime min« | Minute of clock change summertime |
|  | »Wintertime m« | Month of clock change wintertime |
|  | »Wintertime d« | Day of clock change wintertime |
|  | »Wintertime w« | Place of selected day in month (for clock change wintertime) |
|  | »Wintertime h« | Hour of clock change wintertime |
|  | »Wintertime min« | Minute of clock change wintertime |

3.3.18.2 Device Para / Time / TimeSync

3.3.18.2.1 Device Para / Time / TimeSync / TimeSync

| | | |
|---|------------|----------------------|
|  | »TimeSync« | Time synchronisation |
|---|------------|----------------------|








3.3.18.2.2 Device Para / Time / TimeSync / IRIG-B

| | | |
|---|-------------|--|
|  | »Function« | Permanent activation or deactivation of module/stage. |
|  | »IRIG-B00X« | Determination of the Type: IRIG-B00X. IRIG-B types differ in types of included "Coded Expressions" (year, control-functions, straight-binary-seconds). |

3.3.18.2.3 Device Para / Time / TimeSync / SNTP





| | | |
|---|------------|-----------------|
|  | »Server1« | Server 1 |
|  | »IP Byte1« | IP1.IP2.IP3.IP4 |
|  | »IP Byte2« | IP1.IP2.IP3.IP4 |
|  | »IP Byte3« | IP1.IP2.IP3.IP4 |
|  | »IP Byte4« | IP1.IP2.IP3.IP4 |
|  | »Server2« | Server 2 |
|  | »IP Byte1« | IP1.IP2.IP3.IP4 |
|  | »IP Byte2« | IP1.IP2.IP3.IP4 |
|  | »IP Byte3« | IP1.IP2.IP3.IP4 |
|  | »IP Byte4« | IP1.IP2.IP3.IP4 |

3.3.19 Device Para / Version







| | | |
|---|--------------------|--|
|  | »DM version« | Version of the device model |
|  | »SW version« | Version of the device firmware |
|  | »Build« | Build Number |
|  | »CAT No.« | »CAT No.«, Order Code as printed on the nameplate of the device. |
|  | »REV.« | Revision (as printed on the nameplate of the device). |
|  | »S/N« | The serial number of the device. |
|  | »Bootloader Build« | Build number of the bootloader |

3.4 Field Para







3.4.1 Field Para / General Settings

| | | |
|---|-----------------------|---|
|  | »Phase Sequence« | Phase Sequence |
|  | »f« | Nominal frequency |
|  | »Program Mode« | Program Mode |
|  | »Setting Lock Bypass« | Short-period unlock of the Setting Lock |

3.4.2 Field Para / CT

| | | |
|---|-----------|--|
|  | »CT pri« | Nominal current of the primary side of the current transformers. |
|  | »CT sec« | Nominal current of the secondary side of the current transformers. |
|  | »CT dir« | Protection functions with directional feature can only work properly if the connection of the current transformers is free of wiring errors. If all current transformers are connected to the device with an incorrect polarity, the wiring error can be compensated by this parameter. This parameter turns the current vectors by 180 degrees. |
|  | »ECT pri« | This parameter defines the primary nominal current of the connected earth current transformer. If the earth current is measured via the Holmgreen connection, the primary value of the phase current transformer must be entered here. |
|  | »ECT sec« | This parameter defines the secondary nominal current of the connected earth current transformer. If the earth current is done via the Holmgreen connection, the primary value of the phase current transformer must be entered here. |
|  | »ECT dir« | Earth fault protection with directional feature depends also on the correct wiring of the earth current transformer. An incorrect polarity/wiring can be corrected by means of the settings "0°" or "180°". The operator has the possibility of turning the current vector by 180 degrees (change of sign) without modification of the wiring. This means, that - in terms of figures - the determined current indicator was turned by 180° by the device. |








3.4.3 Field Para / Motor Nominal Values

| | | |
|---|-------------|---|
|  | »Reversing« | This setting specifies whether or not the starter for this motor is designed to reverse the phase sequence and to make the motor run in either direction. If set to "active", either phase sequence is accepted during a motor start. If set to "inactive", the reversed phase sequence leads to a trip. |
|  | »Ib« | Full load current (amperes). Set to maximum stator continuous RMS current primary (actual motor winding) amperes in each phase. Use motor nameplate or manufacturers data. Note that the ratio Ib/CT prim must lie between 0.25 and 1.5 in order to have reliable motor protection. |
|  | »LRC« | Set to the locked-rotor current (the current the motor draws when stalled), in times of Ib. Use motor nameplate or manufacturers data. |
|  | »LRTC« | Specifies how long a locked-rotor or stall condition can be maintained before the motor is damaged, in seconds, for a cold start. Use motor nameplate or manufacturers data. |
|  | »STPC« | Stop current threshold, in percent of Ib, if the actual current is below the threshold for at least 300 milliseconds. If a stop state occurs, the jogging functions Starts per Hour Allowed (SPH), Time Between Starts (TBS) and Anti-Backspin (ABS) are enforced. All phases of the current must be below this level before a stop will be declared. |
|  | »k-Factor « | The k-Factor is to be calculated by the maximum allowed continuous current over the rated current transformer current (e.g. 1.2 times rated motor current over rated transformer current). |

3.5 Protection Para




















3.5.1 Protection Para / Global Prot Para

3.5.1.1 Protection Para / Global Prot Para / Prot

| | | |
|---|--------------------|--|
|  | »Function« | Permanent activation or deactivation of module/stage. |
|  | »ExBlo Fc« | Activate (allow) the external blocking of the global protection functionality of the device. |
|  | »ExBlo1« | If external blocking of this module is activated (allowed), the global protection functionality of the device will be blocked if the state of the assigned signal becomes true. |
|  | »ExBlo2« | If external blocking of this module is activated (allowed), the global protection functionality of the device will be blocked if the state of the assigned signal becomes true. |
|  | »Blo TripCmd« | Permanent blocking of the Trip Command of the entire Protection. |
|  | »ExBlo TripCmd Fc« | Activate (allow) the external blocking of the trip command of the entire device. |
|  | »ExBlo TripCmd« | If external blocking of the tripping command is activated (allowed), the tripping command of the entire device will be blocked if the state of the assigned signal becomes true. |

3.5.1.2 Protection Para / Global Prot Para / MStart






3.5.1.2.1 Protection Para / Global Prot Para / MStart / Start Control

| | | |
|---|------------------|---|
|  | »ExBlo TripCmd« | External blocking of the Trip Command of the module/the stage, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »TRN Criterion« | Start transition criterion |
|  | »TRNT« | Motor start transition time limit |
|  | »TRNC« | Motor start transitions current level in Ib% |
|  | »NOCS« | Number of cold starts limit |
|  | »TBS Fc« | Time Between Starts on/off |
|  | »TBS Timer« | Time Between Starts Limit |
|  | »SPH Fc« | Starts Per Hour |
|  | »SPH« | SPH |
|  | »InSq Fc« | Type of starting point for the Incomplete Sequence timer |
|  | »InSq Time« | Report back time (time limit) for the detection of an Incomplete Sequence (of a motor start) |
|  | »LAT Fc« | Long Time Acceleration Timer |
|  | »LAT Timer« | Large motors with a high inertia may experience starting currents that exceed the locked rotor current and time. The protective relay has logic and provisions for a zero speed switch input to differentiate between a stall and start condition. If the motor is spinning then the relay will not trip on the normal locked rotor time allowing the motor to start. |
|  | »ABS Fc« | For certain applications, such as pumping a fluid up a pipe, the motor may be driven backward for a period of time after it stops. The protective relay provides an anti-backspin timer to prevent starting the motor while it is spinning in the reverse direction. The timer begins counting from the moment a stop is declared by the relay. |
|  | »ABS Timer« | For certain applications, such as pumping a fluid up a pipe, the motor may be driven backward for a period of time after it stops. The protective relay provides an anti-backspin timer to prevent starting the motor while it is spinning in the reverse direction. The timer begins counting from the moment a stop is declared by the relay. |
|  | »ZSS« | Zero Speed Switch |
|  | »EmgOvr« | Emergency override options. Signal has to be active in order to release the thermal capacity of the motor. Please notice that by doing this you run the risk of damaging the motor. "EMGOVR" has to be set to "DI" or "DI or UI" for this input to take effect. |
|  | »RemStartBlo Fc« | RemStartBlo Fc |
|  | »ThermBlo Fc« | ThermBlo Fc |











3 Menu

3.5.1.2.2 Protection Para / Global Prot Para / MStart / Motor Inputs

3.5.1.2.2 Protection Para / Global Prot Para / MStart / Motor Inputs










| | | |
|---|-----------------|--|
|  | »RemStartBlock« | Remote Motor Start Blocking |
|  | »EmgOvr« | Emergency Override. Signal has to be active in order to release the thermal capacity of the motor. Please notice that by doing this you run the risk of damaging the motor. "EMGOVR" has to be set to "DI" or "DI or UI" for this input to take effect |
|  | »InSq« | Incomplete Sequence |
|  | »ZSS« | Zero Speed Switch |
|  | »STPC Blo« | With this setting a Digital Input keeps the Motor in the RUN mode, even when the motor current drops below STPC (motor stop current). |

3.5.1.2.3 Protection Para / Global Prot Para / MStart / Start Delay Timer










| | | |
|---|------------------|---|
|  | »t-Blo-IOC« | Phase Overcurrent Start Delay. Phase Overcurrent elements are blocked for the time programmed under this parameter, while the motor is starting. |
|  | »t-Blo-GOC« | Ground Overcurrent Start Delay. Ground Overcurrent elements are blocked for the time programmed under this parameter, while the motor is starting |
|  | »t-Blo-I<« | Underload Start Delay. 37[x] elements are blocked for the time programmed under this parameter, while the motor is starting |
|  | »t-Blo-I2>« | Current Unbalance Start Delay. 46[x] elements are blocked for the time programmed under this parameter, while the motor is starting |
|  | »t-Blo-JAM« | Jam Start Delay. 50J[x] elements are blocked for the time programmed under this parameter, while the motor is starting |
|  | »t-Blo-Generic1« | Generic Start Delay. This value can be used to block any protective element. |
|  | »t-Blo-Generic2« | Generic Start Delay. This value can be used to block any protective element. |
|  | »t-Blo-Generic3« | Generic Start Delay. This value can be used to block any protective element. |
|  | »t-Blo-Generic4« | Generic Start Delay. This value can be used to block any protective element. |
|  | »t-Blo-Generic5« | Generic Start Delay. This value can be used to block any protective element. |

3.5.1.3 Protection Para / Global Prot Para / I-Prot

3.5.1.3.1 Protection Para / Global Prot Para / I-Prot / I[1]

| | | |
|---|-----------------------|--|
|  | »ExBlo1« | External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »ExBlo2« | External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »ExBlo dur. Mot.Strt« | External blocking of the module, if the state of the assigned signal is true. This way it is possible to block the module during the motor start phase. |
|  | »ExBlo TripCmd« | External blocking of the Trip Command of the module/the stage, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »Ex rev Interl« | External blocking of the module by external reverse interlocking, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »AdaptSet 1« | Assignment Adaptive Parameter 1 |
|  | »AdaptSet 2« | Assignment Adaptive Parameter 2 |
|  | »AdaptSet 3« | Assignment Adaptive Parameter 3 |
|  | »AdaptSet 4« | Assignment Adaptive Parameter 4 |










3.5.1.3.2 Protection Para / Global Prot Para / I-Prot / I[2]

| | | |
|---|-----------------------|--|
|  | »ExBlo1« | External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »ExBlo2« | External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »ExBlo dur. Mot.Strt« | External blocking of the module, if the state of the assigned signal is true. This way it is possible to block the module during the motor start phase. |
|  | »ExBlo TripCmd« | External blocking of the Trip Command of the module/the stage, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »Ex rev Interl« | External blocking of the module by external reverse interlocking, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »AdaptSet 1« | Assignment Adaptive Parameter 1 |
|  | »AdaptSet 2« | Assignment Adaptive Parameter 2 |
|  | »AdaptSet 3« | Assignment Adaptive Parameter 3 |
|  | »AdaptSet 4« | Assignment Adaptive Parameter 4 |










3 Menu

3.5.1.3.3 Protection Para / Global Prot Para / I-Prot / I[3]










3.5.1.3.3 Protection Para / Global Prot Para / I-Prot / I[3]

| | | |
|---|-----------------------|--|
|  | »ExBlo1« | External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »ExBlo2« | External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »ExBlo dur. Mot.Strt« | External blocking of the module, if the state of the assigned signal is true. This way it is possible to block the module during the motor start phase. |
|  | »ExBlo TripCmd« | External blocking of the Trip Command of the module/the stage, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »Ex rev Interl« | External blocking of the module by external reverse interlocking, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »AdaptSet 1« | Assignment Adaptive Parameter 1 |
|  | »AdaptSet 2« | Assignment Adaptive Parameter 2 |
|  | »AdaptSet 3« | Assignment Adaptive Parameter 3 |
|  | »AdaptSet 4« | Assignment Adaptive Parameter 4 |










3.5.1.3.4 Protection Para / Global Prot Para / I-Prot / I[4]

| | | |
|---|-----------------------|--|
|  | »ExBlo1« | External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »ExBlo2« | External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »ExBlo dur. Mot.Strt« | External blocking of the module, if the state of the assigned signal is true. This way it is possible to block the module during the motor start phase. |
|  | »ExBlo TripCmd« | External blocking of the Trip Command of the module/the stage, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »Ex rev Interl« | External blocking of the module by external reverse interlocking, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »AdaptSet 1« | Assignment Adaptive Parameter 1 |
|  | »AdaptSet 2« | Assignment Adaptive Parameter 2 |
|  | »AdaptSet 3« | Assignment Adaptive Parameter 3 |
|  | »AdaptSet 4« | Assignment Adaptive Parameter 4 |

3.5.1.3.5 Protection Para / Global Prot Para / I-Prot / I[5]

| | | |
|---|-----------------------|--|
|  | »ExBlo1« | External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »ExBlo2« | External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »ExBlo dur. Mot.Strt« | External blocking of the module, if the state of the assigned signal is true. This way it is possible to block the module during the motor start phase. |
|  | »ExBlo TripCmd« | External blocking of the Trip Command of the module/the stage, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »Ex rev Interl« | External blocking of the module by external reverse interlocking, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »AdaptSet 1« | Assignment Adaptive Parameter 1 |
|  | »AdaptSet 2« | Assignment Adaptive Parameter 2 |
|  | »AdaptSet 3« | Assignment Adaptive Parameter 3 |
|  | »AdaptSet 4« | Assignment Adaptive Parameter 4 |










3.5.1.3.6 Protection Para / Global Prot Para / I-Prot / I[6]

| | | |
|---|-----------------------|--|
|  | »ExBlo1« | External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »ExBlo2« | External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »ExBlo dur. Mot.Strt« | External blocking of the module, if the state of the assigned signal is true. This way it is possible to block the module during the motor start phase. |
|  | »ExBlo TripCmd« | External blocking of the Trip Command of the module/the stage, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »Ex rev Interl« | External blocking of the module by external reverse interlocking, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »AdaptSet 1« | Assignment Adaptive Parameter 1 |
|  | »AdaptSet 2« | Assignment Adaptive Parameter 2 |
|  | »AdaptSet 3« | Assignment Adaptive Parameter 3 |
|  | »AdaptSet 4« | Assignment Adaptive Parameter 4 |










3 Menu

3.5.1.3.7 Protection Para / Global Prot Para / I-Prot / IG[1]










3.5.1.3.7 Protection Para / Global Prot Para / I-Prot / IG[1]

| | | |
|---|-----------------------|--|
|  | »ExBlo1« | External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »ExBlo2« | External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »ExBlo dur. Mot.Strt« | External blocking of the module, if the state of the assigned signal is true. This way it is possible to block the module during the motor start phase. |
|  | »ExBlo TripCmd« | External blocking of the Trip Command of the module/the stage, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »Ex rev Interl« | External blocking of the module by external reverse interlocking, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »AdaptSet 1« | Assignment Adaptive Parameter 1 |
|  | »AdaptSet 2« | Assignment Adaptive Parameter 2 |
|  | »AdaptSet 3« | Assignment Adaptive Parameter 3 |
|  | »AdaptSet 4« | Assignment Adaptive Parameter 4 |










3.5.1.3.8 Protection Para / Global Prot Para / I-Prot / IG[2]

| | | |
|---|-----------------------|--|
|  | »ExBlo1« | External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »ExBlo2« | External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »ExBlo dur. Mot.Strt« | External blocking of the module, if the state of the assigned signal is true. This way it is possible to block the module during the motor start phase. |
|  | »ExBlo TripCmd« | External blocking of the Trip Command of the module/the stage, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »Ex rev Interl« | External blocking of the module by external reverse interlocking, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »AdaptSet 1« | Assignment Adaptive Parameter 1 |
|  | »AdaptSet 2« | Assignment Adaptive Parameter 2 |
|  | »AdaptSet 3« | Assignment Adaptive Parameter 3 |
|  | »AdaptSet 4« | Assignment Adaptive Parameter 4 |

3.5.1.3.9 Protection Para / Global Prot Para / I-Prot / IG[3]

| | | |
|---|-----------------------|--|
|  | »ExBlo1« | External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »ExBlo2« | External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »ExBlo dur. Mot.Strt« | External blocking of the module, if the state of the assigned signal is true. This way it is possible to block the module during the motor start phase. |
|  | »ExBlo TripCmd« | External blocking of the Trip Command of the module/the stage, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »Ex rev Interl« | External blocking of the module by external reverse interlocking, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »AdaptSet 1« | Assignment Adaptive Parameter 1 |
|  | »AdaptSet 2« | Assignment Adaptive Parameter 2 |
|  | »AdaptSet 3« | Assignment Adaptive Parameter 3 |
|  | »AdaptSet 4« | Assignment Adaptive Parameter 4 |







3.5.1.3.10 Protection Para / Global Prot Para / I-Prot / IG[4]

| | | |
|---|-----------------------|--|
|  | »ExBlo1« | External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »ExBlo2« | External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »ExBlo dur. Mot.Strt« | External blocking of the module, if the state of the assigned signal is true. This way it is possible to block the module during the motor start phase. |
|  | »ExBlo TripCmd« | External blocking of the Trip Command of the module/the stage, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »Ex rev Interl« | External blocking of the module by external reverse interlocking, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »AdaptSet 1« | Assignment Adaptive Parameter 1 |
|  | »AdaptSet 2« | Assignment Adaptive Parameter 2 |
|  | »AdaptSet 3« | Assignment Adaptive Parameter 3 |
|  | »AdaptSet 4« | Assignment Adaptive Parameter 4 |





3 Menu

3.5.1.3.11 Protection Para / Global Prot Para / I-Prot / ThR





3.5.1.3.11 Protection Para / Global Prot Para / I-Prot / ThR

| | | |
|---|------------------|---|
|  | »ExBlo1« | External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »ExBlo2« | External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »ExBlo TripCmd« | External blocking of the Trip Command of the module/the stage, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »Use RTD values« | Take RTD values into account for the calculation of the Thermal Model. |
|  | »K2« | This value represents the negative sequence current weighting factor of the motor. |
|  | »τ-cool« | Cooling time constant |

3.5.1.3.12 Protection Para / Global Prot Para / I-Prot / I2>[1]





| | | |
|---|-----------------------|---|
|  | »ExBlo1« | External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »ExBlo2« | External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »ExBlo dur. Mot.Strt« | External blocking of the module, if the state of the assigned signal is true. This way it is possible to block the module during the motor start phase. |
|  | »ExBlo TripCmd« | External blocking of the Trip Command of the module/the stage, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |

3.5.1.3.13 Protection Para / Global Prot Para / I-Prot / I2>[2]





| | | |
|---|-----------------------|---|
|  | »ExBlo1« | External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »ExBlo2« | External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »ExBlo dur. Mot.Strt« | External blocking of the module, if the state of the assigned signal is true. This way it is possible to block the module during the motor start phase. |
|  | »ExBlo TripCmd« | External blocking of the Trip Command of the module/the stage, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |

3.5.1.4 Protection Para / Global Prot Para / JAM-Prot

3.5.1.4.1 Protection Para / Global Prot Para / JAM-Prot / Jam[1]





| | | |
|---|-----------------------|---|
|  | »ExBlo1« | External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »ExBlo2« | External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »ExBlo dur. Mot.Strt« | External blocking of the module, if the state of the assigned signal is true. This way it is possible to block the module during the motor start phase. |
|  | »ExBlo TripCmd« | External blocking of the Trip Command of the module/the stage, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |

3.5.1.4.2 Protection Para / Global Prot Para / JAM-Prot / Jam[2]

| | | |
|---|-----------------------|---|
|  | »ExBlo1« | External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »ExBlo2« | External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »ExBlo dur. Mot.Strt« | External blocking of the module, if the state of the assigned signal is true. This way it is possible to block the module during the motor start phase. |
|  | »ExBlo TripCmd« | External blocking of the Trip Command of the module/the stage, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |

3.5.1.5 Protection Para / Global Prot Para / Underload-Prot





3.5.1.5.1 Protection Para / Global Prot Para / Underload-Prot / I<[1]

| | | |
|---|-----------------------|---|
|  | »ExBlo1« | External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »ExBlo2« | External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »ExBlo dur. Mot.Strt« | External blocking of the module, if the state of the assigned signal is true. This way it is possible to block the module during the motor start phase. |
|  | »ExBlo TripCmd« | External blocking of the Trip Command of the module/the stage, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |





3 Menu

3.5.1.5.2 Protection Para / Global Prot Para / Underload-Prot / I<[2]



3.5.1.5.2 Protection Para / Global Prot Para / Underload-Prot / I<[2]

| | | |
|---|-----------------------|---|
|  | »ExBlo1« | External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »ExBlo2« | External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »ExBlo dur. Mot.Strt« | External blocking of the module, if the state of the assigned signal is true. This way it is possible to block the module during the motor start phase. |
|  | »ExBlo TripCmd« | External blocking of the Trip Command of the module/the stage, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |

3.5.1.5.3 Protection Para / Global Prot Para / Underload-Prot / I<[3]






| | | |
|--|-----------------------|---|
|  | »ExBlo1« | External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »ExBlo2« | External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »ExBlo dur. Mot.Strt« | External blocking of the module, if the state of the assigned signal is true. This way it is possible to block the module during the motor start phase. |
|  | »ExBlo TripCmd« | External blocking of the Trip Command of the module/the stage, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |

3.5.1.6 Protection Para / Global Prot Para / MLS






| | | |
|---|----------|---|
|  | »ExBlo1« | External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »ExBlo2« | External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |

3.5.1.7 Protection Para / Global Prot Para / ExP






3.5.1.7.1 Protection Para / Global Prot Para / ExP / ExP[1]

| | | |
|---|-----------------|---|
|  | »ExBlo1« | External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »ExBlo2« | External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »ExBlo TripCmd« | External blocking of the Trip Command of the module/the stage, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »Alarm« | Assignment for External Alarm |
|  | »Trip« | External trip of the CB if the state of the assigned signal is true. |






3.5.1.7.2 Protection Para / Global Prot Para / ExP / ExP[2]

| | | |
|---|-----------------|---|
|  | »ExBlo1« | External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »ExBlo2« | External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »ExBlo TripCmd« | External blocking of the Trip Command of the module/the stage, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »Alarm« | Assignment for External Alarm |
|  | »Trip« | External trip of the CB if the state of the assigned signal is true. |

3.5.1.7.3 Protection Para / Global Prot Para / ExP / ExP[3]





| | | |
|---|-----------------|---|
|  | »ExBlo1« | External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »ExBlo2« | External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »ExBlo TripCmd« | External blocking of the Trip Command of the module/the stage, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »Alarm« | Assignment for External Alarm |
|  | »Trip« | External trip of the CB if the state of the assigned signal is true. |

3.5.1.7.4 Protection Para / Global Prot Para / ExP / ExP[4]

| | | |
|---|-----------------|---|
|  | »ExBlo1« | External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »ExBlo2« | External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »ExBlo TripCmd« | External blocking of the Trip Command of the module/the stage, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »Alarm« | Assignment for External Alarm |
|  | »Trip« | External trip of the CB if the state of the assigned signal is true. |








3.5.1.8 Protection Para / Global Prot Para / Temp-Prot

3.5.1.8.1 Protection Para / Global Prot Para / Temp-Prot / RTD






| | | |
|---|---------------------|---|
|  | »ExBlo1« | External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »ExBlo2« | External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »ExBlo TripCmd« | External blocking of the Trip Command of the module/the stage, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »TripCmd Selection« | This parameter determines if the final trip of the RTD module is issued by the default way or by the voting groups. |

3.5.1.9 Protection Para / Global Prot Para / Supervision



3.5.1.9.1 Protection Para / Global Prot Para / Supervision / CBF

| | | |
|---|------------|---|
|  | »Scheme« | Scheme |
|  | »ExBlo1« | External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »ExBlo2« | External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »Trigger« | Determining the trigger mode for the Breaker Failure. |
|  | »Trigger1« | Trigger that will start the CBF |
|  | »Trigger2« | Trigger that will start the CBF |
|  | »Trigger3« | Trigger that will start the CBF |







3.5.1.9.2 Protection Para / Global Prot Para / Supervision / TCS

| | | |
|---|-----------|---|
|  | »Mode« | Select if trip circuit is going to be monitored when the breaker is closed or when the breaker is either open or close. |
|  | »Input 1« | Select the input configured to monitor the trip coil when the breaker is closed. |
|  | »Input 2« | Select the input configured to monitor the trip coil when the breaker is open. Only available if Mode set to "Either". |
|  | »ExBlo1« | External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »ExBlo2« | External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |

3.5.1.9.3 Protection Para / Global Prot Para / Supervision / CTS

| | | |
|---|----------|---|
|  | »ExBlo1« | External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |
|  | »ExBlo2« | External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. |



3.5.2 Protection Para / PSet-Switch

| | | |
|---|---------------------|--|
|  | »Act Set« | Signal: Active Parameter Set |
|  | »PSet-Switch« | Switching Parameter Set |
|  | »PS1: activated by« | This Setting Group will be the active one if: The Parameter Setting Group Switch is set to "Switch via Input" and the other three input functions are inactive at the same time. In case that there is more than one input function active, no Parameter Setting Group Switch will be executed. In case all input functions are inactive, the device will keep working with the Setting Group that was activated lastly. |
|  | »PS2: activated by« | This Setting Group will be the active one if: The Parameter Setting Group Switch is set to "Switch via Input" and the other three input functions are inactive at the same time. In case that there is more than one input function active, no Parameter Setting Group Switch will be executed. In case all input functions are inactive, the device will keep working with the Setting Group that was activated lastly. |
|  | »PS3: activated by« | This Setting Group will be the active one if: The Parameter Setting Group Switch is set to "Switch via Input" and the other three input functions are inactive at the same time. In case that there is more than one input function active, no Parameter Setting Group Switch will be executed. In case all input functions are inactive, the device will keep working with the Setting Group that was activated lastly. |
|  | »PS4: activated by« | This Setting Group will be the active one if: The Parameter Setting Group Switch is set to "Switch via Input" and the other three input functions are inactive at the same time. In case that there is more than one input function active, no Parameter Setting Group Switch will be executed. In case all input functions are inactive, the device will keep working with the Setting Group that was activated lastly. |

3.5.3 Protection Para / Set 1 ... 4














3.5.3.1 Protection Para / Set 1 ... 4 / MStart

3.5.3.1.1 Protection Para / Set 1 ... 4 / MStart / Start Control














| | | |
|---|--------------------|---|
|  | »Blo TripCmd« | Permanent blocking of the Trip Command of the module/stage. |
|  | »ExBlo TripCmd Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo TripCmd Fc=active". |

3.5.3.2 Protection Para / Set 1 ... 4 / I-Prot

3.5.3.2.1 Protection Para / Set 1 ... 4 / I-Prot / I[1]

| | | |
|---|--------------------|--|
|  | »Function« | Permanent activation or deactivation of module/stage. |
|  | »ExBlo Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo Fc=active". |
|  | »Ex rev Interl Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "Ex rev Interl Fc = active". |
|  | »Blo TripCmd« | Permanent blocking of the Trip Command of the module/stage. |
|  | »ExBlo TripCmd Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo TripCmd Fc=active". |
|  | »Measuring method« | Measuring method: fundamental or rms or 3rd harmonic (only generator protection relays) |
|  | »I>« | If the pickup value is exceeded, the module/element starts to time out to trip. WARNING: Check the Technical Data and ensure that the actual overcurrent settings for I> and trip delay comply with the technical limits of the phase current inputs! (The device allows for overcurrent settings that are out of the permitted range of current values.) |
|  | »Char« | Characteristic |
|  | »t« | Tripping delay |
|  | »tChar« | Time multiplier/tripping characteristic factor. The setting range depends on the selected tripping curve. |
|  | »tMinimum« | Minimum trip delay time. Independent of the measured current values, the trip delay time does never fall below the minimum that is set here. |
|  | »Reset Mode« | Reset Mode |
|  | »tReset« | Reset delay for intermittent phase failures (INV characteristics only) |














3.5.3.2.2 Protection Para / Set 1 ... 4 / I-Prot / I[2]

| | | |
|---|--------------------|--|
|  | »Function« | Permanent activation or deactivation of module/stage. |
|  | »ExBlo Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo Fc=active". |
|  | »Ex rev Interl Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "Ex rev Interl Fc = active". |
|  | »Blo TripCmd« | Permanent blocking of the Trip Command of the module/stage. |
|  | »ExBlo TripCmd Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo TripCmd Fc=active". |
|  | »Measuring method« | Measuring method: fundamental or rms or 3rd harmonic (only generator protection relays) |
|  | »I>« | If the pickup value is exceeded, the module/element starts to time out to trip. WARNING: Check the Technical Data and ensure that the actual overcurrent settings for I> and trip delay comply with the technical limits of the phase current inputs! (The device allows for overcurrent settings that are out of the permitted range of current values.) |
|  | »Char« | Characteristic |
|  | »t« | Tripping delay |
|  | »tChar« | Time multiplier/tripping characteristic factor. The setting range depends on the selected tripping curve. |
|  | »tMinimum« | Minimum trip delay time. Independent of the measured current values, the trip delay time does never fall below the minimum that is set here. |
|  | »Reset Mode« | Reset Mode |
|  | »tReset« | Reset delay for intermittent phase failures (INV characteristics only) |














3 Menu

3.5.3.2.3 Protection Para / Set 1 ... 4 / I-Prot / I[3]

3.5.3.2.3 Protection Para / Set 1 ... 4 / I-Prot / I[3]

| | | |
|---|--------------------|--|
|  | »Function« | Permanent activation or deactivation of module/stage. |
|  | »ExBlo Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo Fc=active". |
|  | »Ex rev Interl Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "Ex rev Interl Fc = active". |
|  | »Blo TripCmd« | Permanent blocking of the Trip Command of the module/stage. |
|  | »ExBlo TripCmd Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo TripCmd Fc=active". |
|  | »Measuring method« | Measuring method: fundamental or rms or 3rd harmonic (only generator protection relays) |
|  | »I>« | If the pickup value is exceeded, the module/element starts to time out to trip. WARNING: Check the Technical Data and ensure that the actual overcurrent settings for I> and trip delay comply with the technical limits of the phase current inputs! (The device allows for overcurrent settings that are out of the permitted range of current values.) |
|  | »Char« | Characteristic |
|  | »t« | Tripping delay |
|  | »tChar« | Time multiplier/tripping characteristic factor. The setting range depends on the selected tripping curve. |
|  | »tMinimum« | Minimum trip delay time. Independent of the measured current values, the trip delay time does never fall below the minimum that is set here. |
|  | »Reset Mode« | Reset Mode |
|  | »tReset« | Reset delay for intermittent phase failures (INV characteristics only) |














3.5.3.2.4 Protection Para / Set 1 ... 4 / I-Prot / I[4]

| | | |
|---|--------------------|--|
|  | »Function« | Permanent activation or deactivation of module/stage. |
|  | »ExBlo Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo Fc=active". |
|  | »Ex rev Interl Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "Ex rev Interl Fc = active". |
|  | »Blo TripCmd« | Permanent blocking of the Trip Command of the module/stage. |
|  | »ExBlo TripCmd Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo TripCmd Fc=active". |
|  | »Measuring method« | Measuring method: fundamental or rms or 3rd harmonic (only generator protection relays) |
|  | »I>« | If the pickup value is exceeded, the module/element starts to time out to trip. WARNING: Check the Technical Data and ensure that the actual overcurrent settings for I> and trip delay comply with the technical limits of the phase current inputs! (The device allows for overcurrent settings that are out of the permitted range of current values.) |
|  | »Char« | Characteristic |
|  | »t« | Tripping delay |
|  | »tChar« | Time multiplier/tripping characteristic factor. The setting range depends on the selected tripping curve. |
|  | »tMinimum« | Minimum trip delay time. Independent of the measured current values, the trip delay time does never fall below the minimum that is set here. |
|  | »Reset Mode« | Reset Mode |
|  | »tReset« | Reset delay for intermittent phase failures (INV characteristics only) |














3 Menu

3.5.3.2.5 Protection Para / Set 1 ... 4 / I-Prot / I[5]

















3.5.3.2.5 Protection Para / Set 1 ... 4 / I-Prot / I[5]

| | | |
|---|--------------------|--|
|  | »Function« | Permanent activation or deactivation of module/stage. |
|  | »ExBlo Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo Fc=active". |
|  | »Ex rev Interl Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "Ex rev Interl Fc = active". |
|  | »Blo TripCmd« | Permanent blocking of the Trip Command of the module/stage. |
|  | »ExBlo TripCmd Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo TripCmd Fc=active". |
|  | »Measuring method« | Measuring method: fundamental or rms or 3rd harmonic (only generator protection relays) |
|  | »I>« | If the pickup value is exceeded, the module/element starts to time out to trip. WARNING: Check the Technical Data and ensure that the actual overcurrent settings for I> and trip delay comply with the technical limits of the phase current inputs! (The device allows for overcurrent settings that are out of the permitted range of current values.) |
|  | »Char« | Characteristic |
|  | »t« | Tripping delay |
|  | »tChar« | Time multiplier/tripping characteristic factor. The setting range depends on the selected tripping curve. |
|  | »tMinimum« | Minimum trip delay time. Independent of the measured current values, the trip delay time does never fall below the minimum that is set here. |
|  | »Reset Mode« | Reset Mode |
|  | »tReset« | Reset delay for intermittent phase failures (INV characteristics only) |











3.5.3.2.6 Protection Para / Set 1 ... 4 / I-Prot / I[6]

| | | |
|---|--------------------|--|
|  | »Function« | Permanent activation or deactivation of module/stage. |
|  | »ExBlo Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo Fc=active". |
|  | »Ex rev Interl Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "Ex rev Interl Fc = active". |
|  | »Blo TripCmd« | Permanent blocking of the Trip Command of the module/stage. |
|  | »ExBlo TripCmd Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo TripCmd Fc=active". |
|  | »Measuring method« | Measuring method: fundamental or rms or 3rd harmonic (only generator protection relays) |
|  | »I>« | If the pickup value is exceeded, the module/element starts to time out to trip. WARNING: Check the Technical Data and ensure that the actual overcurrent settings for I> and trip delay comply with the technical limits of the phase current inputs! (The device allows for overcurrent settings that are out of the permitted range of current values.) |
|  | »Char« | Characteristic |
|  | »t« | Tripping delay |
|  | »tChar« | Time multiplier/tripping characteristic factor. The setting range depends on the selected tripping curve. |
|  | »tMinimum« | Minimum trip delay time. Independent of the measured current values, the trip delay time does never fall below the minimum that is set here. |
|  | »Reset Mode« | Reset Mode |
|  | »tReset« | Reset delay for intermittent phase failures (INV characteristics only) |














3.5.3.2.7 Protection Para / Set 1 ... 4 / I-Prot / IG[1]

| | | |
|---|-----------------------|--|
|  | »Function« | Permanent activation or deactivation of module/stage. |
|  | »ExBlo Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo Fc=active". |
|  | »Ex rev Interl Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "Ex rev Interl Fc = active". |
|  | »Blo TripCmd« | Permanent blocking of the Trip Command of the module/stage. |
|  | »ExBlo TripCmd Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo TripCmd Fc=active". |
|  | »IG Source« | Selection if measured or calculated ground current should be used. |
|  | »Measuring method« | Measuring method: fundamental or rms or 3rd harmonic (only generator protection relays) |
|  | »Meas Circuit Superv« | Activates the use of the measuring circuit supervision. In this case the module will be blocked if a measuring circuit supervision module (e.g. LOP, VTS) signals a disturbed measuring circuit (e.g. caused by a fuse failure). |
|  | »IG>« | If the pickup value is exceeded, the module/stage will be started. |
|  | »IGs>« | If the pickup value is exceeded, the module/stage will be started. WARNING: Check the Technical Data and ensure that the actual ground overcurrent settings for IGs> and trip delay comply with the technical limits of the ground current inputs! (The device allows for overcurrent settings that are out of the permitted range of current values.) |
|  | »Char« | Characteristic |
|  | »t« | Tripping delay |
|  | »tChar« | Time multiplier/tripping characteristic factor. The setting range depends on the selected tripping curve. |
|  | »tMinimum« | Minimum trip delay time. Independent of the measured current values, the trip delay time does never fall below the minimum that is set here. |
|  | »Reset Mode« | Reset Mode |
|  | »tReset« | Reset delay for intermittent phase failures (INV characteristics only) |






3.5.3.2.8 Protection Para / Set 1 ... 4 / I-Prot / IG[2]

| | | |
|---|-----------------------|--|
|  | »Function« | Permanent activation or deactivation of module/stage. |
|  | »ExBlo Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo Fc=active". |
|  | »Ex rev Interl Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "Ex rev Interl Fc = active". |
|  | »Blo TripCmd« | Permanent blocking of the Trip Command of the module/stage. |
|  | »ExBlo TripCmd Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo TripCmd Fc=active". |
|  | »IG Source« | Selection if measured or calculated ground current should be used. |
|  | »Measuring method« | Measuring method: fundamental or rms or 3rd harmonic (only generator protection relays) |
|  | »Meas Circuit Superv« | Activates the use of the measuring circuit supervision. In this case the module will be blocked if a measuring circuit supervision module (e.g. LOP, VTS) signals a disturbed measuring circuit (e.g. caused by a fuse failure). |
|  | »IG>« | If the pickup value is exceeded, the module/stage will be started. |
|  | »IGs>« | If the pickup value is exceeded, the module/stage will be started. WARNING: Check the Technical Data and ensure that the actual ground overcurrent settings for IGs> and trip delay comply with the technical limits of the ground current inputs! (The device allows for overcurrent settings that are out of the permitted range of current values.) |
|  | »Char« | Characteristic |
|  | »t« | Tripping delay |
|  | »tChar« | Time multiplier/tripping characteristic factor. The setting range depends on the selected tripping curve. |
|  | »tMinimum« | Minimum trip delay time. Independent of the measured current values, the trip delay time does never fall below the minimum that is set here. |
|  | »Reset Mode« | Reset Mode |
|  | »tReset« | Reset delay for intermittent phase failures (INV characteristics only) |











3.5.3.2.9 Protection Para / Set 1 ... 4 / I-Prot / IG[3]

| | | |
|---|-----------------------|--|
|  | »Function« | Permanent activation or deactivation of module/stage. |
|  | »ExBlo Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo Fc=active". |
|  | »Ex rev Interl Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "Ex rev Interl Fc = active". |
|  | »Blo TripCmd« | Permanent blocking of the Trip Command of the module/stage. |
|  | »ExBlo TripCmd Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo TripCmd Fc=active". |
|  | »IG Source« | Selection if measured or calculated ground current should be used. |
|  | »Measuring method« | Measuring method: fundamental or rms or 3rd harmonic (only generator protection relays) |
|  | »Meas Circuit Superv« | Activates the use of the measuring circuit supervision. In this case the module will be blocked if a measuring circuit supervision module (e.g. LOP, VTS) signals a disturbed measuring circuit (e.g. caused by a fuse failure). |
|  | »IG>« | If the pickup value is exceeded, the module/stage will be started. |
|  | »IGs>« | If the pickup value is exceeded, the module/stage will be started. WARNING: Check the Technical Data and ensure that the actual ground overcurrent settings for IGs> and trip delay comply with the technical limits of the ground current inputs! (The device allows for overcurrent settings that are out of the permitted range of current values.) |
|  | »Char« | Characteristic |
|  | »t« | Tripping delay |
|  | »tChar« | Time multiplier/tripping characteristic factor. The setting range depends on the selected tripping curve. |
|  | »tMinimum« | Minimum trip delay time. Independent of the measured current values, the trip delay time does never fall below the minimum that is set here. |
|  | »Reset Mode« | Reset Mode |
|  | »tReset« | Reset delay for intermittent phase failures (INV characteristics only) |












3.5.3.2.10 Protection Para / Set 1 ... 4 / I-Prot / IG[4]

| | | |
|---|-----------------------|--|
|  | »Function« | Permanent activation or deactivation of module/stage. |
|  | »ExBlo Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo Fc=active". |
|  | »Ex rev Interl Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "Ex rev Interl Fc = active". |
|  | »Blo TripCmd« | Permanent blocking of the Trip Command of the module/stage. |
|  | »ExBlo TripCmd Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo TripCmd Fc=active". |
|  | »IG Source« | Selection if measured or calculated ground current should be used. |
|  | »Measuring method« | Measuring method: fundamental or rms or 3rd harmonic (only generator protection relays) |
|  | »Meas Circuit Superv« | Activates the use of the measuring circuit supervision. In this case the module will be blocked if a measuring circuit supervision module (e.g. LOP, VTS) signals a disturbed measuring circuit (e.g. caused by a fuse failure). |
|  | »IG>« | If the pickup value is exceeded, the module/stage will be started. |
|  | »IGs>« | If the pickup value is exceeded, the module/stage will be started. WARNING: Check the Technical Data and ensure that the actual ground overcurrent settings for IGs> and trip delay comply with the technical limits of the ground current inputs! (The device allows for overcurrent settings that are out of the permitted range of current values.) |
|  | »Char« | Characteristic |
|  | »t« | Tripping delay |
|  | »tChar« | Time multiplier/tripping characteristic factor. The setting range depends on the selected tripping curve. |
|  | »tMinimum« | Minimum trip delay time. Independent of the measured current values, the trip delay time does never fall below the minimum that is set here. |
|  | »Reset Mode« | Reset Mode |
|  | »tReset« | Reset delay for intermittent phase failures (INV characteristics only) |












3.5.3.2.11 Protection Para / Set 1 ... 4 / I-Prot / ThR

| | | |
|---|--------------------|---|
|  | »Function« | Permanent activation or deactivation of module/stage. |
|  | »ExBlo Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo Fc=active". |
|  | »Blo TripCmd« | Permanent blocking of the Trip Command of the module/stage. |
|  | »ExBlo TripCmd Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo TripCmd Fc=active". |
|  | »Trip Function« | Turn on or off the trip function |
|  | »Trip Threshold« | Trip threshold at which the thermal model will trip, based on percentage of thermal capacity used. This value should typically always be set at 0.99 |
|  | »t-Trip Delay« | Thermal capacity used trip delay |
|  | »Alarm Function« | Turn on or off the alarm function |
|  | »Alarm Threshold« | Alarm threshold at which the thermal model will trip, based on percentage of thermal capacity used |
|  | »t-Alarm Delay« | Thermal capacity used alarm delay |

3.5.3.2.12 Protection Para / Set 1 ... 4 / I-Prot / I2>[1]







| | | |
|---|--------------------|---|
|  | »Function« | Permanent activation or deactivation of module/stage. |
|  | »ExBlo Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo Fc=active". |
|  | »Blo TripCmd« | Permanent blocking of the Trip Command of the module/stage. |
|  | »ExBlo TripCmd Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo TripCmd Fc=active". |
|  | »I2>« | The Threshold setting defines a minimum operating current magnitude of I2 for the 46 function to operate, which ensures that the relay has a solid basis for initiating a current unbalance trip. This is a supervisory function and not a trip level. |
|  | »%(I2/I1)« | The %(I2/I1) setting is the unbalance trip pickup setting. It is defined by the ratio of negative sequence current to positive sequence current (% Unbalance=I2/I1). Phase sequence will be taken into account automatically. |
|  | »%(I2/I1)« | The %(I2/I1) setting is the unbalance trip pickup setting. It is defined by the ratio of negative sequence current to positive sequence current (% Unbalance=I2/I1). Phase sequence will be taken into account automatically. |
|  | »Char« | Characteristic |
|  | »t« | Tripping delay |
|  | »K« | This setting is the negative sequence capability constant. This value is normally provided by the generator manufacturer. |
|  | »τ-cool« | If the unbalanced load current falls below the pickup value, the cooling-off time is taken into account. If the unbalanced load exceeds the pickup value again, than the saved heat within the electrical equipment will lead to an accelerated trip. |

3.5.3.2.13 Protection Para / Set 1 ... 4 / I-Prot / I2>[2]







| | | |
|---|--------------------|---|
|  | »Function« | Permanent activation or deactivation of module/stage. |
|  | »ExBlo Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo Fc=active". |
|  | »Blo TripCmd« | Permanent blocking of the Trip Command of the module/stage. |
|  | »ExBlo TripCmd Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo TripCmd Fc=active". |
|  | »I2>« | The Threshold setting defines a minimum operating current magnitude of I2 for the 46 function to operate, which ensures that the relay has a solid basis for initiating a current unbalance trip. This is a supervisory function and not a trip level. |
|  | »%(I2/I1)« | The %(I2/I1) setting is the unbalance trip pickup setting. It is defined by the ratio of negative sequence current to positive sequence current (% Unbalance=I2/I1). Phase sequence will be taken into account automatically. |
|  | »%(I2/I1)« | The %(I2/I1) setting is the unbalance trip pickup setting. It is defined by the ratio of negative sequence current to positive sequence current (% Unbalance=I2/I1). Phase sequence will be taken into account automatically. |
|  | »Char« | Characteristic |
|  | »t« | Tripping delay |
|  | »K« | This setting is the negative sequence capability constant. This value is normally provided by the generator manufacturer. |
|  | »τ-cool« | If the unbalanced load current falls below the pickup value, the cooling-off time is taken into account. If the unbalanced load exceeds the pickup value again, than the saved heat within the electrical equipment will lead to an accelerated trip. |

3.5.3.3 Protection Para / Set 1 ... 4 / JAM-Prot

3.5.3.3.1 Protection Para / Set 1 ... 4 / JAM-Prot / Jam[1]









| | | |
|---|--------------------|---|
|  | »Function« | Permanent activation or deactivation of module/stage. |
|  | »ExBlo Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo Fc=active". |
|  | »Blo TripCmd« | Permanent blocking of the Trip Command of the module/stage. |
|  | »ExBlo TripCmd Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo TripCmd Fc=active". |
|  | »Pickup« | JAM based on a multiplier of Ib |
|  | »t« | Tripping delay |

3.5.3.3.2 Protection Para / Set 1 ... 4 / JAM-Prot / Jam[2]

| | | |
|---|--------------------|---|
|  | »Function« | Permanent activation or deactivation of module/stage. |
|  | »ExBlo Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo Fc=active". |
|  | »Blo TripCmd« | Permanent blocking of the Trip Command of the module/stage. |
|  | »ExBlo TripCmd Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo TripCmd Fc=active". |
|  | »Pickup« | JAM based on a multiplier of Ib |
|  | »t« | Tripping delay |

3.5.3.4 Protection Para / Set 1 ... 4 / Underload-Prot









3.5.3.4.1 Protection Para / Set 1 ... 4 / Underload-Prot / I<[1]

| | | |
|---|--------------------|---|
|  | »Function« | Permanent activation or deactivation of module/stage. |
|  | »ExBlo Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo Fc=active". |
|  | »Blo TripCmd« | Permanent blocking of the Trip Command of the module/stage. |
|  | »ExBlo TripCmd Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo TripCmd Fc=active". |
|  | »Undercurrent« | Underload Pickup based on a multiplier of Ib |
|  | »Alarm Mode« | Indicates if one, two of three or all phases are required for operation |
|  | »t« | Tripping delay |
|  | »MeasCircSv Curr« | Measuring Circuit Supervision Current |









3 Menu

3.5.3.4.2 Protection Para / Set 1 ... 4 / Underload-Prot / I<[2]







3.5.3.4.2 Protection Para / Set 1 ... 4 / Underload-Prot / I<[2]

| | | |
|---|--------------------|---|
|  | »Function« | Permanent activation or deactivation of module/stage. |
|  | »ExBlo Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo Fc=active". |
|  | »Blo TripCmd« | Permanent blocking of the Trip Command of the module/stage. |
|  | »ExBlo TripCmd Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo TripCmd Fc=active". |
|  | »Undercurrent« | Underload Pickup based on a multiplier of Ib |
|  | »Alarm Mode« | Indicates if one, two of three or all phases are required for operation |
|  | »t« | Tripping delay |
|  | »MeasCircSv Curr« | Measuring Circuit Supervision Curent |

3.5.3.4.3 Protection Para / Set 1 ... 4 / Underload-Prot / I<[3]





| | | |
|---|--------------------|---|
|  | »Function« | Permanent activation or deactivation of module/stage. |
|  | »ExBlo Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo Fc=active". |
|  | »Blo TripCmd« | Permanent blocking of the Trip Command of the module/stage. |
|  | »ExBlo TripCmd Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo TripCmd Fc=active". |
|  | »Undercurrent« | Underload Pickup based on a multiplier of Ib |
|  | »Alarm Mode« | Indicates if one, two of three or all phases are required for operation |
|  | »t« | Tripping delay |
|  | »MeasCircSv Curr« | Measuring Circuit Supervision Curent |

3.5.3.5 Protection Para / Set 1 ... 4 / MLS





| | | |
|---|---------------------|---|
|  | »Function« | Permanent activation or deactivation of module/stage. |
|  | »ExBlo Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo Fc=active". |
|  | »Pickup Threshold« | Mechanical load shedding pickup current as multiplier of Ib |
|  | »t-Pickup Delay« | Trip delay time |
|  | »Dropout Threshold« | Mechanical load reclosure current (Dropout of Load shedding) as multiplier of Ib |
|  | »t-Drop Delay« | Dropout delay time |

3.5.3.6 Protection Para / Set 1 ... 4 / Exp

3.5.3.6.1 Protection Para / Set 1 ... 4 / Exp / Exp[1]

| | | |
|---|--------------------|---|
|  | »Function« | Permanent activation or deactivation of module/stage. |
|  | »ExBlo Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo Fc=active". |
|  | »Blo TripCmd« | Permanent blocking of the Trip Command of the module/stage. |
|  | »ExBlo TripCmd Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo TripCmd Fc=active". |





3.5.3.6.2 Protection Para / Set 1 ... 4 / Exp / Exp[2]

| | | |
|---|--------------------|---|
|  | »Function« | Permanent activation or deactivation of module/stage. |
|  | »ExBlo Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo Fc=active". |
|  | »Blo TripCmd« | Permanent blocking of the Trip Command of the module/stage. |
|  | »ExBlo TripCmd Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo TripCmd Fc=active". |





3 Menu

3.5.3.6.3 Protection Para / Set 1 ... 4 / ExP / ExP[3]

3.5.3.6.3 Protection Para / Set 1 ... 4 / ExP / ExP[3]

| | | |
|---|--------------------|---|
|  | »Function« | Permanent activation or deactivation of module/stage. |
|  | »ExBlo Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo Fc=active". |
|  | »Blo TripCmd« | Permanent blocking of the Trip Command of the module/stage. |
|  | »ExBlo TripCmd Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo TripCmd Fc=active". |





3.5.3.6.4 Protection Para / Set 1 ... 4 / ExP / ExP[4]

| | | |
|---|--------------------|---|
|  | »Function« | Permanent activation or deactivation of module/stage. |
|  | »ExBlo Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo Fc=active". |
|  | »Blo TripCmd« | Permanent blocking of the Trip Command of the module/stage. |
|  | »ExBlo TripCmd Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo TripCmd Fc=active". |






3.5.3.7 Protection Para / Set 1 ... 4 / Temp-Prot

3.5.3.7.1 Protection Para / Set 1 ... 4 / Temp-Prot / RTD






3.5.3.7.1.1 Protection Para / Set 1 ... 4 / Temp-Prot / RTD / General Settings

| | | |
|---|--------------------|---|
|  | »Function« | Permanent activation or deactivation of module/stage. |
|  | »ExBlo Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo Fc=active". |
|  | »Blo TripCmd« | Permanent blocking of the Trip Command of the module/stage. |
|  | »ExBlo TripCmd Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo TripCmd Fc=active". |






3.5.3.7.1.2 Protection Para / Set 1 ... 4 / Temp-Prot / RTD / Windg 1

| | | |
|---|--------------------------|--|
|  | »Windg 1 Alarm Function« | Winding 1 Alarm Function |
|  | »Windg 1 Trip Function« | Winding 1 Trip Function |
|  | »Windg 1 Alarm« | Winding 1 Threshold for Temperature Alarm |
|  | »Windg 1 t-Alarm-Delay« | Winding 1 After this time has expired a Temperature Alarm is issued. |
|  | »Windg 1 Trip« | Winding 1 Threshold for Temperature Trip |





3.5.3.7.1.3 Protection Para / Set 1 ... 4 / Temp-Prot / RTD / Windg 2

| | | |
|---|--------------------------|--|
|  | »Windg 2 Alarm Function« | Winding 2 Alarm Function |
|  | »Windg 2 Trip Function« | Winding 2 Trip Function |
|  | »Windg 2 Alarm« | Winding 2 Threshold for Temperature Alarm |
|  | »Windg 2 t-Alarm-Delay« | Winding 2 After this time has expired a Temperature Alarm is issued. |
|  | »Windg 2 Trip« | Winding 2 Threshold for Temperature Trip |

3.5.3.7.1.4 Protection Para / Set 1 ... 4 / Temp-Prot / RTD / Windg 3

| | | |
|---|--------------------------|--|
|  | »Windg 3 Alarm Function« | Winding 3 Alarm Function |
|  | »Windg 3 Trip Function« | Winding 3 Trip Function |
|  | »Windg 3 Alarm« | Winding 3 Threshold for Temperature Alarm |
|  | »Windg 3 t-Alarm-Delay« | Winding 3 After this time has expired a Temperature Alarm is issued. |
|  | »Windg 3 Trip« | Winding 3 Threshold for Temperature Trip |






3.5.3.7.1.5 Protection Para / Set 1 ... 4 / Temp-Prot / RTD / Windg 4

| | | |
|---|--------------------------|--|
|  | »Windg 4 Alarm Function« | Winding 4 Alarm Function |
|  | »Windg 4 Trip Function« | Winding 4 Trip Function |
|  | »Windg 4 Alarm« | Winding 4 Threshold for Temperature Alarm |
|  | »Windg 4 t-Alarm-Delay« | Winding 4 After this time has expired a Temperature Alarm is issued. |
|  | »Windg 4 Trip« | Winding 4 Threshold for Temperature Trip |






3 Menu

3.5.3.7.1.6 Protection Para / Set 1 ... 4 / Temp-Prot / RTD / Windg 5






3.5.3.7.1.6 Protection Para / Set 1 ... 4 / Temp-Prot / RTD / Windg 5

| | | |
|---|--------------------------|--|
|  | »Windg 5 Alarm Function« | Winding 5 Alarm Function |
|  | »Windg 5 Trip Function« | Winding 5 Trip Function |
|  | »Windg 5 Alarm« | Winding 5 Threshold for Temperature Alarm |
|  | »Windg 5 t-Alarm-Delay« | Winding 5 After this time has expired a Temperature Alarm is issued. |
|  | »Windg 5 Trip« | Winding 5 Threshold for Temperature Trip |






3.5.3.7.1.7 Protection Para / Set 1 ... 4 / Temp-Prot / RTD / Windg 6

| | | |
|---|--------------------------|--|
|  | »Windg 6 Alarm Function« | Winding 6 Alarm Function |
|  | »Windg 6 Trip Function« | Winding 6 Trip Function |
|  | »Windg 6 Alarm« | Winding 6 Threshold for Temperature Alarm |
|  | »Windg 6 t-Alarm-Delay« | Winding 6 After this time has expired a Temperature Alarm is issued. |
|  | »Windg 6 Trip« | Winding 6 Threshold for Temperature Trip |






3.5.3.7.1.8 Protection Para / Set 1 ... 4 / Temp-Prot / RTD / MotBear 1

| | | |
|---|----------------------------|--|
|  | »MotBear 1 Alarm Function« | Motor Bearing 1 Alarm Function |
|  | »MotBear 1 Trip Function« | Motor Bearing 1 Trip Function |
|  | »MotBear 1 Alarm« | Motor Bearing 1 Threshold for Temperature Alarm |
|  | »MotBear 1 t-Alarm-Delay« | Motor Bearing 1 After this time has expired a Temperature Alarm is issued. |
|  | »MotBear 1 Trip« | Motor Bearing 1 Threshold for Temperature Trip |






3.5.3.7.1.9 Protection Para / Set 1 ... 4 / Temp-Prot / RTD / MotBear 2

| | | |
|---|----------------------------|--|
|  | »MotBear 2 Alarm Function« | Motor Bearing 2 Alarm Function |
|  | »MotBear 2 Trip Function« | Motor Bearing 2 Trip Function |
|  | »MotBear 2 Alarm« | Motor Bearing 2 Threshold for Temperature Alarm |
|  | »MotBear 2 t-Alarm-Delay« | Motor Bearing 2 After this time has expired a Temperature Alarm is issued. |
|  | »MotBear 2 Trip« | Motor Bearing 2 Threshold for Temperature Trip |


3.5.3.7.1.10 Protection Para / Set 1 ... 4 / Temp-Prot / RTD / LoadBear 1

| | | |
|---|-----------------------------|---|
|  | »LoadBear 1 Alarm Function« | Load Bearing 1 Alarm Function |
|  | »LoadBear 1 Trip Function« | Load Bearing 1 Trip Function |
|  | »LoadBear 1 Alarm« | Load Bearing 1 Threshold for Temperature Alarm |
|  | »LoadBear 1 t-Alarm-Delay« | Load Bearing 1 After this time has expired a Temperature Alarm is issued. |
|  | »LoadBear 1 Trip« | Load Bearing 1 Threshold for Temperature Trip |






3.5.3.7.1.11 Protection Para / Set 1 ... 4 / Temp-Prot / RTD / LoadBear 2

| | | |
|---|-----------------------------|---|
|  | »LoadBear 2 Alarm Function« | Load Bearing 2 Alarm Function |
|  | »LoadBear 2 Trip Function« | Load Bearing 2 Trip Function |
|  | »LoadBear 2 Alarm« | Load Bearing 2 Threshold for Temperature Alarm |
|  | »LoadBear 2 t-Alarm-Delay« | Load Bearing 2 After this time has expired a Temperature Alarm is issued. |
|  | »LoadBear 2 Trip« | Load Bearing 2 Threshold for Temperature Trip |

3.5.3.7.1.12 Protection Para / Set 1 ... 4 / Temp-Prot / RTD / Aux 1

| | | |
|---|-----------------------|--|
|  | »Aux1 Alarm Function« | Auxiliary 1 Alarm Function |
|  | »Aux1 Trip Function« | Auxiliary 1 Trip Function |
|  | »Aux1 Alarm« | Auxiliary 1 Threshold for Temperature Alarm |
|  | »Aux1 t-Alarm-Delay« | Auxiliary 1 After this time has expired a Temperature Alarm is issued. |
|  | »Aux1 Trip« | Auxiliary 1 Threshold for Temperature Trip |






3.5.3.7.1.13 Protection Para / Set 1 ... 4 / Temp-Prot / RTD / Aux 2

| | | |
|---|-----------------------|--|
|  | »Aux2 Alarm Function« | Auxiliary 2 Alarm Function |
|  | »Aux2 Trip Function« | Auxiliary 2 Trip Function |
|  | »Aux2 Alarm« | Auxiliary 2 Threshold for Temperature Alarm |
|  | »Aux2 t-Alarm-Delay« | Auxiliary 2 After this time has expired a Temperature Alarm is issued. |
|  | »Aux2 Trip« | Auxiliary 2 Threshold for Temperature Trip |






3 Menu

3.5.3.7.1.14 Protection Para / Set 1 ... 4 / Temp-Prot / RTD / Windg Group

3.5.3.7.1.14 Protection Para / Set 1 ... 4 / Temp-Prot / RTD / Windg Group

| | | |
|---|------------------------|--|
|  | »Windg Alarm Function« | Winding Alarm Function |
|  | »Windg Trip Function« | Winding Trip Function |
|  | »Windg Alarm« | Winding Threshold for Temperature Alarm |
|  | »Windg t-Alarm-Delay« | Winding After this time has expired a Temperature Alarm is issued. |
|  | »Windg Trip« | Winding Threshold for Temperature Trip |

3.5.3.7.1.15 Protection Para / Set 1 ... 4 / Temp-Prot / RTD / MotBear Group

| | | |
|---|--------------------------|--|
|  | »MotBear Alarm Function« | Motor Bearing Alarm Function |
|  | »MotBear Trip Function« | Motor Bearing Trip Function |
|  | »MotBear Alarm« | Motor Bearing Threshold for Temperature Alarm |
|  | »MotBear t-Alarm-Delay« | Motor Bearing After this time has expired a Temperature Alarm is issued. |
|  | »MotBear Trip« | Motor Bearing Threshold for Temperature Trip |

3.5.3.7.1.16 Protection Para / Set 1 ... 4 / Temp-Prot / RTD / LoadBear Group

| | | |
|---|---------------------------|---|
|  | »LoadBear Alarm Function« | Load Bearing Alarm Function |
|  | »LoadBear Trip Function« | Load Bearing Trip Function |
|  | »LoadBear Alarm« | Load Bearing Threshold for Temperature Alarm |
|  | »LoadBear t-Alarm-Delay« | Load Bearing After this time has expired a Temperature Alarm is issued. |
|  | »LoadBear Trip« | Load Bearing Threshold for Temperature Trip |



3.5.3.7.1.17 Protection Para / Set 1 ... 4 / Temp-Prot / RTD / Aux Group

| | | |
|---|----------------------|--|
|  | »Aux Alarm Function« | Auxiliary Alarm Function |
|  | »Aux Trip Function« | Auxiliary Trip Function |
|  | »Aux Alarm« | Auxiliary Threshold for Temperature Alarm |
|  | »Aux t-Alarm-Delay« | Auxiliary After this time has expired a Temperature Alarm is issued. |
|  | »Aux Trip« | Auxiliary Threshold for Temperature Trip |

3.5.3.7.1.18 Protection Para / Set 1 ... 4 / Temp-Prot / RTD / Voting1





| | | |
|---|--------------|---|
|  | »Function« | Permanent activation or deactivation of module/stage. |
|  | »Voting 1« | Voting: This parameter defines how many of the selected channels must be over its threshold level for getting a voting trip |
|  | »Windg 1« | Winding 1 |
|  | »Windg 2« | Winding 2 |
|  | »Windg 3« | Winding 3 |
|  | »Windg 4« | Winding 4 |
|  | »Windg 5« | Winding 5 |
|  | »Windg 6« | Winding 6 |
|  | »MotBear 1« | Motor Bearing 1 |
|  | »MotBear 2« | Motor Bearing 2 |
|  | »LoadBear 1« | Load Bearing 1 |
|  | »LoadBear 2« | Load Bearing 2 |
|  | »Aux1« | Auxiliary1 |
|  | »Aux2« | Auxiliary2 |

3.5.3.7.1.19 Protection Para / Set 1 ... 4 / Temp-Prot / RTD / Voting2




| | | |
|---|--------------|---|
|  | »Function« | Permanent activation or deactivation of module/stage. |
|  | »Voting 2« | Voting: This parameter defines how many of the selected channels must be over its threshold level for getting a voting trip |
|  | »Windg 1« | Winding 1 |
|  | »Windg 2« | Winding 2 |
|  | »Windg 3« | Winding 3 |
|  | »Windg 4« | Winding 4 |
|  | »Windg 5« | Winding 5 |
|  | »Windg 6« | Winding 6 |
|  | »MotBear 1« | Motor Bearing 1 |
|  | »MotBear 2« | Motor Bearing 2 |
|  | »LoadBear 1« | Load Bearing 1 |
|  | »LoadBear 2« | Load Bearing 2 |
|  | »Aux1« | Auxiliary1 |
|  | »Aux2« | Auxiliary2 |

3.5.3.8 Protection Para / Set 1 ... 4 / Supervision






3.5.3.8.1 Protection Para / Set 1 ... 4 / Supervision / CBF

| | | |
|---|------------|---|
|  | »Function« | Permanent activation or deactivation of module/stage. |
|  | »ExBlo Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo Fc=active". |
|  | »I-CBF >« | Breaker Failure Alarm will be initiated if this threshold is still exceeded after the timer has expired (50 BF). |
|  | »t-CBF« | If the delay time is expired, a CBF alarm is issued. |

3.5.3.8.2 Protection Para / Set 1 ... 4 / Supervision / TCS



| | | |
|--|------------|---|
|  | »Function« | Permanent activation or deactivation of module/stage. |
|  | »ExBlo Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo Fc=active". |
|  | »t-TCS« | Delay time of the Trip Circuit Supervision |

3.5.3.8.3 Protection Para / Set 1 ... 4 / Supervision / CTS

| | | |
|---|---------------|---|
|  | »Function« | Permanent activation or deactivation of module/stage. |
|  | »ExBlo Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo Fc=active". |
|  | »ΔI« | In order to prevent faulty tripping of phase selective protection functions that use the current as tripping criterion. If the difference of the measured earth current and the calculated value I_0 is higher than the pick up value ΔI , an alarm event is generated after expiring of the excitation time. In such a case, a fuse failure, a broken wire or a faulty measuring circuit can be assumed. |
|  | »Alarm delay« | Alarm delay |
|  | »Kd« | Dynamic correction factor for the evaluation of the difference between calculated and measured earth current. This correction factor allows transformer faults, caused by higher currents, to be compensated. |




3.6 SysA

3.6.1 SysA / General Settings

| | | |
|---|----------------------------|---|
|  | »Function« | Permanent activation or deactivation of module/stage. |
|  | »ExBlo Fc« | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo Fc=active". |




3.6.2 SysA / Demand

3.6.2.1 SysA / Demand / Current Demand


| | | |
|---|-----------------------------|--|
|  | »Alarm« | Alarm |
|  | »Threshold« | Threshold (to be entered as primary value) |
|  | »t-Delay« | Tripping Delay |

3.6.3 SysA / THD




3.6.3.1 SysA / THD / I THD

| | | |
|---|-----------------------------|--|
|  | »Alarm« | Alarm |
|  | »Threshold« | Threshold (to be entered as primary value) |
|  | »t-Delay« | Tripping Delay |

3.7 Control

| | | |
|---|--------------------------------|--------------|
|  | »Control Page« | Control Page |
|---|--------------------------------|--------------|






3.7.1 Control / General Settings

| | | |
|---|---------------------------------------|-----------------------------|
| <input checked="" type="radio"/> | »Switching Authority« | Switching Authority |
| <input checked="" type="radio"/> | »NonInterL« | DC for Non-Interlocking |
|  | »Res NonIL« | Resetmode Non-Interlocking |
|  | »Timeout NonIL« | Timeout Non-Interlocking |
|  | »NonIL Assign« | Assignment Non-Interlocking |





3.7.2 Control / SG

3.7.2.1 Control / SG / SG[1]





3.7.2.1.1 Control / SG / SG[1] / General Settings

| | | |
|---|-----------------------|---|
|  | »OFF incl TripCmd« | The OFF Command includes the OFF Command issued by the Protection module. |
|  | »t-Move ON« | Time to move to the ON Position |
|  | »t-Move OFF« | Time to move to the OFF Position |
|  | »t-Dwell« | Dwell time |
|  | »Manipulate Position« | WARNING! Fake Position - Manual Position Manipulation |



3.7.2.1.2 Control / SG / SG[1] / Trip Manager

| | | |
|--|----------------------------------|--|
|  | »t-TripCmd« | Minimum hold time of the OFF-command (circuit breaker, load break switch) |
|  | »Latched« | Defines whether the Trip Command is latched. |
|  | »Ack TripCmd« | Ack TripCmd |
|  | »Off Cmd1« ... »Off Cmd30« | Off Command to the Circuit Breaker if the state of the assigned signal becomes true. |

3.7.2.1.3 Control / SG / SG[1] / Pos Indicators Wiring

| | | |
|---|-----------|--|
|  | »Aux ON« | The CB is in ON-position if the state of the assigned signal is true (52a). |
|  | »Aux OFF« | The CB is in OFF-position if the state of the assigned signal is true (52b). |
|  | »Ready« | Circuit breaker is ready for operation if the state of the assigned signal is true. This digital input can be used by some protective elements (if they are available within the device) like Auto Reclosure (AR), e.g. as a trigger signal. |
|  | »Removed« | The withdrawable circuit breaker is Removed |
























3.7.2.1.4 Control / SG / SG[1] / Ex ON/OFF Cmd




| | | |
|---|------------|---|
|  | »SCmd ON« | Switching ON Command, e.g. the state of the Logics or the state of the digital input |
|  | »SCmd OFF« | Switching OFF Command, e.g. the state of the Logics or the state of the digital input |

3.7.2.1.5 Control / SG / SG[1] / Interlockings

| | | |
|---|---------------|---------------------------------|
|  | »Interl ON1« | Interlocking of the ON command |
|  | »Interl ON2« | Interlocking of the ON command |
|  | »Interl ON3« | Interlocking of the ON command |
|  | »Interl OFF1« | Interlocking of the OFF command |
|  | »Interl OFF2« | Interlocking of the OFF command |
|  | »Interl OFF3« | Interlocking of the OFF command |















3.7.2.1.6 Control / SG / SG[1] / SG Wear

| | | |
|---|---------------------|---|
|  | »Operations Alarm« | Maximum number of operations. If the operations counter »TripCmd Cr« exceeds this limit then the signal »Operations Alarm« is set. |
|  | »Isum Intr Alarm« | Alarm, the Sum (Limit) of interrupting currents has been exceeded. |
|  | »Isum Intr ph Alm« | Alarm, the per hour Sum (Limit) of interrupting currents has been exceeded. |
|  | »SGwear Curve Fc« | The Circuit Breaker (load-break switch) Wear Curve defines the maximum allowed CLOSE/OPEN cycles depending on the brake currents. If the circuit breaker maintenance curve is exceeded, an alarm will be issued. The breaker maintenance curve is to be taken from the technical data sheet of the breaker manufacturer. By means of the available points this curve is to be replicated. |
|  | »WearLevel Alarm« | Threshold for the Alarm |
|  | »WearLevel Lockout« | Threshold for the Lockout Level |
|  | »Current1« | Interrupted Current Level #1 |
|  | »Count1« | Open Counts Allowed #1 |
|  | »Current2« | Interrupted Current Level #2 |
|  | »Count2« | Open Counts Allowed #2 |
|  | »Current3« | Interrupted Current Level #3 |
|  | »Count3« | Open Counts Allowed #3 |
|  | »Current4« | Interrupted Current Level #4 |
|  | »Count4« | Open Counts Allowed #4 |
|  | »Current5« | Interrupted Current Level #5 |
|  | »Count5« | Open Counts Allowed #5 |
|  | »Current6« | Interrupted Current Level #6 |
|  | »Count6« | Open Counts Allowed #6 |
|  | »Current7« | Interrupted Current Level #7 |
|  | »Count7« | Open Counts Allowed #7 |
|  | »Current8« | Interrupted Current Level #8 |
|  | »Count8« | Open Counts Allowed #8 |
|  | »Current9« | Interrupted Current Level #9 |















| | | |
|---|-------------|-------------------------------|
|  | »Count9« | Open Counts Allowed #9 |
|  | »Current10« | Interrupted Current Level #10 |
|  | »Count10« | Open Counts Allowed #10 |

3.8 Logics















3.8.1 Logics / LE 1

| | | |
|---|-----------------------|---|
|  | »LE1.Gate« | Logic gate |
|  | »LE1.Input1« | Assignment of the Input Signal |
|  | »LE1.Inverting1« | Inverting the input signals. |
|  | »LE1.Input2« | Assignment of the Input Signal |
|  | »LE1.Inverting2« | Inverting the input signals. |
|  | »LE1.Input3« | Assignment of the Input Signal |
|  | »LE1.Inverting3« | Inverting the input signals. |
|  | »LE1.Input4« | Assignment of the Input Signal |
|  | »LE1.Inverting4« | Inverting the input signals. |
|  | »LE1.t-On Delay« | Switch On Delay |
|  | »LE1.t-Off Delay« | Switch Off Delay |
|  | »LE1.Reset Latched« | Reset Signal for the Latching |
|  | »LE1.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE1.Inverting Set« | Inverting the Setting Signal for the Latching |






3.8.2 Logics / LE 2

| | | |
|---|-----------------------|---|
|  | »LE2.Gate« | Logic gate |
|  | »LE2.Input1« | Assignment of the Input Signal |
|  | »LE2.Inverting1« | Inverting the input signals. |
|  | »LE2.Input2« | Assignment of the Input Signal |
|  | »LE2.Inverting2« | Inverting the input signals. |
|  | »LE2.Input3« | Assignment of the Input Signal |
|  | »LE2.Inverting3« | Inverting the input signals. |
|  | »LE2.Input4« | Assignment of the Input Signal |
|  | »LE2.Inverting4« | Inverting the input signals. |
|  | »LE2.t-On Delay« | Switch On Delay |
|  | »LE2.t-Off Delay« | Switch Off Delay |
|  | »LE2.Reset Latched« | Reset Signal for the Latching |
|  | »LE2.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE2.Inverting Set« | Inverting the Setting Signal for the Latching |










3.8.3 Logics / LE 3

| | | |
|---|-----------------------|---|
|  | »LE3.Gate« | Logic gate |
|  | »LE3.Input1« | Assignment of the Input Signal |
|  | »LE3.Inverting1« | Inverting the input signals. |
|  | »LE3.Input2« | Assignment of the Input Signal |
|  | »LE3.Inverting2« | Inverting the input signals. |
|  | »LE3.Input3« | Assignment of the Input Signal |
|  | »LE3.Inverting3« | Inverting the input signals. |
|  | »LE3.Input4« | Assignment of the Input Signal |
|  | »LE3.Inverting4« | Inverting the input signals. |
|  | »LE3.t-On Delay« | Switch On Delay |
|  | »LE3.t-Off Delay« | Switch Off Delay |
|  | »LE3.Reset Latched« | Reset Signal for the Latching |
|  | »LE3.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE3.Inverting Set« | Inverting the Setting Signal for the Latching |















3.8.4 Logics / LE 4

| | | |
|---|-----------------------|---|
|  | »LE4.Gate« | Logic gate |
|  | »LE4.Input1« | Assignment of the Input Signal |
|  | »LE4.Inverting1« | Inverting the input signals. |
|  | »LE4.Input2« | Assignment of the Input Signal |
|  | »LE4.Inverting2« | Inverting the input signals. |
|  | »LE4.Input3« | Assignment of the Input Signal |
|  | »LE4.Inverting3« | Inverting the input signals. |
|  | »LE4.Input4« | Assignment of the Input Signal |
|  | »LE4.Inverting4« | Inverting the input signals. |
|  | »LE4.t-On Delay« | Switch On Delay |
|  | »LE4.t-Off Delay« | Switch Off Delay |
|  | »LE4.Reset Latched« | Reset Signal for the Latching |
|  | »LE4.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE4.Inverting Set« | Inverting the Setting Signal for the Latching |















3.8.5 Logics / LE 5

| | | |
|---|-----------------------|---|
|  | »LE5.Gate« | Logic gate |
|  | »LE5.Input1« | Assignment of the Input Signal |
|  | »LE5.Inverting1« | Inverting the input signals. |
|  | »LE5.Input2« | Assignment of the Input Signal |
|  | »LE5.Inverting2« | Inverting the input signals. |
|  | »LE5.Input3« | Assignment of the Input Signal |
|  | »LE5.Inverting3« | Inverting the input signals. |
|  | »LE5.Input4« | Assignment of the Input Signal |
|  | »LE5.Inverting4« | Inverting the input signals. |
|  | »LE5.t-On Delay« | Switch On Delay |
|  | »LE5.t-Off Delay« | Switch Off Delay |
|  | »LE5.Reset Latched« | Reset Signal for the Latching |
|  | »LE5.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE5.Inverting Set« | Inverting the Setting Signal for the Latching |

3.8.6 Logics / LE 6

| | | |
|---|-----------------------|---|
|  | »LE6.Gate« | Logic gate |
|  | »LE6.Input1« | Assignment of the Input Signal |
|  | »LE6.Inverting1« | Inverting the input signals. |
|  | »LE6.Input2« | Assignment of the Input Signal |
|  | »LE6.Inverting2« | Inverting the input signals. |
|  | »LE6.Input3« | Assignment of the Input Signal |
|  | »LE6.Inverting3« | Inverting the input signals. |
|  | »LE6.Input4« | Assignment of the Input Signal |
|  | »LE6.Inverting4« | Inverting the input signals. |
|  | »LE6.t-On Delay« | Switch On Delay |
|  | »LE6.t-Off Delay« | Switch Off Delay |
|  | »LE6.Reset Latched« | Reset Signal for the Latching |
|  | »LE6.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE6.Inverting Set« | Inverting the Setting Signal for the Latching |












3.8.7 Logics / LE 7

| | | |
|---|-----------------------|---|
|  | »LE7.Gate« | Logic gate |
|  | »LE7.Input1« | Assignment of the Input Signal |
|  | »LE7.Inverting1« | Inverting the input signals. |
|  | »LE7.Input2« | Assignment of the Input Signal |
|  | »LE7.Inverting2« | Inverting the input signals. |
|  | »LE7.Input3« | Assignment of the Input Signal |
|  | »LE7.Inverting3« | Inverting the input signals. |
|  | »LE7.Input4« | Assignment of the Input Signal |
|  | »LE7.Inverting4« | Inverting the input signals. |
|  | »LE7.t-On Delay« | Switch On Delay |
|  | »LE7.t-Off Delay« | Switch Off Delay |
|  | »LE7.Reset Latched« | Reset Signal for the Latching |
|  | »LE7.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE7.Inverting Set« | Inverting the Setting Signal for the Latching |

3.8.8 Logics / LE 8

| | | |
|---|-----------------------|---|
|  | »LE8.Gate« | Logic gate |
|  | »LE8.Input1« | Assignment of the Input Signal |
|  | »LE8.Inverting1« | Inverting the input signals. |
|  | »LE8.Input2« | Assignment of the Input Signal |
|  | »LE8.Inverting2« | Inverting the input signals. |
|  | »LE8.Input3« | Assignment of the Input Signal |
|  | »LE8.Inverting3« | Inverting the input signals. |
|  | »LE8.Input4« | Assignment of the Input Signal |
|  | »LE8.Inverting4« | Inverting the input signals. |
|  | »LE8.t-On Delay« | Switch On Delay |
|  | »LE8.t-Off Delay« | Switch Off Delay |
|  | »LE8.Reset Latched« | Reset Signal for the Latching |
|  | »LE8.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE8.Inverting Set« | Inverting the Setting Signal for the Latching |

3.8.9 Logics / LE 9

| | | |
|---|-----------------------|---|
|  | »LE9.Gate« | Logic gate |
|  | »LE9.Input1« | Assignment of the Input Signal |
|  | »LE9.Inverting1« | Inverting the input signals. |
|  | »LE9.Input2« | Assignment of the Input Signal |
|  | »LE9.Inverting2« | Inverting the input signals. |
|  | »LE9.Input3« | Assignment of the Input Signal |
|  | »LE9.Inverting3« | Inverting the input signals. |
|  | »LE9.Input4« | Assignment of the Input Signal |
|  | »LE9.Inverting4« | Inverting the input signals. |
|  | »LE9.t-On Delay« | Switch On Delay |
|  | »LE9.t-Off Delay« | Switch Off Delay |
|  | »LE9.Reset Latched« | Reset Signal for the Latching |
|  | »LE9.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE9.Inverting Set« | Inverting the Setting Signal for the Latching |














3.8.10 Logics / LE 10

| | | |
|---|------------------------|---|
|  | »LE10.Gate« | Logic gate |
|  | »LE10.Input1« | Assignment of the Input Signal |
|  | »LE10.Inverting1« | Inverting the input signals. |
|  | »LE10.Input2« | Assignment of the Input Signal |
|  | »LE10.Inverting2« | Inverting the input signals. |
|  | »LE10.Input3« | Assignment of the Input Signal |
|  | »LE10.Inverting3« | Inverting the input signals. |
|  | »LE10.Input4« | Assignment of the Input Signal |
|  | »LE10.Inverting4« | Inverting the input signals. |
|  | »LE10.t-On Delay« | Switch On Delay |
|  | »LE10.t-Off Delay« | Switch Off Delay |
|  | »LE10.Reset Latched« | Reset Signal for the Latching |
|  | »LE10.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE10.Inverting Set« | Inverting the Setting Signal for the Latching |






3.8.11 Logics / LE 11

| | | |
|---|------------------------|---|
|  | »LE11.Gate« | Logic gate |
|  | »LE11.Input1« | Assignment of the Input Signal |
|  | »LE11.Inverting1« | Inverting the input signals. |
|  | »LE11.Input2« | Assignment of the Input Signal |
|  | »LE11.Inverting2« | Inverting the input signals. |
|  | »LE11.Input3« | Assignment of the Input Signal |
|  | »LE11.Inverting3« | Inverting the input signals. |
|  | »LE11.Input4« | Assignment of the Input Signal |
|  | »LE11.Inverting4« | Inverting the input signals. |
|  | »LE11.t-On Delay« | Switch On Delay |
|  | »LE11.t-Off Delay« | Switch Off Delay |
|  | »LE11.Reset Latched« | Reset Signal for the Latching |
|  | »LE11.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE11.Inverting Set« | Inverting the Setting Signal for the Latching |














3.8.12 Logics / LE 12

| | | |
|---|------------------------|---|
|  | »LE12.Gate« | Logic gate |
|  | »LE12.Input1« | Assignment of the Input Signal |
|  | »LE12.Inverting1« | Inverting the input signals. |
|  | »LE12.Input2« | Assignment of the Input Signal |
|  | »LE12.Inverting2« | Inverting the input signals. |
|  | »LE12.Input3« | Assignment of the Input Signal |
|  | »LE12.Inverting3« | Inverting the input signals. |
|  | »LE12.Input4« | Assignment of the Input Signal |
|  | »LE12.Inverting4« | Inverting the input signals. |
|  | »LE12.t-On Delay« | Switch On Delay |
|  | »LE12.t-Off Delay« | Switch Off Delay |
|  | »LE12.Reset Latched« | Reset Signal for the Latching |
|  | »LE12.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE12.Inverting Set« | Inverting the Setting Signal for the Latching |





3.8.13 Logics / LE 13

| | | |
|---|------------------------|---|
|  | »LE13.Gate« | Logic gate |
|  | »LE13.Input1« | Assignment of the Input Signal |
|  | »LE13.Inverting1« | Inverting the input signals. |
|  | »LE13.Input2« | Assignment of the Input Signal |
|  | »LE13.Inverting2« | Inverting the input signals. |
|  | »LE13.Input3« | Assignment of the Input Signal |
|  | »LE13.Inverting3« | Inverting the input signals. |
|  | »LE13.Input4« | Assignment of the Input Signal |
|  | »LE13.Inverting4« | Inverting the input signals. |
|  | »LE13.t-On Delay« | Switch On Delay |
|  | »LE13.t-Off Delay« | Switch Off Delay |
|  | »LE13.Reset Latched« | Reset Signal for the Latching |
|  | »LE13.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE13.Inverting Set« | Inverting the Setting Signal for the Latching |















3.8.14 Logics / LE 14

| | | |
|---|------------------------|---|
|  | »LE14.Gate« | Logic gate |
|  | »LE14.Input1« | Assignment of the Input Signal |
|  | »LE14.Inverting1« | Inverting the input signals. |
|  | »LE14.Input2« | Assignment of the Input Signal |
|  | »LE14.Inverting2« | Inverting the input signals. |
|  | »LE14.Input3« | Assignment of the Input Signal |
|  | »LE14.Inverting3« | Inverting the input signals. |
|  | »LE14.Input4« | Assignment of the Input Signal |
|  | »LE14.Inverting4« | Inverting the input signals. |
|  | »LE14.t-On Delay« | Switch On Delay |
|  | »LE14.t-Off Delay« | Switch Off Delay |
|  | »LE14.Reset Latched« | Reset Signal for the Latching |
|  | »LE14.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE14.Inverting Set« | Inverting the Setting Signal for the Latching |







3.8.15 Logics / LE 15

| | | |
|---|------------------------|---|
|  | »LE15.Gate« | Logic gate |
|  | »LE15.Input1« | Assignment of the Input Signal |
|  | »LE15.Inverting1« | Inverting the input signals. |
|  | »LE15.Input2« | Assignment of the Input Signal |
|  | »LE15.Inverting2« | Inverting the input signals. |
|  | »LE15.Input3« | Assignment of the Input Signal |
|  | »LE15.Inverting3« | Inverting the input signals. |
|  | »LE15.Input4« | Assignment of the Input Signal |
|  | »LE15.Inverting4« | Inverting the input signals. |
|  | »LE15.t-On Delay« | Switch On Delay |
|  | »LE15.t-Off Delay« | Switch Off Delay |
|  | »LE15.Reset Latched« | Reset Signal for the Latching |
|  | »LE15.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE15.Inverting Set« | Inverting the Setting Signal for the Latching |












3.8.16 Logics / LE 16

| | | |
|---|------------------------|---|
|  | »LE16.Gate« | Logic gate |
|  | »LE16.Input1« | Assignment of the Input Signal |
|  | »LE16.Inverting1« | Inverting the input signals. |
|  | »LE16.Input2« | Assignment of the Input Signal |
|  | »LE16.Inverting2« | Inverting the input signals. |
|  | »LE16.Input3« | Assignment of the Input Signal |
|  | »LE16.Inverting3« | Inverting the input signals. |
|  | »LE16.Input4« | Assignment of the Input Signal |
|  | »LE16.Inverting4« | Inverting the input signals. |
|  | »LE16.t-On Delay« | Switch On Delay |
|  | »LE16.t-Off Delay« | Switch Off Delay |
|  | »LE16.Reset Latched« | Reset Signal for the Latching |
|  | »LE16.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE16.Inverting Set« | Inverting the Setting Signal for the Latching |





3.8.17 Logics / LE 17

| | | |
|---|------------------------|---|
|  | »LE17.Gate« | Logic gate |
|  | »LE17.Input1« | Assignment of the Input Signal |
|  | »LE17.Inverting1« | Inverting the input signals. |
|  | »LE17.Input2« | Assignment of the Input Signal |
|  | »LE17.Inverting2« | Inverting the input signals. |
|  | »LE17.Input3« | Assignment of the Input Signal |
|  | »LE17.Inverting3« | Inverting the input signals. |
|  | »LE17.Input4« | Assignment of the Input Signal |
|  | »LE17.Inverting4« | Inverting the input signals. |
|  | »LE17.t-On Delay« | Switch On Delay |
|  | »LE17.t-Off Delay« | Switch Off Delay |
|  | »LE17.Reset Latched« | Reset Signal for the Latching |
|  | »LE17.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE17.Inverting Set« | Inverting the Setting Signal for the Latching |















3.8.18 Logics / LE 18

| | | |
|---|------------------------|---|
|  | »LE18.Gate« | Logic gate |
|  | »LE18.Input1« | Assignment of the Input Signal |
|  | »LE18.Inverting1« | Inverting the input signals. |
|  | »LE18.Input2« | Assignment of the Input Signal |
|  | »LE18.Inverting2« | Inverting the input signals. |
|  | »LE18.Input3« | Assignment of the Input Signal |
|  | »LE18.Inverting3« | Inverting the input signals. |
|  | »LE18.Input4« | Assignment of the Input Signal |
|  | »LE18.Inverting4« | Inverting the input signals. |
|  | »LE18.t-On Delay« | Switch On Delay |
|  | »LE18.t-Off Delay« | Switch Off Delay |
|  | »LE18.Reset Latched« | Reset Signal for the Latching |
|  | »LE18.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE18.Inverting Set« | Inverting the Setting Signal for the Latching |







3.8.19 Logics / LE 19

| | | |
|---|------------------------|---|
|  | »LE19.Gate« | Logic gate |
|  | »LE19.Input1« | Assignment of the Input Signal |
|  | »LE19.Inverting1« | Inverting the input signals. |
|  | »LE19.Input2« | Assignment of the Input Signal |
|  | »LE19.Inverting2« | Inverting the input signals. |
|  | »LE19.Input3« | Assignment of the Input Signal |
|  | »LE19.Inverting3« | Inverting the input signals. |
|  | »LE19.Input4« | Assignment of the Input Signal |
|  | »LE19.Inverting4« | Inverting the input signals. |
|  | »LE19.t-On Delay« | Switch On Delay |
|  | »LE19.t-Off Delay« | Switch Off Delay |
|  | »LE19.Reset Latched« | Reset Signal for the Latching |
|  | »LE19.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE19.Inverting Set« | Inverting the Setting Signal for the Latching |















3.8.20 Logics / LE 20

| | | |
|---|------------------------|---|
|  | »LE20.Gate« | Logic gate |
|  | »LE20.Input1« | Assignment of the Input Signal |
|  | »LE20.Inverting1« | Inverting the input signals. |
|  | »LE20.Input2« | Assignment of the Input Signal |
|  | »LE20.Inverting2« | Inverting the input signals. |
|  | »LE20.Input3« | Assignment of the Input Signal |
|  | »LE20.Inverting3« | Inverting the input signals. |
|  | »LE20.Input4« | Assignment of the Input Signal |
|  | »LE20.Inverting4« | Inverting the input signals. |
|  | »LE20.t-On Delay« | Switch On Delay |
|  | »LE20.t-Off Delay« | Switch Off Delay |
|  | »LE20.Reset Latched« | Reset Signal for the Latching |
|  | »LE20.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE20.Inverting Set« | Inverting the Setting Signal for the Latching |







3.8.21 Logics / LE 21

| | | |
|---|------------------------|---|
|  | »LE21.Gate« | Logic gate |
|  | »LE21.Input1« | Assignment of the Input Signal |
|  | »LE21.Inverting1« | Inverting the input signals. |
|  | »LE21.Input2« | Assignment of the Input Signal |
|  | »LE21.Inverting2« | Inverting the input signals. |
|  | »LE21.Input3« | Assignment of the Input Signal |
|  | »LE21.Inverting3« | Inverting the input signals. |
|  | »LE21.Input4« | Assignment of the Input Signal |
|  | »LE21.Inverting4« | Inverting the input signals. |
|  | »LE21.t-On Delay« | Switch On Delay |
|  | »LE21.t-Off Delay« | Switch Off Delay |
|  | »LE21.Reset Latched« | Reset Signal for the Latching |
|  | »LE21.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE21.Inverting Set« | Inverting the Setting Signal for the Latching |














3.8.22 Logics / LE 22

| | | |
|---|------------------------|---|
|  | »LE22.Gate« | Logic gate |
|  | »LE22.Input1« | Assignment of the Input Signal |
|  | »LE22.Inverting1« | Inverting the input signals. |
|  | »LE22.Input2« | Assignment of the Input Signal |
|  | »LE22.Inverting2« | Inverting the input signals. |
|  | »LE22.Input3« | Assignment of the Input Signal |
|  | »LE22.Inverting3« | Inverting the input signals. |
|  | »LE22.Input4« | Assignment of the Input Signal |
|  | »LE22.Inverting4« | Inverting the input signals. |
|  | »LE22.t-On Delay« | Switch On Delay |
|  | »LE22.t-Off Delay« | Switch Off Delay |
|  | »LE22.Reset Latched« | Reset Signal for the Latching |
|  | »LE22.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE22.Inverting Set« | Inverting the Setting Signal for the Latching |








3.8.23 Logics / LE 23

| | | |
|---|------------------------|---|
|  | »LE23.Gate« | Logic gate |
|  | »LE23.Input1« | Assignment of the Input Signal |
|  | »LE23.Inverting1« | Inverting the input signals. |
|  | »LE23.Input2« | Assignment of the Input Signal |
|  | »LE23.Inverting2« | Inverting the input signals. |
|  | »LE23.Input3« | Assignment of the Input Signal |
|  | »LE23.Inverting3« | Inverting the input signals. |
|  | »LE23.Input4« | Assignment of the Input Signal |
|  | »LE23.Inverting4« | Inverting the input signals. |
|  | »LE23.t-On Delay« | Switch On Delay |
|  | »LE23.t-Off Delay« | Switch Off Delay |
|  | »LE23.Reset Latched« | Reset Signal for the Latching |
|  | »LE23.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE23.Inverting Set« | Inverting the Setting Signal for the Latching |













3.8.24 Logics / LE 24

| | | |
|---|------------------------|---|
|  | »LE24.Gate« | Logic gate |
|  | »LE24.Input1« | Assignment of the Input Signal |
|  | »LE24.Inverting1« | Inverting the input signals. |
|  | »LE24.Input2« | Assignment of the Input Signal |
|  | »LE24.Inverting2« | Inverting the input signals. |
|  | »LE24.Input3« | Assignment of the Input Signal |
|  | »LE24.Inverting3« | Inverting the input signals. |
|  | »LE24.Input4« | Assignment of the Input Signal |
|  | »LE24.Inverting4« | Inverting the input signals. |
|  | »LE24.t-On Delay« | Switch On Delay |
|  | »LE24.t-Off Delay« | Switch Off Delay |
|  | »LE24.Reset Latched« | Reset Signal for the Latching |
|  | »LE24.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE24.Inverting Set« | Inverting the Setting Signal for the Latching |








3.8.25 Logics / LE 25

| | | |
|---|------------------------|---|
|  | »LE25.Gate« | Logic gate |
|  | »LE25.Input1« | Assignment of the Input Signal |
|  | »LE25.Inverting1« | Inverting the input signals. |
|  | »LE25.Input2« | Assignment of the Input Signal |
|  | »LE25.Inverting2« | Inverting the input signals. |
|  | »LE25.Input3« | Assignment of the Input Signal |
|  | »LE25.Inverting3« | Inverting the input signals. |
|  | »LE25.Input4« | Assignment of the Input Signal |
|  | »LE25.Inverting4« | Inverting the input signals. |
|  | »LE25.t-On Delay« | Switch On Delay |
|  | »LE25.t-Off Delay« | Switch Off Delay |
|  | »LE25.Reset Latched« | Reset Signal for the Latching |
|  | »LE25.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE25.Inverting Set« | Inverting the Setting Signal for the Latching |















3.8.26 Logics / LE 26

| | | |
|---|------------------------|---|
|  | »LE26.Gate« | Logic gate |
|  | »LE26.Input1« | Assignment of the Input Signal |
|  | »LE26.Inverting1« | Inverting the input signals. |
|  | »LE26.Input2« | Assignment of the Input Signal |
|  | »LE26.Inverting2« | Inverting the input signals. |
|  | »LE26.Input3« | Assignment of the Input Signal |
|  | »LE26.Inverting3« | Inverting the input signals. |
|  | »LE26.Input4« | Assignment of the Input Signal |
|  | »LE26.Inverting4« | Inverting the input signals. |
|  | »LE26.t-On Delay« | Switch On Delay |
|  | »LE26.t-Off Delay« | Switch Off Delay |
|  | »LE26.Reset Latched« | Reset Signal for the Latching |
|  | »LE26.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE26.Inverting Set« | Inverting the Setting Signal for the Latching |




3.8.27 Logics / LE 27

| | | |
|---|------------------------|---|
|  | »LE27.Gate« | Logic gate |
|  | »LE27.Input1« | Assignment of the Input Signal |
|  | »LE27.Inverting1« | Inverting the input signals. |
|  | »LE27.Input2« | Assignment of the Input Signal |
|  | »LE27.Inverting2« | Inverting the input signals. |
|  | »LE27.Input3« | Assignment of the Input Signal |
|  | »LE27.Inverting3« | Inverting the input signals. |
|  | »LE27.Input4« | Assignment of the Input Signal |
|  | »LE27.Inverting4« | Inverting the input signals. |
|  | »LE27.t-On Delay« | Switch On Delay |
|  | »LE27.t-Off Delay« | Switch Off Delay |
|  | »LE27.Reset Latched« | Reset Signal for the Latching |
|  | »LE27.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE27.Inverting Set« | Inverting the Setting Signal for the Latching |

3.8.28 Logics / LE 28

| | | |
|---|------------------------|---|
|  | »LE28.Gate« | Logic gate |
|  | »LE28.Input1« | Assignment of the Input Signal |
|  | »LE28.Inverting1« | Inverting the input signals. |
|  | »LE28.Input2« | Assignment of the Input Signal |
|  | »LE28.Inverting2« | Inverting the input signals. |
|  | »LE28.Input3« | Assignment of the Input Signal |
|  | »LE28.Inverting3« | Inverting the input signals. |
|  | »LE28.Input4« | Assignment of the Input Signal |
|  | »LE28.Inverting4« | Inverting the input signals. |
|  | »LE28.t-On Delay« | Switch On Delay |
|  | »LE28.t-Off Delay« | Switch Off Delay |
|  | »LE28.Reset Latched« | Reset Signal for the Latching |
|  | »LE28.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE28.Inverting Set« | Inverting the Setting Signal for the Latching |

3.8.29 Logics / LE 29

| | | |
|---|------------------------|---|
|  | »LE29.Gate« | Logic gate |
|  | »LE29.Input1« | Assignment of the Input Signal |
|  | »LE29.Inverting1« | Inverting the input signals. |
|  | »LE29.Input2« | Assignment of the Input Signal |
|  | »LE29.Inverting2« | Inverting the input signals. |
|  | »LE29.Input3« | Assignment of the Input Signal |
|  | »LE29.Inverting3« | Inverting the input signals. |
|  | »LE29.Input4« | Assignment of the Input Signal |
|  | »LE29.Inverting4« | Inverting the input signals. |
|  | »LE29.t-On Delay« | Switch On Delay |
|  | »LE29.t-Off Delay« | Switch Off Delay |
|  | »LE29.Reset Latched« | Reset Signal for the Latching |
|  | »LE29.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE29.Inverting Set« | Inverting the Setting Signal for the Latching |














3.8.30 Logics / LE 30

| | | |
|---|------------------------|---|
|  | »LE30.Gate« | Logic gate |
|  | »LE30.Input1« | Assignment of the Input Signal |
|  | »LE30.Inverting1« | Inverting the input signals. |
|  | »LE30.Input2« | Assignment of the Input Signal |
|  | »LE30.Inverting2« | Inverting the input signals. |
|  | »LE30.Input3« | Assignment of the Input Signal |
|  | »LE30.Inverting3« | Inverting the input signals. |
|  | »LE30.Input4« | Assignment of the Input Signal |
|  | »LE30.Inverting4« | Inverting the input signals. |
|  | »LE30.t-On Delay« | Switch On Delay |
|  | »LE30.t-Off Delay« | Switch Off Delay |
|  | »LE30.Reset Latched« | Reset Signal for the Latching |
|  | »LE30.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE30.Inverting Set« | Inverting the Setting Signal for the Latching |








3.8.31 Logics / LE 31

| | | |
|---|------------------------|---|
|  | »LE31.Gate« | Logic gate |
|  | »LE31.Input1« | Assignment of the Input Signal |
|  | »LE31.Inverting1« | Inverting the input signals. |
|  | »LE31.Input2« | Assignment of the Input Signal |
|  | »LE31.Inverting2« | Inverting the input signals. |
|  | »LE31.Input3« | Assignment of the Input Signal |
|  | »LE31.Inverting3« | Inverting the input signals. |
|  | »LE31.Input4« | Assignment of the Input Signal |
|  | »LE31.Inverting4« | Inverting the input signals. |
|  | »LE31.t-On Delay« | Switch On Delay |
|  | »LE31.t-Off Delay« | Switch Off Delay |
|  | »LE31.Reset Latched« | Reset Signal for the Latching |
|  | »LE31.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE31.Inverting Set« | Inverting the Setting Signal for the Latching |














3.8.32 Logics / LE 32

| | | |
|---|------------------------|---|
|  | »LE32.Gate« | Logic gate |
|  | »LE32.Input1« | Assignment of the Input Signal |
|  | »LE32.Inverting1« | Inverting the input signals. |
|  | »LE32.Input2« | Assignment of the Input Signal |
|  | »LE32.Inverting2« | Inverting the input signals. |
|  | »LE32.Input3« | Assignment of the Input Signal |
|  | »LE32.Inverting3« | Inverting the input signals. |
|  | »LE32.Input4« | Assignment of the Input Signal |
|  | »LE32.Inverting4« | Inverting the input signals. |
|  | »LE32.t-On Delay« | Switch On Delay |
|  | »LE32.t-Off Delay« | Switch Off Delay |
|  | »LE32.Reset Latched« | Reset Signal for the Latching |
|  | »LE32.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE32.Inverting Set« | Inverting the Setting Signal for the Latching |






3.8.33 Logics / LE 33

| | | |
|---|------------------------|---|
|  | »LE33.Gate« | Logic gate |
|  | »LE33.Input1« | Assignment of the Input Signal |
|  | »LE33.Inverting1« | Inverting the input signals. |
|  | »LE33.Input2« | Assignment of the Input Signal |
|  | »LE33.Inverting2« | Inverting the input signals. |
|  | »LE33.Input3« | Assignment of the Input Signal |
|  | »LE33.Inverting3« | Inverting the input signals. |
|  | »LE33.Input4« | Assignment of the Input Signal |
|  | »LE33.Inverting4« | Inverting the input signals. |
|  | »LE33.t-On Delay« | Switch On Delay |
|  | »LE33.t-Off Delay« | Switch Off Delay |
|  | »LE33.Reset Latched« | Reset Signal for the Latching |
|  | »LE33.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE33.Inverting Set« | Inverting the Setting Signal for the Latching |














3.8.34 Logics / LE 34

| | | |
|---|------------------------|---|
|  | »LE34.Gate« | Logic gate |
|  | »LE34.Input1« | Assignment of the Input Signal |
|  | »LE34.Inverting1« | Inverting the input signals. |
|  | »LE34.Input2« | Assignment of the Input Signal |
|  | »LE34.Inverting2« | Inverting the input signals. |
|  | »LE34.Input3« | Assignment of the Input Signal |
|  | »LE34.Inverting3« | Inverting the input signals. |
|  | »LE34.Input4« | Assignment of the Input Signal |
|  | »LE34.Inverting4« | Inverting the input signals. |
|  | »LE34.t-On Delay« | Switch On Delay |
|  | »LE34.t-Off Delay« | Switch Off Delay |
|  | »LE34.Reset Latched« | Reset Signal for the Latching |
|  | »LE34.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE34.Inverting Set« | Inverting the Setting Signal for the Latching |









3.8.35 Logics / LE 35

| | | |
|---|------------------------|---|
|  | »LE35.Gate« | Logic gate |
|  | »LE35.Input1« | Assignment of the Input Signal |
|  | »LE35.Inverting1« | Inverting the input signals. |
|  | »LE35.Input2« | Assignment of the Input Signal |
|  | »LE35.Inverting2« | Inverting the input signals. |
|  | »LE35.Input3« | Assignment of the Input Signal |
|  | »LE35.Inverting3« | Inverting the input signals. |
|  | »LE35.Input4« | Assignment of the Input Signal |
|  | »LE35.Inverting4« | Inverting the input signals. |
|  | »LE35.t-On Delay« | Switch On Delay |
|  | »LE35.t-Off Delay« | Switch Off Delay |
|  | »LE35.Reset Latched« | Reset Signal for the Latching |
|  | »LE35.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE35.Inverting Set« | Inverting the Setting Signal for the Latching |

3.8.36 Logics / LE 36

| | | |
|---|------------------------|---|
|  | »LE36.Gate« | Logic gate |
|  | »LE36.Input1« | Assignment of the Input Signal |
|  | »LE36.Inverting1« | Inverting the input signals. |
|  | »LE36.Input2« | Assignment of the Input Signal |
|  | »LE36.Inverting2« | Inverting the input signals. |
|  | »LE36.Input3« | Assignment of the Input Signal |
|  | »LE36.Inverting3« | Inverting the input signals. |
|  | »LE36.Input4« | Assignment of the Input Signal |
|  | »LE36.Inverting4« | Inverting the input signals. |
|  | »LE36.t-On Delay« | Switch On Delay |
|  | »LE36.t-Off Delay« | Switch Off Delay |
|  | »LE36.Reset Latched« | Reset Signal for the Latching |
|  | »LE36.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE36.Inverting Set« | Inverting the Setting Signal for the Latching |

3.8.37 Logics / LE 37

| | | |
|---|------------------------|---|
|  | »LE37.Gate« | Logic gate |
|  | »LE37.Input1« | Assignment of the Input Signal |
|  | »LE37.Inverting1« | Inverting the input signals. |
|  | »LE37.Input2« | Assignment of the Input Signal |
|  | »LE37.Inverting2« | Inverting the input signals. |
|  | »LE37.Input3« | Assignment of the Input Signal |
|  | »LE37.Inverting3« | Inverting the input signals. |
|  | »LE37.Input4« | Assignment of the Input Signal |
|  | »LE37.Inverting4« | Inverting the input signals. |
|  | »LE37.t-On Delay« | Switch On Delay |
|  | »LE37.t-Off Delay« | Switch Off Delay |
|  | »LE37.Reset Latched« | Reset Signal for the Latching |
|  | »LE37.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE37.Inverting Set« | Inverting the Setting Signal for the Latching |















3.8.38 Logics / LE 38

| | | |
|---|------------------------|---|
|  | »LE38.Gate« | Logic gate |
|  | »LE38.Input1« | Assignment of the Input Signal |
|  | »LE38.Inverting1« | Inverting the input signals. |
|  | »LE38.Input2« | Assignment of the Input Signal |
|  | »LE38.Inverting2« | Inverting the input signals. |
|  | »LE38.Input3« | Assignment of the Input Signal |
|  | »LE38.Inverting3« | Inverting the input signals. |
|  | »LE38.Input4« | Assignment of the Input Signal |
|  | »LE38.Inverting4« | Inverting the input signals. |
|  | »LE38.t-On Delay« | Switch On Delay |
|  | »LE38.t-Off Delay« | Switch Off Delay |
|  | »LE38.Reset Latched« | Reset Signal for the Latching |
|  | »LE38.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE38.Inverting Set« | Inverting the Setting Signal for the Latching |





3.8.39 Logics / LE 39

| | | |
|---|------------------------|---|
|  | »LE39.Gate« | Logic gate |
|  | »LE39.Input1« | Assignment of the Input Signal |
|  | »LE39.Inverting1« | Inverting the input signals. |
|  | »LE39.Input2« | Assignment of the Input Signal |
|  | »LE39.Inverting2« | Inverting the input signals. |
|  | »LE39.Input3« | Assignment of the Input Signal |
|  | »LE39.Inverting3« | Inverting the input signals. |
|  | »LE39.Input4« | Assignment of the Input Signal |
|  | »LE39.Inverting4« | Inverting the input signals. |
|  | »LE39.t-On Delay« | Switch On Delay |
|  | »LE39.t-Off Delay« | Switch Off Delay |
|  | »LE39.Reset Latched« | Reset Signal for the Latching |
|  | »LE39.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE39.Inverting Set« | Inverting the Setting Signal for the Latching |

3.8.40 Logics / LE 40

| | | |
|---|------------------------|---|
|  | »LE40.Gate« | Logic gate |
|  | »LE40.Input1« | Assignment of the Input Signal |
|  | »LE40.Inverting1« | Inverting the input signals. |
|  | »LE40.Input2« | Assignment of the Input Signal |
|  | »LE40.Inverting2« | Inverting the input signals. |
|  | »LE40.Input3« | Assignment of the Input Signal |
|  | »LE40.Inverting3« | Inverting the input signals. |
|  | »LE40.Input4« | Assignment of the Input Signal |
|  | »LE40.Inverting4« | Inverting the input signals. |
|  | »LE40.t-On Delay« | Switch On Delay |
|  | »LE40.t-Off Delay« | Switch Off Delay |
|  | »LE40.Reset Latched« | Reset Signal for the Latching |
|  | »LE40.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE40.Inverting Set« | Inverting the Setting Signal for the Latching |

3.8.41 Logics / LE 41

| | | |
|---|------------------------|---|
|  | »LE41.Gate« | Logic gate |
|  | »LE41.Input1« | Assignment of the Input Signal |
|  | »LE41.Inverting1« | Inverting the input signals. |
|  | »LE41.Input2« | Assignment of the Input Signal |
|  | »LE41.Inverting2« | Inverting the input signals. |
|  | »LE41.Input3« | Assignment of the Input Signal |
|  | »LE41.Inverting3« | Inverting the input signals. |
|  | »LE41.Input4« | Assignment of the Input Signal |
|  | »LE41.Inverting4« | Inverting the input signals. |
|  | »LE41.t-On Delay« | Switch On Delay |
|  | »LE41.t-Off Delay« | Switch Off Delay |
|  | »LE41.Reset Latched« | Reset Signal for the Latching |
|  | »LE41.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE41.Inverting Set« | Inverting the Setting Signal for the Latching |












3.8.42 Logics / LE 42

| | | |
|---|------------------------|---|
|  | »LE42.Gate« | Logic gate |
|  | »LE42.Input1« | Assignment of the Input Signal |
|  | »LE42.Inverting1« | Inverting the input signals. |
|  | »LE42.Input2« | Assignment of the Input Signal |
|  | »LE42.Inverting2« | Inverting the input signals. |
|  | »LE42.Input3« | Assignment of the Input Signal |
|  | »LE42.Inverting3« | Inverting the input signals. |
|  | »LE42.Input4« | Assignment of the Input Signal |
|  | »LE42.Inverting4« | Inverting the input signals. |
|  | »LE42.t-On Delay« | Switch On Delay |
|  | »LE42.t-Off Delay« | Switch Off Delay |
|  | »LE42.Reset Latched« | Reset Signal for the Latching |
|  | »LE42.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE42.Inverting Set« | Inverting the Setting Signal for the Latching |






3.8.43 Logics / LE 43

| | | |
|---|------------------------|---|
|  | »LE43.Gate« | Logic gate |
|  | »LE43.Input1« | Assignment of the Input Signal |
|  | »LE43.Inverting1« | Inverting the input signals. |
|  | »LE43.Input2« | Assignment of the Input Signal |
|  | »LE43.Inverting2« | Inverting the input signals. |
|  | »LE43.Input3« | Assignment of the Input Signal |
|  | »LE43.Inverting3« | Inverting the input signals. |
|  | »LE43.Input4« | Assignment of the Input Signal |
|  | »LE43.Inverting4« | Inverting the input signals. |
|  | »LE43.t-On Delay« | Switch On Delay |
|  | »LE43.t-Off Delay« | Switch Off Delay |
|  | »LE43.Reset Latched« | Reset Signal for the Latching |
|  | »LE43.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE43.Inverting Set« | Inverting the Setting Signal for the Latching |

3.8.44 Logics / LE 44

| | | |
|---|------------------------|---|
|  | »LE44.Gate« | Logic gate |
|  | »LE44.Input1« | Assignment of the Input Signal |
|  | »LE44.Inverting1« | Inverting the input signals. |
|  | »LE44.Input2« | Assignment of the Input Signal |
|  | »LE44.Inverting2« | Inverting the input signals. |
|  | »LE44.Input3« | Assignment of the Input Signal |
|  | »LE44.Inverting3« | Inverting the input signals. |
|  | »LE44.Input4« | Assignment of the Input Signal |
|  | »LE44.Inverting4« | Inverting the input signals. |
|  | »LE44.t-On Delay« | Switch On Delay |
|  | »LE44.t-Off Delay« | Switch Off Delay |
|  | »LE44.Reset Latched« | Reset Signal for the Latching |
|  | »LE44.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE44.Inverting Set« | Inverting the Setting Signal for the Latching |

3.8.45 Logics / LE 45

| | | |
|---|------------------------|---|
|  | »LE45.Gate« | Logic gate |
|  | »LE45.Input1« | Assignment of the Input Signal |
|  | »LE45.Inverting1« | Inverting the input signals. |
|  | »LE45.Input2« | Assignment of the Input Signal |
|  | »LE45.Inverting2« | Inverting the input signals. |
|  | »LE45.Input3« | Assignment of the Input Signal |
|  | »LE45.Inverting3« | Inverting the input signals. |
|  | »LE45.Input4« | Assignment of the Input Signal |
|  | »LE45.Inverting4« | Inverting the input signals. |
|  | »LE45.t-On Delay« | Switch On Delay |
|  | »LE45.t-Off Delay« | Switch Off Delay |
|  | »LE45.Reset Latched« | Reset Signal for the Latching |
|  | »LE45.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE45.Inverting Set« | Inverting the Setting Signal for the Latching |















3.8.46 Logics / LE 46

| | | |
|---|------------------------|---|
|  | »LE46.Gate« | Logic gate |
|  | »LE46.Input1« | Assignment of the Input Signal |
|  | »LE46.Inverting1« | Inverting the input signals. |
|  | »LE46.Input2« | Assignment of the Input Signal |
|  | »LE46.Inverting2« | Inverting the input signals. |
|  | »LE46.Input3« | Assignment of the Input Signal |
|  | »LE46.Inverting3« | Inverting the input signals. |
|  | »LE46.Input4« | Assignment of the Input Signal |
|  | »LE46.Inverting4« | Inverting the input signals. |
|  | »LE46.t-On Delay« | Switch On Delay |
|  | »LE46.t-Off Delay« | Switch Off Delay |
|  | »LE46.Reset Latched« | Reset Signal for the Latching |
|  | »LE46.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE46.Inverting Set« | Inverting the Setting Signal for the Latching |







3.8.47 Logics / LE 47

| | | |
|---|------------------------|---|
|  | »LE47.Gate« | Logic gate |
|  | »LE47.Input1« | Assignment of the Input Signal |
|  | »LE47.Inverting1« | Inverting the input signals. |
|  | »LE47.Input2« | Assignment of the Input Signal |
|  | »LE47.Inverting2« | Inverting the input signals. |
|  | »LE47.Input3« | Assignment of the Input Signal |
|  | »LE47.Inverting3« | Inverting the input signals. |
|  | »LE47.Input4« | Assignment of the Input Signal |
|  | »LE47.Inverting4« | Inverting the input signals. |
|  | »LE47.t-On Delay« | Switch On Delay |
|  | »LE47.t-Off Delay« | Switch Off Delay |
|  | »LE47.Reset Latched« | Reset Signal for the Latching |
|  | »LE47.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE47.Inverting Set« | Inverting the Setting Signal for the Latching |

3.8.48 Logics / LE 48

| | | |
|---|------------------------|---|
|  | »LE48.Gate« | Logic gate |
|  | »LE48.Input1« | Assignment of the Input Signal |
|  | »LE48.Inverting1« | Inverting the input signals. |
|  | »LE48.Input2« | Assignment of the Input Signal |
|  | »LE48.Inverting2« | Inverting the input signals. |
|  | »LE48.Input3« | Assignment of the Input Signal |
|  | »LE48.Inverting3« | Inverting the input signals. |
|  | »LE48.Input4« | Assignment of the Input Signal |
|  | »LE48.Inverting4« | Inverting the input signals. |
|  | »LE48.t-On Delay« | Switch On Delay |
|  | »LE48.t-Off Delay« | Switch Off Delay |
|  | »LE48.Reset Latched« | Reset Signal for the Latching |
|  | »LE48.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE48.Inverting Set« | Inverting the Setting Signal for the Latching |

3.8.49 Logics / LE 49

| | | |
|---|------------------------|---|
|  | »LE49.Gate« | Logic gate |
|  | »LE49.Input1« | Assignment of the Input Signal |
|  | »LE49.Inverting1« | Inverting the input signals. |
|  | »LE49.Input2« | Assignment of the Input Signal |
|  | »LE49.Inverting2« | Inverting the input signals. |
|  | »LE49.Input3« | Assignment of the Input Signal |
|  | »LE49.Inverting3« | Inverting the input signals. |
|  | »LE49.Input4« | Assignment of the Input Signal |
|  | »LE49.Inverting4« | Inverting the input signals. |
|  | »LE49.t-On Delay« | Switch On Delay |
|  | »LE49.t-Off Delay« | Switch Off Delay |
|  | »LE49.Reset Latched« | Reset Signal for the Latching |
|  | »LE49.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE49.Inverting Set« | Inverting the Setting Signal for the Latching |















3.8.50 Logics / LE 50

| | | |
|---|------------------------|---|
|  | »LE50.Gate« | Logic gate |
|  | »LE50.Input1« | Assignment of the Input Signal |
|  | »LE50.Inverting1« | Inverting the input signals. |
|  | »LE50.Input2« | Assignment of the Input Signal |
|  | »LE50.Inverting2« | Inverting the input signals. |
|  | »LE50.Input3« | Assignment of the Input Signal |
|  | »LE50.Inverting3« | Inverting the input signals. |
|  | »LE50.Input4« | Assignment of the Input Signal |
|  | »LE50.Inverting4« | Inverting the input signals. |
|  | »LE50.t-On Delay« | Switch On Delay |
|  | »LE50.t-Off Delay« | Switch Off Delay |
|  | »LE50.Reset Latched« | Reset Signal for the Latching |
|  | »LE50.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE50.Inverting Set« | Inverting the Setting Signal for the Latching |






3.8.51 Logics / LE 51

| | | |
|---|------------------------|---|
|  | »LE51.Gate« | Logic gate |
|  | »LE51.Input1« | Assignment of the Input Signal |
|  | »LE51.Inverting1« | Inverting the input signals. |
|  | »LE51.Input2« | Assignment of the Input Signal |
|  | »LE51.Inverting2« | Inverting the input signals. |
|  | »LE51.Input3« | Assignment of the Input Signal |
|  | »LE51.Inverting3« | Inverting the input signals. |
|  | »LE51.Input4« | Assignment of the Input Signal |
|  | »LE51.Inverting4« | Inverting the input signals. |
|  | »LE51.t-On Delay« | Switch On Delay |
|  | »LE51.t-Off Delay« | Switch Off Delay |
|  | »LE51.Reset Latched« | Reset Signal for the Latching |
|  | »LE51.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE51.Inverting Set« | Inverting the Setting Signal for the Latching |

3.8.52 Logics / LE 52

| | | |
|---|------------------------|---|
|  | »LE52.Gate« | Logic gate |
|  | »LE52.Input1« | Assignment of the Input Signal |
|  | »LE52.Inverting1« | Inverting the input signals. |
|  | »LE52.Input2« | Assignment of the Input Signal |
|  | »LE52.Inverting2« | Inverting the input signals. |
|  | »LE52.Input3« | Assignment of the Input Signal |
|  | »LE52.Inverting3« | Inverting the input signals. |
|  | »LE52.Input4« | Assignment of the Input Signal |
|  | »LE52.Inverting4« | Inverting the input signals. |
|  | »LE52.t-On Delay« | Switch On Delay |
|  | »LE52.t-Off Delay« | Switch Off Delay |
|  | »LE52.Reset Latched« | Reset Signal for the Latching |
|  | »LE52.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE52.Inverting Set« | Inverting the Setting Signal for the Latching |

3.8.53 Logics / LE 53

| | | |
|---|------------------------|---|
|  | »LE53.Gate« | Logic gate |
|  | »LE53.Input1« | Assignment of the Input Signal |
|  | »LE53.Inverting1« | Inverting the input signals. |
|  | »LE53.Input2« | Assignment of the Input Signal |
|  | »LE53.Inverting2« | Inverting the input signals. |
|  | »LE53.Input3« | Assignment of the Input Signal |
|  | »LE53.Inverting3« | Inverting the input signals. |
|  | »LE53.Input4« | Assignment of the Input Signal |
|  | »LE53.Inverting4« | Inverting the input signals. |
|  | »LE53.t-On Delay« | Switch On Delay |
|  | »LE53.t-Off Delay« | Switch Off Delay |
|  | »LE53.Reset Latched« | Reset Signal for the Latching |
|  | »LE53.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE53.Inverting Set« | Inverting the Setting Signal for the Latching |














3.8.54 Logics / LE 54

| | | |
|---|------------------------|---|
|  | »LE54.Gate« | Logic gate |
|  | »LE54.Input1« | Assignment of the Input Signal |
|  | »LE54.Inverting1« | Inverting the input signals. |
|  | »LE54.Input2« | Assignment of the Input Signal |
|  | »LE54.Inverting2« | Inverting the input signals. |
|  | »LE54.Input3« | Assignment of the Input Signal |
|  | »LE54.Inverting3« | Inverting the input signals. |
|  | »LE54.Input4« | Assignment of the Input Signal |
|  | »LE54.Inverting4« | Inverting the input signals. |
|  | »LE54.t-On Delay« | Switch On Delay |
|  | »LE54.t-Off Delay« | Switch Off Delay |
|  | »LE54.Reset Latched« | Reset Signal for the Latching |
|  | »LE54.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE54.Inverting Set« | Inverting the Setting Signal for the Latching |











3.8.55 Logics / LE 55

| | | |
|---|------------------------|---|
|  | »LE55.Gate« | Logic gate |
|  | »LE55.Input1« | Assignment of the Input Signal |
|  | »LE55.Inverting1« | Inverting the input signals. |
|  | »LE55.Input2« | Assignment of the Input Signal |
|  | »LE55.Inverting2« | Inverting the input signals. |
|  | »LE55.Input3« | Assignment of the Input Signal |
|  | »LE55.Inverting3« | Inverting the input signals. |
|  | »LE55.Input4« | Assignment of the Input Signal |
|  | »LE55.Inverting4« | Inverting the input signals. |
|  | »LE55.t-On Delay« | Switch On Delay |
|  | »LE55.t-Off Delay« | Switch Off Delay |
|  | »LE55.Reset Latched« | Reset Signal for the Latching |
|  | »LE55.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE55.Inverting Set« | Inverting the Setting Signal for the Latching |













3.8.56 Logics / LE 56

| | | |
|---|------------------------|---|
|  | »LE56.Gate« | Logic gate |
|  | »LE56.Input1« | Assignment of the Input Signal |
|  | »LE56.Inverting1« | Inverting the input signals. |
|  | »LE56.Input2« | Assignment of the Input Signal |
|  | »LE56.Inverting2« | Inverting the input signals. |
|  | »LE56.Input3« | Assignment of the Input Signal |
|  | »LE56.Inverting3« | Inverting the input signals. |
|  | »LE56.Input4« | Assignment of the Input Signal |
|  | »LE56.Inverting4« | Inverting the input signals. |
|  | »LE56.t-On Delay« | Switch On Delay |
|  | »LE56.t-Off Delay« | Switch Off Delay |
|  | »LE56.Reset Latched« | Reset Signal for the Latching |
|  | »LE56.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE56.Inverting Set« | Inverting the Setting Signal for the Latching |









3.8.57 Logics / LE 57

| | | |
|---|------------------------|---|
|  | »LE57.Gate« | Logic gate |
|  | »LE57.Input1« | Assignment of the Input Signal |
|  | »LE57.Inverting1« | Inverting the input signals. |
|  | »LE57.Input2« | Assignment of the Input Signal |
|  | »LE57.Inverting2« | Inverting the input signals. |
|  | »LE57.Input3« | Assignment of the Input Signal |
|  | »LE57.Inverting3« | Inverting the input signals. |
|  | »LE57.Input4« | Assignment of the Input Signal |
|  | »LE57.Inverting4« | Inverting the input signals. |
|  | »LE57.t-On Delay« | Switch On Delay |
|  | »LE57.t-Off Delay« | Switch Off Delay |
|  | »LE57.Reset Latched« | Reset Signal for the Latching |
|  | »LE57.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE57.Inverting Set« | Inverting the Setting Signal for the Latching |













3.8.58 Logics / LE 58

| | | |
|---|------------------------|---|
|  | »LE58.Gate« | Logic gate |
|  | »LE58.Input1« | Assignment of the Input Signal |
|  | »LE58.Inverting1« | Inverting the input signals. |
|  | »LE58.Input2« | Assignment of the Input Signal |
|  | »LE58.Inverting2« | Inverting the input signals. |
|  | »LE58.Input3« | Assignment of the Input Signal |
|  | »LE58.Inverting3« | Inverting the input signals. |
|  | »LE58.Input4« | Assignment of the Input Signal |
|  | »LE58.Inverting4« | Inverting the input signals. |
|  | »LE58.t-On Delay« | Switch On Delay |
|  | »LE58.t-Off Delay« | Switch Off Delay |
|  | »LE58.Reset Latched« | Reset Signal for the Latching |
|  | »LE58.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE58.Inverting Set« | Inverting the Setting Signal for the Latching |





3.8.59 Logics / LE 59

| | | |
|---|------------------------|---|
|  | »LE59.Gate« | Logic gate |
|  | »LE59.Input1« | Assignment of the Input Signal |
|  | »LE59.Inverting1« | Inverting the input signals. |
|  | »LE59.Input2« | Assignment of the Input Signal |
|  | »LE59.Inverting2« | Inverting the input signals. |
|  | »LE59.Input3« | Assignment of the Input Signal |
|  | »LE59.Inverting3« | Inverting the input signals. |
|  | »LE59.Input4« | Assignment of the Input Signal |
|  | »LE59.Inverting4« | Inverting the input signals. |
|  | »LE59.t-On Delay« | Switch On Delay |
|  | »LE59.t-Off Delay« | Switch Off Delay |
|  | »LE59.Reset Latched« | Reset Signal for the Latching |
|  | »LE59.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE59.Inverting Set« | Inverting the Setting Signal for the Latching |















3.8.60 Logics / LE 60

| | | |
|---|------------------------|---|
|  | »LE60.Gate« | Logic gate |
|  | »LE60.Input1« | Assignment of the Input Signal |
|  | »LE60.Inverting1« | Inverting the input signals. |
|  | »LE60.Input2« | Assignment of the Input Signal |
|  | »LE60.Inverting2« | Inverting the input signals. |
|  | »LE60.Input3« | Assignment of the Input Signal |
|  | »LE60.Inverting3« | Inverting the input signals. |
|  | »LE60.Input4« | Assignment of the Input Signal |
|  | »LE60.Inverting4« | Inverting the input signals. |
|  | »LE60.t-On Delay« | Switch On Delay |
|  | »LE60.t-Off Delay« | Switch Off Delay |
|  | »LE60.Reset Latched« | Reset Signal for the Latching |
|  | »LE60.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE60.Inverting Set« | Inverting the Setting Signal for the Latching |





3.8.61 Logics / LE 61

| | | |
|---|------------------------|---|
|  | »LE61.Gate« | Logic gate |
|  | »LE61.Input1« | Assignment of the Input Signal |
|  | »LE61.Inverting1« | Inverting the input signals. |
|  | »LE61.Input2« | Assignment of the Input Signal |
|  | »LE61.Inverting2« | Inverting the input signals. |
|  | »LE61.Input3« | Assignment of the Input Signal |
|  | »LE61.Inverting3« | Inverting the input signals. |
|  | »LE61.Input4« | Assignment of the Input Signal |
|  | »LE61.Inverting4« | Inverting the input signals. |
|  | »LE61.t-On Delay« | Switch On Delay |
|  | »LE61.t-Off Delay« | Switch Off Delay |
|  | »LE61.Reset Latched« | Reset Signal for the Latching |
|  | »LE61.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE61.Inverting Set« | Inverting the Setting Signal for the Latching |














3.8.62 Logics / LE 62

| | | |
|---|------------------------|---|
|  | »LE62.Gate« | Logic gate |
|  | »LE62.Input1« | Assignment of the Input Signal |
|  | »LE62.Inverting1« | Inverting the input signals. |
|  | »LE62.Input2« | Assignment of the Input Signal |
|  | »LE62.Inverting2« | Inverting the input signals. |
|  | »LE62.Input3« | Assignment of the Input Signal |
|  | »LE62.Inverting3« | Inverting the input signals. |
|  | »LE62.Input4« | Assignment of the Input Signal |
|  | »LE62.Inverting4« | Inverting the input signals. |
|  | »LE62.t-On Delay« | Switch On Delay |
|  | »LE62.t-Off Delay« | Switch Off Delay |
|  | »LE62.Reset Latched« | Reset Signal for the Latching |
|  | »LE62.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE62.Inverting Set« | Inverting the Setting Signal for the Latching |







3.8.63 Logics / LE 63

| | | |
|---|------------------------|---|
|  | »LE63.Gate« | Logic gate |
|  | »LE63.Input1« | Assignment of the Input Signal |
|  | »LE63.Inverting1« | Inverting the input signals. |
|  | »LE63.Input2« | Assignment of the Input Signal |
|  | »LE63.Inverting2« | Inverting the input signals. |
|  | »LE63.Input3« | Assignment of the Input Signal |
|  | »LE63.Inverting3« | Inverting the input signals. |
|  | »LE63.Input4« | Assignment of the Input Signal |
|  | »LE63.Inverting4« | Inverting the input signals. |
|  | »LE63.t-On Delay« | Switch On Delay |
|  | »LE63.t-Off Delay« | Switch Off Delay |
|  | »LE63.Reset Latched« | Reset Signal for the Latching |
|  | »LE63.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE63.Inverting Set« | Inverting the Setting Signal for the Latching |

3.8.64 Logics / LE 64

| | | |
|---|------------------------|---|
|  | »LE64.Gate« | Logic gate |
|  | »LE64.Input1« | Assignment of the Input Signal |
|  | »LE64.Inverting1« | Inverting the input signals. |
|  | »LE64.Input2« | Assignment of the Input Signal |
|  | »LE64.Inverting2« | Inverting the input signals. |
|  | »LE64.Input3« | Assignment of the Input Signal |
|  | »LE64.Inverting3« | Inverting the input signals. |
|  | »LE64.Input4« | Assignment of the Input Signal |
|  | »LE64.Inverting4« | Inverting the input signals. |
|  | »LE64.t-On Delay« | Switch On Delay |
|  | »LE64.t-Off Delay« | Switch Off Delay |
|  | »LE64.Reset Latched« | Reset Signal for the Latching |
|  | »LE64.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE64.Inverting Set« | Inverting the Setting Signal for the Latching |

3.8.65 Logics / LE 65

| | | |
|---|------------------------|---|
|  | »LE65.Gate« | Logic gate |
|  | »LE65.Input1« | Assignment of the Input Signal |
|  | »LE65.Inverting1« | Inverting the input signals. |
|  | »LE65.Input2« | Assignment of the Input Signal |
|  | »LE65.Inverting2« | Inverting the input signals. |
|  | »LE65.Input3« | Assignment of the Input Signal |
|  | »LE65.Inverting3« | Inverting the input signals. |
|  | »LE65.Input4« | Assignment of the Input Signal |
|  | »LE65.Inverting4« | Inverting the input signals. |
|  | »LE65.t-On Delay« | Switch On Delay |
|  | »LE65.t-Off Delay« | Switch Off Delay |
|  | »LE65.Reset Latched« | Reset Signal for the Latching |
|  | »LE65.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE65.Inverting Set« | Inverting the Setting Signal for the Latching |















3.8.66 Logics / LE 66

| | | |
|---|------------------------|---|
|  | »LE66.Gate« | Logic gate |
|  | »LE66.Input1« | Assignment of the Input Signal |
|  | »LE66.Inverting1« | Inverting the input signals. |
|  | »LE66.Input2« | Assignment of the Input Signal |
|  | »LE66.Inverting2« | Inverting the input signals. |
|  | »LE66.Input3« | Assignment of the Input Signal |
|  | »LE66.Inverting3« | Inverting the input signals. |
|  | »LE66.Input4« | Assignment of the Input Signal |
|  | »LE66.Inverting4« | Inverting the input signals. |
|  | »LE66.t-On Delay« | Switch On Delay |
|  | »LE66.t-Off Delay« | Switch Off Delay |
|  | »LE66.Reset Latched« | Reset Signal for the Latching |
|  | »LE66.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE66.Inverting Set« | Inverting the Setting Signal for the Latching |






3.8.67 Logics / LE 67

| | | |
|---|------------------------|---|
|  | »LE67.Gate« | Logic gate |
|  | »LE67.Input1« | Assignment of the Input Signal |
|  | »LE67.Inverting1« | Inverting the input signals. |
|  | »LE67.Input2« | Assignment of the Input Signal |
|  | »LE67.Inverting2« | Inverting the input signals. |
|  | »LE67.Input3« | Assignment of the Input Signal |
|  | »LE67.Inverting3« | Inverting the input signals. |
|  | »LE67.Input4« | Assignment of the Input Signal |
|  | »LE67.Inverting4« | Inverting the input signals. |
|  | »LE67.t-On Delay« | Switch On Delay |
|  | »LE67.t-Off Delay« | Switch Off Delay |
|  | »LE67.Reset Latched« | Reset Signal for the Latching |
|  | »LE67.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE67.Inverting Set« | Inverting the Setting Signal for the Latching |

3.8.68 Logics / LE 68

| | | |
|---|------------------------|---|
|  | »LE68.Gate« | Logic gate |
|  | »LE68.Input1« | Assignment of the Input Signal |
|  | »LE68.Inverting1« | Inverting the input signals. |
|  | »LE68.Input2« | Assignment of the Input Signal |
|  | »LE68.Inverting2« | Inverting the input signals. |
|  | »LE68.Input3« | Assignment of the Input Signal |
|  | »LE68.Inverting3« | Inverting the input signals. |
|  | »LE68.Input4« | Assignment of the Input Signal |
|  | »LE68.Inverting4« | Inverting the input signals. |
|  | »LE68.t-On Delay« | Switch On Delay |
|  | »LE68.t-Off Delay« | Switch Off Delay |
|  | »LE68.Reset Latched« | Reset Signal for the Latching |
|  | »LE68.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE68.Inverting Set« | Inverting the Setting Signal for the Latching |

3.8.69 Logics / LE 69

| | | |
|---|------------------------|---|
|  | »LE69.Gate« | Logic gate |
|  | »LE69.Input1« | Assignment of the Input Signal |
|  | »LE69.Inverting1« | Inverting the input signals. |
|  | »LE69.Input2« | Assignment of the Input Signal |
|  | »LE69.Inverting2« | Inverting the input signals. |
|  | »LE69.Input3« | Assignment of the Input Signal |
|  | »LE69.Inverting3« | Inverting the input signals. |
|  | »LE69.Input4« | Assignment of the Input Signal |
|  | »LE69.Inverting4« | Inverting the input signals. |
|  | »LE69.t-On Delay« | Switch On Delay |
|  | »LE69.t-Off Delay« | Switch Off Delay |
|  | »LE69.Reset Latched« | Reset Signal for the Latching |
|  | »LE69.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE69.Inverting Set« | Inverting the Setting Signal for the Latching |














3.8.70 Logics / LE 70

| | | |
|---|------------------------|---|
|  | »LE70.Gate« | Logic gate |
|  | »LE70.Input1« | Assignment of the Input Signal |
|  | »LE70.Inverting1« | Inverting the input signals. |
|  | »LE70.Input2« | Assignment of the Input Signal |
|  | »LE70.Inverting2« | Inverting the input signals. |
|  | »LE70.Input3« | Assignment of the Input Signal |
|  | »LE70.Inverting3« | Inverting the input signals. |
|  | »LE70.Input4« | Assignment of the Input Signal |
|  | »LE70.Inverting4« | Inverting the input signals. |
|  | »LE70.t-On Delay« | Switch On Delay |
|  | »LE70.t-Off Delay« | Switch Off Delay |
|  | »LE70.Reset Latched« | Reset Signal for the Latching |
|  | »LE70.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE70.Inverting Set« | Inverting the Setting Signal for the Latching |






3.8.71 Logics / LE 71

| | | |
|---|------------------------|---|
|  | »LE71.Gate« | Logic gate |
|  | »LE71.Input1« | Assignment of the Input Signal |
|  | »LE71.Inverting1« | Inverting the input signals. |
|  | »LE71.Input2« | Assignment of the Input Signal |
|  | »LE71.Inverting2« | Inverting the input signals. |
|  | »LE71.Input3« | Assignment of the Input Signal |
|  | »LE71.Inverting3« | Inverting the input signals. |
|  | »LE71.Input4« | Assignment of the Input Signal |
|  | »LE71.Inverting4« | Inverting the input signals. |
|  | »LE71.t-On Delay« | Switch On Delay |
|  | »LE71.t-Off Delay« | Switch Off Delay |
|  | »LE71.Reset Latched« | Reset Signal for the Latching |
|  | »LE71.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE71.Inverting Set« | Inverting the Setting Signal for the Latching |














3.8.72 Logics / LE 72

| | | |
|---|------------------------|---|
|  | »LE72.Gate« | Logic gate |
|  | »LE72.Input1« | Assignment of the Input Signal |
|  | »LE72.Inverting1« | Inverting the input signals. |
|  | »LE72.Input2« | Assignment of the Input Signal |
|  | »LE72.Inverting2« | Inverting the input signals. |
|  | »LE72.Input3« | Assignment of the Input Signal |
|  | »LE72.Inverting3« | Inverting the input signals. |
|  | »LE72.Input4« | Assignment of the Input Signal |
|  | »LE72.Inverting4« | Inverting the input signals. |
|  | »LE72.t-On Delay« | Switch On Delay |
|  | »LE72.t-Off Delay« | Switch Off Delay |
|  | »LE72.Reset Latched« | Reset Signal for the Latching |
|  | »LE72.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE72.Inverting Set« | Inverting the Setting Signal for the Latching |






3.8.73 Logics / LE 73

| | | |
|---|------------------------|---|
|  | »LE73.Gate« | Logic gate |
|  | »LE73.Input1« | Assignment of the Input Signal |
|  | »LE73.Inverting1« | Inverting the input signals. |
|  | »LE73.Input2« | Assignment of the Input Signal |
|  | »LE73.Inverting2« | Inverting the input signals. |
|  | »LE73.Input3« | Assignment of the Input Signal |
|  | »LE73.Inverting3« | Inverting the input signals. |
|  | »LE73.Input4« | Assignment of the Input Signal |
|  | »LE73.Inverting4« | Inverting the input signals. |
|  | »LE73.t-On Delay« | Switch On Delay |
|  | »LE73.t-Off Delay« | Switch Off Delay |
|  | »LE73.Reset Latched« | Reset Signal for the Latching |
|  | »LE73.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE73.Inverting Set« | Inverting the Setting Signal for the Latching |















3.8.74 Logics / LE 74

| | | |
|---|------------------------|---|
|  | »LE74.Gate« | Logic gate |
|  | »LE74.Input1« | Assignment of the Input Signal |
|  | »LE74.Inverting1« | Inverting the input signals. |
|  | »LE74.Input2« | Assignment of the Input Signal |
|  | »LE74.Inverting2« | Inverting the input signals. |
|  | »LE74.Input3« | Assignment of the Input Signal |
|  | »LE74.Inverting3« | Inverting the input signals. |
|  | »LE74.Input4« | Assignment of the Input Signal |
|  | »LE74.Inverting4« | Inverting the input signals. |
|  | »LE74.t-On Delay« | Switch On Delay |
|  | »LE74.t-Off Delay« | Switch Off Delay |
|  | »LE74.Reset Latched« | Reset Signal for the Latching |
|  | »LE74.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE74.Inverting Set« | Inverting the Setting Signal for the Latching |






3.8.75 Logics / LE 75

| | | |
|---|------------------------|---|
|  | »LE75.Gate« | Logic gate |
|  | »LE75.Input1« | Assignment of the Input Signal |
|  | »LE75.Inverting1« | Inverting the input signals. |
|  | »LE75.Input2« | Assignment of the Input Signal |
|  | »LE75.Inverting2« | Inverting the input signals. |
|  | »LE75.Input3« | Assignment of the Input Signal |
|  | »LE75.Inverting3« | Inverting the input signals. |
|  | »LE75.Input4« | Assignment of the Input Signal |
|  | »LE75.Inverting4« | Inverting the input signals. |
|  | »LE75.t-On Delay« | Switch On Delay |
|  | »LE75.t-Off Delay« | Switch Off Delay |
|  | »LE75.Reset Latched« | Reset Signal for the Latching |
|  | »LE75.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE75.Inverting Set« | Inverting the Setting Signal for the Latching |












3.8.76 Logics / LE 76

| | | |
|---|------------------------|---|
|  | »LE76.Gate« | Logic gate |
|  | »LE76.Input1« | Assignment of the Input Signal |
|  | »LE76.Inverting1« | Inverting the input signals. |
|  | »LE76.Input2« | Assignment of the Input Signal |
|  | »LE76.Inverting2« | Inverting the input signals. |
|  | »LE76.Input3« | Assignment of the Input Signal |
|  | »LE76.Inverting3« | Inverting the input signals. |
|  | »LE76.Input4« | Assignment of the Input Signal |
|  | »LE76.Inverting4« | Inverting the input signals. |
|  | »LE76.t-On Delay« | Switch On Delay |
|  | »LE76.t-Off Delay« | Switch Off Delay |
|  | »LE76.Reset Latched« | Reset Signal for the Latching |
|  | »LE76.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE76.Inverting Set« | Inverting the Setting Signal for the Latching |






3.8.77 Logics / LE 77

| | | |
|---|------------------------|---|
|  | »LE77.Gate« | Logic gate |
|  | »LE77.Input1« | Assignment of the Input Signal |
|  | »LE77.Inverting1« | Inverting the input signals. |
|  | »LE77.Input2« | Assignment of the Input Signal |
|  | »LE77.Inverting2« | Inverting the input signals. |
|  | »LE77.Input3« | Assignment of the Input Signal |
|  | »LE77.Inverting3« | Inverting the input signals. |
|  | »LE77.Input4« | Assignment of the Input Signal |
|  | »LE77.Inverting4« | Inverting the input signals. |
|  | »LE77.t-On Delay« | Switch On Delay |
|  | »LE77.t-Off Delay« | Switch Off Delay |
|  | »LE77.Reset Latched« | Reset Signal for the Latching |
|  | »LE77.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE77.Inverting Set« | Inverting the Setting Signal for the Latching |














3.8.78 Logics / LE 78

| | | |
|---|------------------------|---|
|  | »LE78.Gate« | Logic gate |
|  | »LE78.Input1« | Assignment of the Input Signal |
|  | »LE78.Inverting1« | Inverting the input signals. |
|  | »LE78.Input2« | Assignment of the Input Signal |
|  | »LE78.Inverting2« | Inverting the input signals. |
|  | »LE78.Input3« | Assignment of the Input Signal |
|  | »LE78.Inverting3« | Inverting the input signals. |
|  | »LE78.Input4« | Assignment of the Input Signal |
|  | »LE78.Inverting4« | Inverting the input signals. |
|  | »LE78.t-On Delay« | Switch On Delay |
|  | »LE78.t-Off Delay« | Switch Off Delay |
|  | »LE78.Reset Latched« | Reset Signal for the Latching |
|  | »LE78.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE78.Inverting Set« | Inverting the Setting Signal for the Latching |

3.8.79 Logics / LE 79


| | | |
|---|------------------------|---|
|  | »LE79.Gate« | Logic gate |
|  | »LE79.Input1« | Assignment of the Input Signal |
|  | »LE79.Inverting1« | Inverting the input signals. |
|  | »LE79.Input2« | Assignment of the Input Signal |
|  | »LE79.Inverting2« | Inverting the input signals. |
|  | »LE79.Input3« | Assignment of the Input Signal |
|  | »LE79.Inverting3« | Inverting the input signals. |
|  | »LE79.Input4« | Assignment of the Input Signal |
|  | »LE79.Inverting4« | Inverting the input signals. |
|  | »LE79.t-On Delay« | Switch On Delay |
|  | »LE79.t-Off Delay« | Switch Off Delay |
|  | »LE79.Reset Latched« | Reset Signal for the Latching |
|  | »LE79.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE79.Inverting Set« | Inverting the Setting Signal for the Latching |

3.8.80 Logics / LE 80



| | | |
|---|------------------------|---|
|  | »LE80.Gate« | Logic gate |
|  | »LE80.Input1« | Assignment of the Input Signal |
|  | »LE80.Inverting1« | Inverting the input signals. |
|  | »LE80.Input2« | Assignment of the Input Signal |
|  | »LE80.Inverting2« | Inverting the input signals. |
|  | »LE80.Input3« | Assignment of the Input Signal |
|  | »LE80.Inverting3« | Inverting the input signals. |
|  | »LE80.Input4« | Assignment of the Input Signal |
|  | »LE80.Inverting4« | Inverting the input signals. |
|  | »LE80.t-On Delay« | Switch On Delay |
|  | »LE80.t-Off Delay« | Switch Off Delay |
|  | »LE80.Reset Latched« | Reset Signal for the Latching |
|  | »LE80.Inverting Reset« | Inverting Reset Signal for the Latching |
|  | »LE80.Inverting Set« | Inverting the Setting Signal for the Latching |

3.9 Service

3.9.1 Service / General

| | | |
|---|----------------|-----------------------|
|  | »Sys . Reboot« | Rebooting the device. |
|---|----------------|-----------------------|





3.9.2 Service / Maint Mode

| | | |
|---|---------------------------|---|
|  | »Maint Mode« | Activation Mode of the Arc Flash Reduction. Switching into another mode is only possible when no Activation Signal is active (pending). |
|  | »Maint Mode Activated by« | Activation Signal for the Arc Flash Reduction Maintenance Switch |





3.9.3 Service / Test - Prot inhib.

3.9.3.1 Service / Test - Prot inhib. / DISARMED

3.9.3.1.1 Service / Test - Prot inhib. / DISARMED / BO Slot X2





| | | |
|---|--------------------|---|
|  | »DISARMED Ctrl« | Enables and disables the disarming of the relay outputs. This is the first step of a two step process, to inhibit the operation or the relay outputs. Please refer to "DISARMED" for the second step. |
|  | »Disarm Mode« | CAUTION! RELAYS DISARMED in order to safely perform maintenance while eliminating the risk of taking an entire process off-line. (Note: The Supervision Contact cannot be disarmed). YOU MUST ENSURE that the relays are ARMED AGAIN after maintenance. |
|  | »t-Timeout DISARM« | The relays will be armed again after expiring of this time. |
|  | »DISARMED« | This is the second step, after the "DISARMED Ctrl" has been activated, that is required to DISARM the relay outputs. This will DISARM those output relays that are currently not latched and that are not on "hold" by a pending minimum hold time. CAUTION! RELAYS DISARMED in order to safely perform maintenance while eliminating the risk of taking an entire process off-line. (Note: Zone Interlocking and Supervision Contact cannot be disarmed). YOU MUST ENSURE that the relays are ARMED AGAIN after maintenance. |

3.9.3.1.2 Service / Test - Prot inhib. / DISARMED / BO Slot X2

| | | |
|---|--------------------|---|
|  | »DISARMED Ctrl« | Enables and disables the disarming of the relay outputs. This is the first step of a two step process, to inhibit the operation or the relay outputs. Please refer to "DISARMED" for the second step. |
|  | »Disarm Mode« | CAUTION! RELAYS DISARMED in order to safely perform maintenance while eliminating the risk of taking an entire process off-line. (Note: The Supervision Contact cannot be disarmed). YOU MUST ENSURE that the relays are ARMED AGAIN after maintenance. |
|  | »t-Timeout DISARM« | The relays will be armed again after expiring of this time. |
|  | »DISARMED« | This is the second step, after the "DISARMED Ctrl" has been activated, that is required to DISARM the relay outputs. This will DISARM those output relays that are currently not latched and that are not on "hold" by a pending minimum hold time. CAUTION! RELAYS DISARMED in order to safely perform maintenance while eliminating the risk of taking an entire process off-line. (Note: Zone Interlocking and Supervision Contact cannot be disarmed). YOU MUST ENSURE that the relays are ARMED AGAIN after maintenance. |









3.9.3.2 Service / Test - Prot inhib. / Scada

3.9.3.2.1 Service / Test - Prot inhib. / Scada / IEC103







| | | |
|---|-------------------------|--|
|  | »Activate test mode« | This Direct Control parameter switches the IEC103 communication into Test Mode (or back to normal mode). |
|  | »Activate Block MD« | This Direct Control parameter activates (or deactivates) the blocking of IEC103 transmission in monitor direction. |
|  | »Ex activate test mode« | The signal assigned to this parameter switches the IEC103 communication into Test Mode. |
|  | »Ex activate Block MD« | The signal assigned to this parameter activates the blocking of IEC103 transmission in monitor direction. |

3.9.3.3 Service / Test - Prot inhib. / Force OR


3.9.3.3.1 Service / Test - Prot inhib. / Force OR / BO Slot X2

| | | |
|---|-------------------|--|
|  | »Force Mode« | By means of this function the normal Output Relay States can be overwritten (forced) in case that the Relay is not in a disarmed state. The relays can be set from normal operation (relay works according to the assigned signals) to "force energized" or "force de-energized" state. |
|  | »t-Timeout Force« | The Output State will be set by force for the duration of this time. That means for the duration of this time the Output Relay does not show the state of the signals that are assigned on it. |
|  | »Force all Outs« | By means of this function the normal Output Relay State can be overwritten (forced). The relay can be set from normal operation (relay works according to the assigned signals) to "force energized" or "force de-energized" state. Forcing all outputs relays of an entire assembly group is superior to forcing a single output relay. |
|  | »Force OR1« | By means of this function the normal Output Relay State can be overwritten (forced). The relay can be set from normal operation (relay works according to the assigned signals) to "force energized" or "force de-energized" state. |
|  | »Force OR2« | By means of this function the normal Output Relay State can be overwritten (forced). The relay can be set from normal operation (relay works according to the assigned signals) to "force energized" or "force de-energized" state. |
|  | »Force OR3« | By means of this function the normal Output Relay State can be overwritten (forced). The relay can be set from normal operation (relay works according to the assigned signals) to "force energized" or "force de-energized" state. |
|  | »Force OR4« | By means of this function the normal Output Relay State can be overwritten (forced). The relay can be set from normal operation (relay works according to the assigned signals) to "force energized" or "force de-energized" state. |
|  | »Force OR5« | By means of this function the normal Output Relay State can be overwritten (forced). The relay can be set from normal operation (relay works according to the assigned signals) to "force energized" or "force de-energized" state. |


3.9.3.3.2 Service / Test - Prot inhib. / Force OR / BO Slot X2

| | | |
|---|-------------------|--|
|  | »Force Mode« | By means of this function the normal Output Relay States can be overwritten (forced) in case that the Relay is not in a disarmed state. The relays can be set from normal operation (relay works according to the assigned signals) to "force energized" or "force de-energized" state. |
|  | »t-Timeout Force« | The Output State will be set by force for the duration of this time. That means for the duration of this time the Output Relay does not show the state of the signals that are assigned on it. |
|  | »Force all Outs« | By means of this function the normal Output Relay State can be overwritten (forced). The relay can be set from normal operation (relay works according to the assigned signals) to "force energized" or "force de-energized" state. Forcing all outputs relays of an entire assembly group is superior to forcing a single output relay. |
|  | »Force OR1« | By means of this function the normal Output Relay State can be overwritten (forced). The relay can be set from normal operation (relay works according to the assigned signals) to "force energized" or "force de-energized" state. |
|  | »Force OR2« | By means of this function the normal Output Relay State can be overwritten (forced). The relay can be set from normal operation (relay works according to the assigned signals) to "force energized" or "force de-energized" state. |
|  | »Force OR3« | By means of this function the normal Output Relay State can be overwritten (forced). The relay can be set from normal operation (relay works according to the assigned signals) to "force energized" or "force de-energized" state. |
















3.9.3.4 Service / Test - Prot inhib. / Force SG

| | | |
|---|--------------------------|--|
|  | »SG[1] . Force Trip Cmd« | Direct Command to force the device to issue a trip command (for testing purposes). |
|---|--------------------------|--|

3.9.3.5 Service / Test - Prot inhib. / Force SC





| | | |
|---|------------------|---|
|  | »SSV . Force SC« | Direct Command to force the device to drop SelfSuperVision Contact (SC) for 5 seconds (for testing purposes). |
|---|------------------|---|

3.9.3.6 Service / Test - Prot inhib. / URTD

| | | |
|---|-------------------|---|
|  | »Force Mode« | By means of this function the normal Output Relay States can be overwritten (forced) in case that the Relay is not in a disarmed state. The relays can be set from normal operation (relay works according to the assigned signals) to "force energized" or "force de-energized" state. |
|  | »t-Timeout Force« | The Output State will be set by force for the duration of this time. That means for the duration of this time the Output Relay does not show the state of the signals that are assigned on it. |
|  | »Function« | Permanent activation or deactivation of module/stage. |
|  | »Force Windg1« | Force Winding 1 |
|  | »Force Windg2« | Force Winding 2 |
|  | »Force Windg3« | Force Winding 3 |
|  | »Force Windg4« | Force Winding 4 |
|  | »Force Windg5« | Force Winding 5 |
|  | »Force Windg6« | Force Winding 6 |
|  | »Force MotBear1« | Force Motor Bearing 1 |
|  | »Force MotBear2« | Force Motor Bearing 2 |
|  | »Force LoadBear1« | Force Load Bearing 1 |
|  | »Force LoadBear2« | Force Load Bearing 2 |
|  | »Force Aux1« | Force Auxiliary1 |
|  | »Force Aux2« | Force Auxiliary2 |






3.9.3.7 Service / Test - Prot inhib. / Analog Outputs

3.9.3.7.1 Service / Test - Prot inhib. / Analog Outputs / AnOut[1]








| | | |
|---|-------------------|--|
|  | »Force Mode« | For commissioning purposes or for maintenance, Analog Outputs can be set by force. By means of this function the normal Analog Outputs can be overwritten (forced). |
|  | »t-Timeout Force« | The Analog Output Value will be set by force for the duration of this time. That means for the duration of this time the Analog Output does not show the value of the signals that are assigned on it. |
|  | »Function« | Permanent activation or deactivation of module/stage. |
|  | »Force Value« | By means of this function the Analog Output Value can be overwritten (forced). |

3.9.3.8 Service / Test - Prot inhib. / Sgen

3.9.3.8.1 Service / Test - Prot inhib. / Sgen / State




| | | |
|---|------------------|--|
|  | »Running« | Signal: Measuring value simulation is running |
|  | »State« | Wave generation states: 0=Off, 1=PreFault, 2=Fault, 3=PostFault, 4=InitReset |
|  | »ExBlo1-l« | Module input state: External blocking1 |
|  | »ExBlo2-l« | Module input state: External blocking2 |
|  | »Ex ForcePost-l« | State of the module input:Force Post state. Abort simulation. |

3.9.3.8.2 Service / Test - Prot inhib. / Sgen / Process

| | | |
|---|-----------------------|--|
|  | »Start Simulation« | Start Fault Simulation (Using the test parameters) |
|  | »Stop Simulation« | Stopp Fault Simulation (Using the test parameters) |
|  | »TripCmd Mode« | Trip Command Mode: Select between two operating modes for the Fault Simulator: "cold simulation" (without tripping the circuit breaker), or "hot simulation" (i.e. the simulation is authorized to trip the circuit breaker) |
|  | »Ex Start Simulation« | External Start of Fault Simulation (Using the test parameters) |
|  | »ExBlo1« | External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true.1 |
|  | »ExBlo2« | External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true.2 |
|  | »Ex ForcePost« | Force Post state. Abort simulation. |

3.9.3.8.3 Service / Test - Prot inhib. / Sgen / Configuration

3.9.3.8.3.1 Service / Test - Prot inhib. / Sgen / Configuration / Times









| | | |
|---|-------------------|------------------------------|
|  | »PreFault« | Pre Fault Duration |
|  | »FaultSimulation« | Duration of Fault Simulation |
|  | »PostFault« | Post Fault Duration |

3 Menu

3.9.3.8.3.2 Service / Test - Prot inhib. / Sgen / Configuration / PreFault









3.9.3.8.3.2 Service / Test - Prot inhib. / Sgen / Configuration / PreFault

3.9.3.8.3.2.1 Service / Test - Prot inhib. / Sgen / Configuration / PreFault / CT

| | | |
|---|----------------|---|
|  | »IL1 « | Current Fundamental Magnitude in Pre State: phase L1 |
|  | »IL2 « | Current Fundamental Magnitude in Pre State: phase L2 |
|  | »IL3 « | Current Fundamental Magnitude in Pre State: phase L3 |
|  | »IG meas « | Current Fundamental Magnitude in Pre State: IG |
|  | »phi IL1 « | Start Position respectively Start Angle of the Current Phasor during Pre-Phase:phase L1 |
|  | »phi IL2 « | Start Position respectively Start Angle of the Current Phasor during Pre-Phase:phase L2 |
|  | »phi IL3 « | Start Position respectively Start Angle of the Current Phasor during Pre-Phase:phase L3 |
|  | »phi IG meas « | Start Position respectively Start Angle of the Current Phasor during Pre-Phase: IG |









3.9.3.8.3.3 Service / Test - Prot inhib. / Sgen / Configuration / FaultSimulation

3.9.3.8.3.3.1 Service / Test - Prot inhib. / Sgen / Configuration / FaultSimulation / CT

| | | |
|---|----------------|---|
|  | »IL1 « | Current Fundamental Magnitude in Fault State: phase L1 |
|  | »IL2 « | Current Fundamental Magnitude in Fault State: phase L2 |
|  | »IL3 « | Current Fundamental Magnitude in Fault State: phase L3 |
|  | »IG meas « | Current Fundamental Magnitude in Fault State: IG |
|  | »phi IL1 « | Start Position respectively Start Angle of the Current Phasor during Fault-Phase:phase L1 |
|  | »phi IL2 « | Start Position respectively Start Angle of the Current Phasor during Fault-Phase:phase L2 |
|  | »phi IL3 « | Start Position respectively Start Angle of the Current Phasor during Fault-Phase:phase L3 |
|  | »phi IG meas « | Start Position respectively Start Angle of the Current Phasor during Fault-Phase: IG |












3.9.3.8.3.4 Service / Test - Prot inhib. / Sgen / Configuration / PostFault

3.9.3.8.3.4.1 Service / Test - Prot inhib. / Sgen / Configuration / PostFault / CT

| | | |
|---|----------------|---|
|  | »IL1 « | Current Fundamental Magnitude during Post phase: phase L1 |
|  | »IL2 « | Current Fundamental Magnitude during Post phase: phase L2 |
|  | »IL3 « | Current Fundamental Magnitude during Post phase: phase L3 |
|  | »IG meas « | Current Fundamental Magnitude during Post phase: IG |
|  | »phi IL1 « | Start Position respectively Start Angle of the Current Phasor during Post phase: phase L1 |
|  | »phi IL2 « | Start Position respectively Start Angle of the Current Phasor during Post phase: phase L2 |
|  | »phi IL3 « | Start Position respectively Start Angle of the Current Phasor during Post phase: phase L3 |
|  | »phi IG meas « | Start Position respectively Start Angle of the Current Phasor during Post phase: IG |

3.9.4 Service / Diagnostic Data

3.9.4.1 Service / Diagnostic Data / FADC


| | | |
|---|--------------------|---|
|  | »Sys . FADC_TR« | FADC_TR: total (retain) |
|  | »Sys . FADC_LR« | FADC-LR: long (10min, max, retain) |
|  | »Sys . FADC_MR« | FADC-MR: mid (10s, max, retain) |
|  | »Sys . FADC_SR« | FADC-SR: short(0.2s, max, retain) |
|  | »Sys . FADC_LM« | FADC-LM: long (10min, max, since reset) |
|  | »Sys . FADC_MM« | FADC-MM: mid (10s, max, since reset) |
|  | »Sys . FADC_SM« | FADC-SM: short (0.2s, max, since reset) |
|  | »Sys . FADC_L« | FADC-L: long (10mmin) |
|  | »Sys . FADC_M« | FADC-M: mid (10s) |
|  | »Sys . FADC_S« | FADC-S: short (0.2s) |
|  | »Sys . Reset-FADC« | Reset: FADC-Counter |


4 Hardware

4.1 HMI

front-panel

4.1.1 HMI: Global Parameters


| t-max Edit/Access | | Device Para / Security / General Settings |
|---|--|---|
| 180s | 20s ... 3600s | S.3 |
|  | <i>If no other key(s) is pressed at the panel, after expiration of this time, all cached (changed) parameters are canceled. The device access will be locked by falling back into Read-only level Lv0.</i> | |


| Display Off | | Device Para / HMI |
|---|---|-------------------|
| 180s | 20s ... 3600s | S.3 |
|  | <i>The display back light will be turned off when this timer has expired.</i> | |

| Menu language | | Device Para / HMI |
|---|---|-------------------|
| English | English ... Romanian ↪ Table | S.3 |
|  | <i>Selection of the language</i> | |


| Display ANSI Device No. | | Device Para / HMI |
|---|---|-------------------|
| Active | Inactive, Active ↪ Table | S.3 |
|  | <i>Display ANSI Device Numbers</i> | |

4.1.2 HMI: Direct Controls

| Contrast | | Device Para / HMI |
|---|-----------------|-------------------|
| 50% | 0% ... 100% | S.3 |
|  | <i>Contrast</i> | |

| Conf. Dev. Reset | | Device Para / Security / General Settings |
|---|--|---|
| "Fact.def.", "PW rst" | "Fact.def.", "PW rst", Only "Fact.defaults", Reset deact. ↪ Table | S.3 |
|  | <i>If the »C« key is pressed while the device is performing a cold restart a general Reset Dialog appears on the screen. Select which options shall be available with this dialog.</i> | |


4.1.3 HMI: Values

| Conf. Dev. Reset | Operation / Security / Security States |
|---|--|
|  | <i>If the »C« key is pressed while the device is performing a cold restart a general Reset Dialog appears on the screen. Select which options shall be available with this dialog.</i> |


4.2 Digital Inputs


4.2.1 DI Slot X1

4.2.1.1 DI Slot X1: Global Parameters


| Nom voltage | | Device Para / Digital Inputs / DI Slot X1 / Group 1 | |
|---|--|---|-----|
| 24 VDC | | 24 VDC, 48 VDC, 60 VDC, 110 VDC, 230 VDC, 110 VAC, 230 VAC ↪ Table | S.3 |
|  | <i>Nominal voltage of the digital inputs</i> | | |

| Inverting 1 | | Device Para / Digital Inputs / DI Slot X1 / Group 1 | |
|---|-------------------------------------|---|-----|
| Inactive | | Inactive, Active ↪ Table | S.3 |
|  | <i>Inverting the input signals.</i> | | |

| Debouncing time 1 | | Device Para / Digital Inputs / DI Slot X1 / Group 1 | |
|---|---|---|-----|
| no debouncing time | | no debouncing time, 20 ms, 50 ms, 100 ms ↪ Table | S.3 |
|  | <i>A change of the state of a digital input will only be recognized after the debouncing time has expired (become effective). Thus, transient signals will not be misinterpreted.</i> | | |


| Nom voltage | | Device Para / Digital Inputs / DI Slot X1 / Group 2 | |
|---|--|---|-----|
| 24 VDC | | 24 VDC, 48 VDC, 60 VDC, 110 VDC, 230 VDC, 110 VAC, 230 VAC ↪ Table | S.3 |
|  | <i>Nominal voltage of the digital inputs</i> | | |

| Inverting 2 | | Device Para / Digital Inputs / DI Slot X1 / Group 2 | |
|---|-------------------------------------|---|-----|
| Inactive | | Inactive, Active ↪ Table | S.3 |
|  | <i>Inverting the input signals.</i> | | |


| Debouncing time 2 | | Device Para / Digital Inputs / DI Slot X1 / Group 2 | |
|---|---|---|-----|
| no debouncing time | | no debouncing time, 20 ms, 50 ms, 100 ms ↪ Table | S.3 |
|  | <i>A change of the state of a digital input will only be recognized after the debouncing time has expired (become effective). Thus, transient signals will not be misinterpreted.</i> | | |

| Nom voltage | | Device Para / Digital Inputs / DI Slot X1 / Group 3 | |
|---|--|--|-----|
| 24 VDC | | 24 VDC, 48 VDC, 60 VDC, 110 VDC, 230 VDC, 110 VAC, 230 VAC | S.3 |
| | | ↪ Table | |
|  | <i>Nominal voltage of the digital inputs</i> | | |


| Inverting 3 | | Device Para / Digital Inputs / DI Slot X1 / Group 3 | |
|---|-------------------------------------|---|-----|
| Inactive | | Inactive, Active | S.3 |
| | | ↪ Table | |
|  | <i>Inverting the input signals.</i> | | |

| Debouncing time 3 | | Device Para / Digital Inputs / DI Slot X1 / Group 3 | |
|---|---|---|-----|
| no debouncing time | | no debouncing time, 20 ms, 50 ms, 100 ms | S.3 |
| | | ↪ Table | |
|  | <i>A change of the state of a digital input will only be recognized after the debouncing time has expired (become effective). Thus, transient signals will not be misinterpreted.</i> | | |

| Inverting 4 | | Device Para / Digital Inputs / DI Slot X1 / Group 3 | |
|---|-------------------------------------|---|-----|
| Inactive | | Inactive, Active | S.3 |
| | | ↪ Table | |
|  | <i>Inverting the input signals.</i> | | |

| Debouncing time 4 | | Device Para / Digital Inputs / DI Slot X1 / Group 3 | |
|---|---|---|-----|
| no debouncing time | | no debouncing time, 20 ms, 50 ms, 100 ms | S.3 |
| | | ↪ Table | |
|  | <i>A change of the state of a digital input will only be recognized after the debouncing time has expired (become effective). Thus, transient signals will not be misinterpreted.</i> | | |


| Inverting 5 | | Device Para / Digital Inputs / DI Slot X1 / Group 3 | |
|---|-------------------------------------|---|-----|
| Inactive | | Inactive, Active | S.3 |
| | | ↪ Table | |
|  | <i>Inverting the input signals.</i> | | |

| Debouncing time 5 | | Device Para / Digital Inputs / DI Slot X1 / Group 3 | |
|---|---|---|-----|
| no debouncing time | | no debouncing time, 20 ms, 50 ms, 100 ms | S.3 |
| | | ↪ Table | |
|  | <i>A change of the state of a digital input will only be recognized after the debouncing time has expired (become effective). Thus, transient signals will not be misinterpreted.</i> | | |


4 Hardware

4.2.1.1 DI Slot X1: Global Parameters


| Inverting 6 | | Device Para / Digital Inputs / DI Slot X1 / Group 3 | |
|---|-------------------------------------|---|-----|
| Inactive | Inactive, Active | | S.3 |
| | ↪ Table | | |
|  | <i>Inverting the input signals.</i> | | |

| Debouncing time 6 | | Device Para / Digital Inputs / DI Slot X1 / Group 3 | |
|---|---|---|-----|
| no debouncing time | no debouncing time, 20 ms, 50 ms, 100 ms | | S.3 |
| | ↪ Table | | |
|  | <i>A change of the state of a digital input will only be recognized after the debouncing time has expired (become effective). Thus, transient signals will not be misinterpreted.</i> | | |


| Inverting 7 | | Device Para / Digital Inputs / DI Slot X1 / Group 3 | |
|---|-------------------------------------|---|-----|
| Inactive | Inactive, Active | | S.3 |
| | ↪ Table | | |
|  | <i>Inverting the input signals.</i> | | |

| Debouncing time 7 | | Device Para / Digital Inputs / DI Slot X1 / Group 3 | |
|---|---|---|-----|
| no debouncing time | no debouncing time, 20 ms, 50 ms, 100 ms | | S.3 |
| | ↪ Table | | |
|  | <i>A change of the state of a digital input will only be recognized after the debouncing time has expired (become effective). Thus, transient signals will not be misinterpreted.</i> | | |

| Inverting 8 | | Device Para / Digital Inputs / DI Slot X1 / Group 3 | |
|---|-------------------------------------|---|-----|
| Inactive | Inactive, Active | | S.3 |
| | ↪ Table | | |
|  | <i>Inverting the input signals.</i> | | |


| Debouncing time 8 | | Device Para / Digital Inputs / DI Slot X1 / Group 3 | |
|---|---|---|-----|
| no debouncing time | no debouncing time, 20 ms, 50 ms, 100 ms | | S.3 |
| | ↪ Table | | |
|  | <i>A change of the state of a digital input will only be recognized after the debouncing time has expired (become effective). Thus, transient signals will not be misinterpreted.</i> | | |

4.2.1.2 DI Slot X1: Signals (Output States)


| | |
|--|---|
| DI 1 | Operation / Status Display / DI Slot X1 |
| ... | |
| DI 8 | |
|  <i>Signal: Digital Input</i> | |


4.2.2 DI Slot X1


4.2.2.1 DI Slot X1: Global Parameters

| Nom voltage | | Device Para / Digital Inputs / DI Slot X1 | |
|---|--|--|-----|
| 24 VDC | | 24 VDC, 48 VDC, 60 VDC, 110 VDC, 230 VDC, 110 VAC, 230 VAC | S.3 |
| | | ↪ Table | |
|  | <i>Nominal voltage of the digital inputs</i> | | |








| Inverting 3 | | Device Para / Digital Inputs / DI Slot X1 | |
|---|-------------------------------------|---|-----|
| Inactive | | Inactive, Active | S.3 |
| | | ↪ Table | |
|  | <i>Inverting the input signals.</i> | | |

| Debouncing time 3 | | Device Para / Digital Inputs / DI Slot X1 | |
|---|---|---|-----|
| no debouncing time | | no debouncing time, 20 ms, 50 ms, 100 ms | S.3 |
| | | ↪ Table | |
|  | <i>A change of the state of a digital input will only be recognized after the debouncing time has expired (become effective). Thus, transient signals will not be misinterpreted.</i> | | |


| Inverting 4 | | Device Para / Digital Inputs / DI Slot X1 | |
|---|-------------------------------------|---|-----|
| Inactive | | Inactive, Active | S.3 |
| | | ↪ Table | |
|  | <i>Inverting the input signals.</i> | | |

| Debouncing time 4 | | Device Para / Digital Inputs / DI Slot X1 | |
|---|---|---|-----|
| no debouncing time | | no debouncing time, 20 ms, 50 ms, 100 ms | S.3 |
| | | ↪ Table | |
|  | <i>A change of the state of a digital input will only be recognized after the debouncing time has expired (become effective). Thus, transient signals will not be misinterpreted.</i> | | |

| Inverting 1 | | Device Para / Digital Inputs / DI Slot X1 | |
|---|-------------------------------------|---|-----|
| Inactive | | Inactive, Active | S.3 |
| | | ↪ Table | |
|  | <i>Inverting the input signals.</i> | | |

| Debouncing time 1 | | Device Para / Digital Inputs / DI Slot X1 |
|---|---|---|
| no debouncing time | no debouncing time, 20 ms, 50 ms, 100 ms | S.3 |
| | ↩> Table | |
|  | <i>A change of the state of a digital input will only be recognized after the debouncing time has expired (become effective). Thus, transient signals will not be misinterpreted.</i> | |
| Inverting 2 | | Device Para / Digital Inputs / DI Slot X1 |
| Inactive | Inactive, Active | S.3 |
| | ↩> Table | |
|  | <i>Inverting the input signals.</i> | |
| Debouncing time 2 | | Device Para / Digital Inputs / DI Slot X1 |
| no debouncing time | no debouncing time, 20 ms, 50 ms, 100 ms | S.3 |
| | ↩> Table | |
|  | <i>A change of the state of a digital input will only be recognized after the debouncing time has expired (become effective). Thus, transient signals will not be misinterpreted.</i> | |
| Inverting 3 | | Device Para / Digital Inputs / DI Slot X1 |
| Inactive | Inactive, Active | S.3 |
| | ↩> Table | |
|  | <i>Inverting the input signals.</i> | |
| Debouncing time 3 | | Device Para / Digital Inputs / DI Slot X1 |
| no debouncing time | no debouncing time, 20 ms, 50 ms, 100 ms | S.3 |
| | ↩> Table | |
|  | <i>A change of the state of a digital input will only be recognized after the debouncing time has expired (become effective). Thus, transient signals will not be misinterpreted.</i> | |
| Inverting 4 | | Device Para / Digital Inputs / DI Slot X1 |
| Inactive | Inactive, Active | S.3 |
| | ↩> Table | |
|  | <i>Inverting the input signals.</i> | |
| Debouncing time 4 | | Device Para / Digital Inputs / DI Slot X1 |
| no debouncing time | no debouncing time, 20 ms, 50 ms, 100 ms | S.3 |
| | ↩> Table | |
|  | <i>A change of the state of a digital input will only be recognized after the debouncing time has expired (become effective). Thus, transient signals will not be misinterpreted.</i> | |

4.2.2.2 DI Slot X1: Signals (Output States)


| | |
|--|---|
| DI 1 | Operation / Status Display / DI Slot X1 |
| ... | |
| DI 4 | |
|  <i>Signal: Digital Input</i> | |


4.3 Binary Outputs


4.3.1 BO Slot X2


Binary Output relay - BO2


4.3.1.1 BO Slot X2: Global Parameters


| Operating Mode | | Device Para / Binary Outputs / BO Slot X2 / BO 1 | |
|---|-----------------------|--|-----|
| Normally open (NO) | | Normally open (NO), Normally closed (NC) | S.3 |
| | | ↪ Table | |
|  | <i>Operating Mode</i> | | |

| t-hold | | Device Para / Binary Outputs / BO Slot X2 / BO 1 | |
|---|--|--|-----|
| 0.00s | | 0.00s ... 300.00s | S.3 |
|  | <i>To clearly identify the state transition of a binary output relay, the "new state" is being hold, at least for the duration of the hold time.</i> | | |

| t-Off Delay | | Device Para / Binary Outputs / BO Slot X2 / BO 1 | |
|---|-------------------------|--|-----|
| 0.00s | | 0.00s ... 300.00s | S.3 |
|  | <i>Switch Off Delay</i> | | |


| Latched | | Device Para / Binary Outputs / BO Slot X2 / BO 1 | |
|---|---|--|-----|
| Active | | Inactive, Active | S.3 |
| | | ↪ Table | |
|  | <i>Defines whether the Relay Output will be latched when it picks up.</i> | | |

| Acknowledgement | | Device Para / Binary Outputs / BO Slot X2 / BO 1 | |
|--|---|--|-----|
| <ul style="list-style-type: none"> Only available if: Latched = Active | | - ... Internal test state | S.3 |
| - | | ↪ Table | |
|  | <i>Acknowledgement Signal - An acknowledgement signal (that acknowledges the corresponding binary output relay) can be assigned to each output relay. The acknowledgement-signal is only effective if the parameter "Latched" is set to active.</i> | | |


| Inverting | | Device Para / Binary Outputs / BO Slot X2 / BO 1 | |
|---|--|--|-----|
| Inactive | | Inactive, Active | S.3 |
| | | ↪ Table | |
|  | <i>Inverting of the collective signal (OR-gate/disjunction). In combination with inverted input signals an AND-gate can be programmed (Conjunction).</i> | | |


4 Hardware


4.3.1.1 BO Slot X2: Global Parameters


| Assignment 1 | | Device Para / Binary Outputs / BO Slot X2 / BO 1 |
|---|---------------------------|--|
| TripCmd | - ... Internal test state | S.3 |
| | ↪ Table | |
|  | <i>Assignment</i> | |


| Inverting 1 | | Device Para / Binary Outputs / BO Slot X2 / BO 1 |
|---|---|--|
| Inactive | Inactive, Active | S.3 |
| | ↪ Table | |
|  | <i>Inverting of the state of the assigned signal.</i> | |

| Assignment 2 | | Device Para / Binary Outputs / BO Slot X2 / BO 1 |
|---|---------------------------|--|
| - | - ... Internal test state | S.3 |
| | ↪ Table | |
|  | <i>Assignment</i> | |


| Inverting 2 | | Device Para / Binary Outputs / BO Slot X2 / BO 1 |
|---|---|--|
| Inactive | Inactive, Active | S.3 |
| | ↪ Table | |
|  | <i>Inverting of the state of the assigned signal.</i> | |

| Assignment 3 | | Device Para / Binary Outputs / BO Slot X2 / BO 1 |
|---|---------------------------|--|
| - | - ... Internal test state | S.3 |
| | ↪ Table | |
|  | <i>Assignment</i> | |


| Inverting 3 | | Device Para / Binary Outputs / BO Slot X2 / BO 1 |
|---|---|--|
| Inactive | Inactive, Active | S.3 |
| | ↪ Table | |
|  | <i>Inverting of the state of the assigned signal.</i> | |

| Assignment 4 | | Device Para / Binary Outputs / BO Slot X2 / BO 1 |
|---|---------------------------|--|
| - | - ... Internal test state | S.3 |
| | ↪ Table | |
|  | <i>Assignment</i> | |


| Inverting 4 | | Device Para / Binary Outputs / BO Slot X2 / BO 1 | |
|---|---|--|-----|
| Inactive | Inactive, Active | | S.3 |
| | ↩> Table | | |
|  | <i>Inverting of the state of the assigned signal.</i> | | |

| Assignment 5 | | Device Para / Binary Outputs / BO Slot X2 / BO 1 | |
|---|-----------------------------|--|-----|
| - | - ... Internal test state | | S.3 |
| | ↩> Table | | |
|  | <i>Assignment</i> | | |

| Inverting 5 | | Device Para / Binary Outputs / BO Slot X2 / BO 1 | |
|---|---|--|-----|
| Inactive | Inactive, Active | | S.3 |
| | ↩> Table | | |
|  | <i>Inverting of the state of the assigned signal.</i> | | |

| Assignment 6 | | Device Para / Binary Outputs / BO Slot X2 / BO 1 | |
|---|-----------------------------|--|-----|
| - | - ... Internal test state | | S.3 |
| | ↩> Table | | |
|  | <i>Assignment</i> | | |


| Inverting 6 | | Device Para / Binary Outputs / BO Slot X2 / BO 1 | |
|---|---|--|-----|
| Inactive | Inactive, Active | | S.3 |
| | ↩> Table | | |
|  | <i>Inverting of the state of the assigned signal.</i> | | |


| Assignment 7 | | Device Para / Binary Outputs / BO Slot X2 / BO 1 | |
|---|-----------------------------|--|-----|
| - | - ... Internal test state | | S.3 |
| | ↩> Table | | |
|  | <i>Assignment</i> | | |


| Inverting 7 | | Device Para / Binary Outputs / BO Slot X2 / BO 1 | |
|---|---|--|-----|
| Inactive | Inactive, Active | | S.3 |
| | ↩> Table | | |
|  | <i>Inverting of the state of the assigned signal.</i> | | |


4 Hardware


4.3.1.1 BO Slot X2: Global Parameters


| Operating Mode | | Device Para / Binary Outputs / BO Slot X2 / BO 2 | |
|---|--|--|-----|
| Normally open (NO) | Normally open (NO), Normally closed (NC) | | S.3 |
| | ↪ Table | | |
|  | <i>Operating Mode</i> | | |


| t-hold | | Device Para / Binary Outputs / BO Slot X2 / BO 2 | |
|---|--|--|-----|
| 0.00s | 0.00s ... 300.00s | | S.3 |
|  | <i>To clearly identify the state transition of a binary output relay, the "new state" is being hold, at least for the duration of the hold time.</i> | | |

| t-Off Delay | | Device Para / Binary Outputs / BO Slot X2 / BO 2 | |
|---|-------------------------|--|-----|
| 0.00s | 0.00s ... 300.00s | | S.3 |
|  | <i>Switch Off Delay</i> | | |


| Latched | | Device Para / Binary Outputs / BO Slot X2 / BO 2 | |
|---|---|--|-----|
| Inactive | Inactive, Active | | S.3 |
| | ↪ Table | | |
|  | <i>Defines whether the Relay Output will be latched when it picks up.</i> | | |

| Acknowledgement | | Device Para / Binary Outputs / BO Slot X2 / BO 2 | |
|--|---|--|-----|
| <ul style="list-style-type: none"> Only available if: Latched = Active | - ... Internal test state | | S.3 |
| - | ↪ Table | | |
|  | <i>Acknowledgement Signal - An acknowledgement signal (that acknowledges the corresponding binary output relay) can be assigned to each output relay. The acknowledgement-signal is only effective if the parameter "Latched" is set to active.</i> | | |


| Inverting | | Device Para / Binary Outputs / BO Slot X2 / BO 2 | |
|---|--|--|-----|
| Inactive | Inactive, Active | | S.3 |
| | ↪ Table | | |
|  | <i>Inverting of the collective signal (OR-gate/disjunction). In combination with inverted input signals an AND-gate can be programmed (Conjunction).</i> | | |

| Assignment 1 | | Device Para / Binary Outputs / BO Slot X2 / BO 2 | |
|---|---------------------------|--|-----|
| Alarm | - ... Internal test state | | S.3 |
| | ↪ Table | | |
|  | <i>Assignment</i> | | |


| Inverting 1 | | Device Para / Binary Outputs / BO Slot X2 / BO 2 | |
|---|---|--|-----|
| Inactive | Inactive, Active | | S.3 |
| | ↪ Table | | |
|  | <i>Inverting of the state of the assigned signal.</i> | | |

| Assignment 2 | | Device Para / Binary Outputs / BO Slot X2 / BO 2 | |
|---|---------------------------|--|-----|
| - | - ... Internal test state | | S.3 |
| | ↪ Table | | |
|  | <i>Assignment</i> | | |

| Inverting 2 | | Device Para / Binary Outputs / BO Slot X2 / BO 2 | |
|---|---|--|-----|
| Inactive | Inactive, Active | | S.3 |
| | ↪ Table | | |
|  | <i>Inverting of the state of the assigned signal.</i> | | |

| Assignment 3 | | Device Para / Binary Outputs / BO Slot X2 / BO 2 | |
|---|---------------------------|--|-----|
| - | - ... Internal test state | | S.3 |
| | ↪ Table | | |
|  | <i>Assignment</i> | | |








| Inverting 3 | | Device Para / Binary Outputs / BO Slot X2 / BO 2 | |
|---|---|--|-----|
| Inactive | Inactive, Active | | S.3 |
| | ↪ Table | | |
|  | <i>Inverting of the state of the assigned signal.</i> | | |


| Assignment 4 | | Device Para / Binary Outputs / BO Slot X2 / BO 2 | |
|---|---------------------------|--|-----|
| - | - ... Internal test state | | S.3 |
| | ↪ Table | | |
|  | <i>Assignment</i> | | |

| Inverting 4 | | Device Para / Binary Outputs / BO Slot X2 / BO 2 | |
|---|---|--|-----|
| Inactive | Inactive, Active | | S.3 |
| | ↪ Table | | |
|  | <i>Inverting of the state of the assigned signal.</i> | | |


4 Hardware


4.3.1.1 BO Slot X2: Global Parameters


| | | | |
|---|---|--|-----|
| Assignment 5 | | Device Para / Binary Outputs / BO Slot X2 / BO 2 | |
| - | - ... Internal test state | | S.3 |
| | ↪ Table | | |
|  | <i>Assignment</i> | | |
| Inverting 5 | | Device Para / Binary Outputs / BO Slot X2 / BO 2 | |
| Inactive | Inactive, Active | | S.3 |
| | ↪ Table | | |
|  | <i>Inverting of the state of the assigned signal.</i> | | |
| Assignment 6 | | Device Para / Binary Outputs / BO Slot X2 / BO 2 | |
| - | - ... Internal test state | | S.3 |
| | ↪ Table | | |
|  | <i>Assignment</i> | | |
| Inverting 6 | | Device Para / Binary Outputs / BO Slot X2 / BO 2 | |
| Inactive | Inactive, Active | | S.3 |
| | ↪ Table | | |
|  | <i>Inverting of the state of the assigned signal.</i> | | |
| Assignment 7 | | Device Para / Binary Outputs / BO Slot X2 / BO 2 | |
| - | - ... Internal test state | | S.3 |
| | ↪ Table | | |
|  | <i>Assignment</i> | | |
| Inverting 7 | | Device Para / Binary Outputs / BO Slot X2 / BO 2 | |
| Inactive | Inactive, Active | | S.3 |
| | ↪ Table | | |
|  | <i>Inverting of the state of the assigned signal.</i> | | |
| Operating Mode | | Device Para / Binary Outputs / BO Slot X2 / BO 3 | |
| Normally open (NO) | Normally open (NO), Normally closed (NC) | | S.3 |
| | ↪ Table | | |
|  | <i>Operating Mode</i> | | |


| t-hold | | Device Para / Binary Outputs / BO Slot X2 / BO 3 | |
|---|--|--|-----|
| 0.00s | | 0.00s ... 300.00s | S.3 |
|  | <i>To clearly identify the state transition of a binary output relay, the "new state" is being hold, at least for the duration of the hold time.</i> | | |

| t-Off Delay | | Device Para / Binary Outputs / BO Slot X2 / BO 3 | |
|---|-------------------------|--|-----|
| 0.00s | | 0.00s ... 300.00s | S.3 |
|  | <i>Switch Off Delay</i> | | |

| Latched | | Device Para / Binary Outputs / BO Slot X2 / BO 3 | |
|---|---|--|-----|
| Inactive | | Inactive, Active ↳ Table | S.3 |
|  | <i>Defines whether the Relay Output will be latched when it picks up.</i> | | |

| Acknowledgement | | Device Para / Binary Outputs / BO Slot X2 / BO 3 | |
|--|---|--|-----|
| <ul style="list-style-type: none"> Only available if: Latched = Active | | - ... Internal test state ↳ Table | S.3 |
|  | <i>Acknowledgement Signal - An acknowledgement signal (that acknowledges the corresponding binary output relay) can be assigned to each output relay. The acknowledgement-signal is only effective if the parameter "Latched" is set to active.</i> | | |


| Inverting | | Device Para / Binary Outputs / BO Slot X2 / BO 3 | |
|---|--|--|-----|
| Inactive | | Inactive, Active ↳ Table | S.3 |
|  | <i>Inverting of the collective signal (OR-gate/disjunction). In combination with inverted input signals an AND-gate can be programmed (Conjunction).</i> | | |

| Assignment 1 | | Device Para / Binary Outputs / BO Slot X2 / BO 3 | |
|---|-------------------|--|-----|
| ON Cmd | | - ... Internal test state ↳ Table | S.3 |
|  | <i>Assignment</i> | | |


| Inverting 1 | | Device Para / Binary Outputs / BO Slot X2 / BO 3 | |
|---|---|--|-----|
| Inactive | | Inactive, Active ↳ Table | S.3 |
|  | <i>Inverting of the state of the assigned signal.</i> | | |

4 Hardware


4.3.1.1 BO Slot X2: Global Parameters


| Assignment 2 | | Device Para / Binary Outputs / BO Slot X2 / BO 3 | |
|---|---------------------------|--|-----|
| - | - ... Internal test state | | S.3 |
| | ↪ Table | | |
|  | <i>Assignment</i> | | |


| Inverting 2 | | Device Para / Binary Outputs / BO Slot X2 / BO 3 | |
|---|---|--|-----|
| Inactive | Inactive, Active | | S.3 |
| | ↪ Table | | |
|  | <i>Inverting of the state of the assigned signal.</i> | | |








| Assignment 3 | | Device Para / Binary Outputs / BO Slot X2 / BO 3 | |
|---|---------------------------|--|-----|
| - | - ... Internal test state | | S.3 |
| | ↪ Table | | |
|  | <i>Assignment</i> | | |

| Inverting 3 | | Device Para / Binary Outputs / BO Slot X2 / BO 3 | |
|---|---|--|-----|
| Inactive | Inactive, Active | | S.3 |
| | ↪ Table | | |
|  | <i>Inverting of the state of the assigned signal.</i> | | |

| Assignment 4 | | Device Para / Binary Outputs / BO Slot X2 / BO 3 | |
|---|---------------------------|--|-----|
| - | - ... Internal test state | | S.3 |
| | ↪ Table | | |
|  | <i>Assignment</i> | | |


| Inverting 4 | | Device Para / Binary Outputs / BO Slot X2 / BO 3 | |
|---|---|--|-----|
| Inactive | Inactive, Active | | S.3 |
| | ↪ Table | | |
|  | <i>Inverting of the state of the assigned signal.</i> | | |


| Assignment 5 | | Device Para / Binary Outputs / BO Slot X2 / BO 3 | |
|---|---------------------------|--|-----|
| - | - ... Internal test state | | S.3 |
| | ↪ Table | | |
|  | <i>Assignment</i> | | |


| | | | |
|---|--|--|-----|
| Inverting 5 | | Device Para / Binary Outputs / BO Slot X2 / BO 3 | |
| Inactive | Inactive, Active | ↪ Table | S.3 |
|  | <i>Inverting of the state of the assigned signal.</i> | | |
| Assignment 6 | | Device Para / Binary Outputs / BO Slot X2 / BO 3 | |
| - | - ... Internal test state | ↪ Table | S.3 |
|  | <i>Assignment</i> | | |
| Inverting 6 | | Device Para / Binary Outputs / BO Slot X2 / BO 3 | |
| Inactive | Inactive, Active | ↪ Table | S.3 |
|  | <i>Inverting of the state of the assigned signal.</i> | | |
| Assignment 7 | | Device Para / Binary Outputs / BO Slot X2 / BO 3 | |
| - | - ... Internal test state | ↪ Table | S.3 |
|  | <i>Assignment</i> | | |
| Inverting 7 | | Device Para / Binary Outputs / BO Slot X2 / BO 3 | |
| Inactive | Inactive, Active | ↪ Table | S.3 |
|  | <i>Inverting of the state of the assigned signal.</i> | | |
| Operating Mode | | Device Para / Binary Outputs / BO Slot X2 / BO 4 | |
| Normally open (NO) | Normally open (NO), Normally closed (NC) | ↪ Table | S.3 |
|  | <i>Operating Mode</i> | | |
| t-hold | | Device Para / Binary Outputs / BO Slot X2 / BO 4 | |
| 0.00s | 0.00s ... 300.00s | | S.3 |
|  | <i>To clearly identify the state transition of a binary output relay, the "new state" is being hold, at least for the duration of the hold time.</i> | | |


4 Hardware


4.3.1.1 BO Slot X2: Global Parameters


| | | |
|--|--|-----|
| t-Off Delay | Device Para / Binary Outputs / BO Slot X2 / BO 4 | |
| 0.00s | 0.00s ... 300.00s | S.3 |
|  Switch Off Delay | | |


| | | |
|--|--|-----|
| Latched | Device Para / Binary Outputs / BO Slot X2 / BO 4 | |
| Inactive | Inactive, Active ↳ Table | S.3 |
|  Defines whether the Relay Output will be latched when it picks up. | | |

| | | |
|--|--|-----|
| Acknowledgement | Device Para / Binary Outputs / BO Slot X2 / BO 4 | |
| <ul style="list-style-type: none"> Only available if: Latched = Active | - ... Internal test state ↳ Table | S.3 |
|  Acknowledgement Signal - An acknowledgement signal (that acknowledges the corresponding binary output relay) can be assigned to each output relay. The acknowledgement-signal is only effective if the parameter "Latched" is set to active. | | |


| | | |
|---|--|-----|
| Inverting | Device Para / Binary Outputs / BO Slot X2 / BO 4 | |
| Inactive | Inactive, Active ↳ Table | S.3 |
|  Inverting of the collective signal (OR-gate/disjunction). In combination with inverted input signals an AND-gate can be programmed (Conjunction). | | |

| | | |
|--|--|-----|
| Assignment 1 | Device Para / Binary Outputs / BO Slot X2 / BO 4 | |
| OFF Cmd | - ... Internal test state ↳ Table | S.3 |
|  Assignment | | |


| | | |
|--|--|-----|
| Inverting 1 | Device Para / Binary Outputs / BO Slot X2 / BO 4 | |
| Inactive | Inactive, Active ↳ Table | S.3 |
|  Inverting of the state of the assigned signal. | | |

| | | |
|--|--|-----|
| Assignment 2 | Device Para / Binary Outputs / BO Slot X2 / BO 4 | |
| - | - ... Internal test state ↳ Table | S.3 |
|  Assignment | | |


| Inverting 2 | | Device Para / Binary Outputs / BO Slot X2 / BO 4 | |
|---|------------------|--|-----|
| Inactive | Inactive, Active | ↩ Table | S.3 |
|  <i>Inverting of the state of the assigned signal.</i> | | | |

| Assignment 3 | | Device Para / Binary Outputs / BO Slot X2 / BO 4 | |
|---|---------------------------|--|-----|
| - | - ... Internal test state | ↩ Table | S.3 |
|  <i>Assignment</i> | | | |

| Inverting 3 | | Device Para / Binary Outputs / BO Slot X2 / BO 4 | |
|---|------------------|--|-----|
| Inactive | Inactive, Active | ↩ Table | S.3 |
|  <i>Inverting of the state of the assigned signal.</i> | | | |

| Assignment 4 | | Device Para / Binary Outputs / BO Slot X2 / BO 4 | |
|---|---------------------------|--|-----|
| - | - ... Internal test state | ↩ Table | S.3 |
|  <i>Assignment</i> | | | |


| Inverting 4 | | Device Para / Binary Outputs / BO Slot X2 / BO 4 | |
|---|------------------|--|-----|
| Inactive | Inactive, Active | ↩ Table | S.3 |
|  <i>Inverting of the state of the assigned signal.</i> | | | |


| Assignment 5 | | Device Para / Binary Outputs / BO Slot X2 / BO 4 | |
|---|---------------------------|--|-----|
| - | - ... Internal test state | ↩ Table | S.3 |
|  <i>Assignment</i> | | | |


| Inverting 5 | | Device Para / Binary Outputs / BO Slot X2 / BO 4 | |
|---|------------------|--|-----|
| Inactive | Inactive, Active | ↩ Table | S.3 |
|  <i>Inverting of the state of the assigned signal.</i> | | | |


4 Hardware


4.3.1.1 BO Slot X2: Global Parameters


| Assignment 6 | | Device Para / Binary Outputs / BO Slot X2 / BO 4 | |
|---|---------------------------|--|-----|
| - | - ... Internal test state | | S.3 |
| | ↪ Table | | |
|  | <i>Assignment</i> | | |


| Inverting 6 | | Device Para / Binary Outputs / BO Slot X2 / BO 4 | |
|---|---|--|-----|
| Inactive | Inactive, Active | | S.3 |
| | ↪ Table | | |
|  | <i>Inverting of the state of the assigned signal.</i> | | |


| Assignment 7 | | Device Para / Binary Outputs / BO Slot X2 / BO 4 | |
|---|---------------------------|--|-----|
| - | - ... Internal test state | | S.3 |
| | ↪ Table | | |
|  | <i>Assignment</i> | | |


| Inverting 7 | | Device Para / Binary Outputs / BO Slot X2 / BO 4 | |
|---|---|--|-----|
| Inactive | Inactive, Active | | S.3 |
| | ↪ Table | | |
|  | <i>Inverting of the state of the assigned signal.</i> | | |


| Operating Mode | | Device Para / Binary Outputs / BO Slot X2 / BO 5 | |
|---|--|--|-----|
| Normally open (NO) | Normally open (NO), Normally closed (NC) | | S.3 |
| | ↪ Table | | |
|  | <i>Operating Mode</i> | | |


| t-hold | | Device Para / Binary Outputs / BO Slot X2 / BO 5 | |
|---|--|--|-----|
| 0.00s | 0.00s ... 300.00s | | S.3 |
|  | <i>To clearly identify the state transition of a binary output relay, the "new state" is being hold, at least for the duration of the hold time.</i> | | |

| t-Off Delay | | Device Para / Binary Outputs / BO Slot X2 / BO 5 | |
|---|-------------------------|--|-----|
| 0.00s | 0.00s ... 300.00s | | S.3 |
|  | <i>Switch Off Delay</i> | | |


| Latched | | Device Para / Binary Outputs / BO Slot X2 / BO 5 | |
|---|---|--|-----|
| Inactive | Inactive, Active | | S.3 |
| | ↪ Table | | |
|  | <i>Defines whether the Relay Output will be latched when it picks up.</i> | | |

| Acknowledgement | | Device Para / Binary Outputs / BO Slot X2 / BO 5 | |
|--|---|--|-----|
| <ul style="list-style-type: none"> Only available if: Latched = Active | - ... Internal test state | | S.3 |
| - | ↪ Table | | |
|  | <i>Acknowledgement Signal - An acknowledgement signal (that acknowledges the corresponding binary output relay) can be assigned to each output relay. The acknowledgement-signal is only effective if the parameter "Latched" is set to active.</i> | | |

| Inverting | | Device Para / Binary Outputs / BO Slot X2 / BO 5 | |
|---|--|--|-----|
| Inactive | Inactive, Active | | S.3 |
| | ↪ Table | | |
|  | <i>Inverting of the collective signal (OR-gate/disjunction). In combination with inverted input signals an AND-gate can be programmed (Conjunction).</i> | | |

| Assignment 1 | | Device Para / Binary Outputs / BO Slot X2 / BO 5 | |
|---|---------------------------|--|-----|
| Blo | - ... Internal test state | | S.3 |
| | ↪ Table | | |
|  | <i>Assignment</i> | | |


| Inverting 1 | | Device Para / Binary Outputs / BO Slot X2 / BO 5 | |
|---|---|--|-----|
| Inactive | Inactive, Active | | S.3 |
| | ↪ Table | | |
|  | <i>Inverting of the state of the assigned signal.</i> | | |

| Assignment 2 | | Device Para / Binary Outputs / BO Slot X2 / BO 5 | |
|---|---------------------------|--|-----|
| - | - ... Internal test state | | S.3 |
| | ↪ Table | | |
|  | <i>Assignment</i> | | |


| Inverting 2 | | Device Para / Binary Outputs / BO Slot X2 / BO 5 | |
|---|---|--|-----|
| Inactive | Inactive, Active | | S.3 |
| | ↪ Table | | |
|  | <i>Inverting of the state of the assigned signal.</i> | | |


4 Hardware


4.3.1.1 BO Slot X2: Global Parameters


| Assignment 3 | | Device Para / Binary Outputs / BO Slot X2 / BO 5 | |
|---|---------------------------|--|-----|
| - | - ... Internal test state | | S.3 |
| | ↪ Table | | |
|  | <i>Assignment</i> | | |


| Inverting 3 | | Device Para / Binary Outputs / BO Slot X2 / BO 5 | |
|---|---|--|-----|
| Inactive | Inactive, Active | | S.3 |
| | ↪ Table | | |
|  | <i>Inverting of the state of the assigned signal.</i> | | |

| Assignment 4 | | Device Para / Binary Outputs / BO Slot X2 / BO 5 | |
|---|---------------------------|--|-----|
| - | - ... Internal test state | | S.3 |
| | ↪ Table | | |
|  | <i>Assignment</i> | | |


| Inverting 4 | | Device Para / Binary Outputs / BO Slot X2 / BO 5 | |
|---|---|--|-----|
| Inactive | Inactive, Active | | S.3 |
| | ↪ Table | | |
|  | <i>Inverting of the state of the assigned signal.</i> | | |

| Assignment 5 | | Device Para / Binary Outputs / BO Slot X2 / BO 5 | |
|---|---------------------------|--|-----|
| - | - ... Internal test state | | S.3 |
| | ↪ Table | | |
|  | <i>Assignment</i> | | |


| Inverting 5 | | Device Para / Binary Outputs / BO Slot X2 / BO 5 | |
|---|---|--|-----|
| Inactive | Inactive, Active | | S.3 |
| | ↪ Table | | |
|  | <i>Inverting of the state of the assigned signal.</i> | | |


| Assignment 6 | | Device Para / Binary Outputs / BO Slot X2 / BO 5 | |
|---|---------------------------|--|-----|
| - | - ... Internal test state | | S.3 |
| | ↪ Table | | |
|  | <i>Assignment</i> | | |


| Inverting 6 | | Device Para / Binary Outputs / BO Slot X2 / BO 5 | |
|---|---|--|-----|
| Inactive | Inactive, Active | ↪ Table | S.3 |
|  | <i>Inverting of the state of the assigned signal.</i> | | |

| Assignment 7 | | Device Para / Binary Outputs / BO Slot X2 / BO 5 | |
|---|---------------------------|--|-----|
| - | - ... Internal test state | ↪ Table | S.3 |
|  | <i>Assignment</i> | | |

| Inverting 7 | | Device Para / Binary Outputs / BO Slot X2 / BO 5 | |
|---|---|--|-----|
| Inactive | Inactive, Active | ↪ Table | S.3 |
|  | <i>Inverting of the state of the assigned signal.</i> | | |


| DISARMED Ctrl | | Service / Test - Prot inhib. / DISARMED / BO Slot X2 | |
|---|--|--|-----|
| Inactive | Inactive, Active | ↪ Table | S.3 |
|  | <i>Enables and disables the disarming of the relay outputs. This is the first step of a two step process, to inhibit the operation or the relay outputs. Please refer to "DISARMED" for the second step.</i> | | |


| Disarm Mode | | Service / Test - Prot inhib. / DISARMED / BO Slot X2 | |
|---|--|--|-----|
| permanent | permanent, timeout | ↪ Table | S.3 |
|  | <i>CAUTION! RELAYS DISARMED in order to safely perform maintenance while eliminating the risk of taking an entire process off-line. (Note: The Supervision Contact cannot be disarmed). YOU MUST ENSURE that the relays are ARMED AGAIN after maintenance.</i> | | |

| t-Timeout DISARM | | Service / Test - Prot inhib. / DISARMED / BO Slot X2 | |
|--|--|--|-----|
| <ul style="list-style-type: none"> Only available if: Disarm Mode = timeout 0.03s | 0.00s ... 300.00s | | S.3 |
|  | <i>The relays will be armed again after expiring of this time.</i> | | |

4 Hardware


4.3.1.2 BO Slot X2: Direct Controls


| | | |
|---|--|-----|
| Force Mode | Service / Test - Prot inhib. / Force OR / BO Slot X2 | |
| permanent | permanent, timeout ↪ Table | S.3 |
|  | <i>By means of this function the normal Output Relay States can be overwritten (forced) in case that the Relay is not in a disarmed state. The relays can be set from normal operation (relay works according to the assigned signals) to "force energized" or "force de-energized" state.</i> | |

| | | |
|--|---|-----|
| t-Timeout Force | Service / Test - Prot inhib. / Force OR / BO Slot X2 | |
| <ul style="list-style-type: none"> Only available if: Force Mode = timeout 0.03s | 0.00s ... 300.00s | S.3 |
|  | <i>The Output State will be set by force for the duration of this time. That means for the duration of this time the Output Relay does not show the state of the signals that are assigned on it.</i> | |


4.3.1.2 BO Slot X2: Direct Controls


| | | |
|---|--|-----|
| DISARMED | Service / Test - Prot inhib. / DISARMED / BO Slot X2 | |
| Inactive | Inactive, Active ↪ Table | S.3 |
|  | <i>This is the second step, after the "DISARMED Ctrl" has been activated, that is required to DISARM the relay outputs. This will DISARM those output relays that are currently not latched and that are not on "hold" by a pending minimum hold time. CAUTION! RELAYS DISARMED in order to safely perform maintenance while eliminating the risk of taking an entire process off-line. (Note: Zone Interlocking and Supervision Contact cannot be disarmed). YOU MUST ENSURE that the relays are ARMED AGAIN after maintenance.</i> | |


| | | |
|---|---|-----|
| Force all Outs | Service / Test - Prot inhib. / Force OR / BO Slot X2 | |
| Normal | Normal, De-Energized, Energized ↪ Table | S.3 |
|  | <i>By means of this function the normal Output Relay State can be overwritten (forced). The relay can be set from normal operation (relay works according to the assigned signals) to "force energized" or "force de-energized" state. Forcing all outputs relays of an entire assembly group is superior to forcing a single output relay.</i> | |

| | | |
|---|--|-----|
| Force OR1 | Service / Test - Prot inhib. / Force OR / BO Slot X2 | |
| ... | | |
| Force OR5 | | |
| Normal | Normal, De-Energized, Energized ↪ Table | S.3 |
|  | <i>By means of this function the normal Output Relay State can be overwritten (forced). The relay can be set from normal operation (relay works according to the assigned signals) to "force energized" or "force de-energized" state.</i> | |

4.3.1.3 BO Slot X2: Signals (Output States)

| | |
|--|---|
| BO 1 | Operation / Status Display / BO Slot X2 |
| ... | |
| BO 5 | |
|  <i>Signal: Binary Output Relay</i> | |


| | |
|--|---|
| DISARMED! | Operation / Status Display / BO Slot X2 |
|  <i>Signal: CAUTION! RELAYS DISARMED in order to safely perform maintenance while eliminating the risk of taking an entire process off-line. (Note: The Self Supervision Contact cannot be disarmed). YOU MUST ENSURE that the relays are ARMED AGAIN after maintenance</i> | |


| | |
|---|---|
| Outs forced | Operation / Status Display / BO Slot X2 |
|  <i>Signal: The State of at least one Relay Output has been set by force. That means that the state of at least one Relay is forced and hence does not show the state of the assigned signals.</i> | |


4.3.2 BO Slot X2


Binary Output relay - BO2


4.3.2.1 BO Slot X2: Global Parameters


| Operating Mode | | Device Para / Binary Outputs / BO Slot X2 / BO 1 | |
|---|----------------|--|-----|
| Normally open (NO) | | Normally open (NO), Normally closed (NC) | S.3 |
| | | ↪ Table | |
|  | Operating Mode | | |


| t-hold | | Device Para / Binary Outputs / BO Slot X2 / BO 1 | |
|---|---|--|-----|
| 0.00s | | 0.00s ... 300.00s | S.3 |
|  | To clearly identify the state transition of a binary output relay, the "new state" is being hold, at least for the duration of the hold time. | | |

| t-Off Delay | | Device Para / Binary Outputs / BO Slot X2 / BO 1 | |
|---|------------------|--|-----|
| 0.00s | | 0.00s ... 300.00s | S.3 |
|  | Switch Off Delay | | |


| Latched | | Device Para / Binary Outputs / BO Slot X2 / BO 1 | |
|---|--|--|-----|
| Active | | Inactive, Active | S.3 |
| | | ↪ Table | |
|  | Defines whether the Relay Output will be latched when it picks up. | | |

| Acknowledgement | | Device Para / Binary Outputs / BO Slot X2 / BO 1 | |
|--|--|--|-----|
| <ul style="list-style-type: none"> Only available if: Latched = Active | | - ... Internal test state | S.3 |
| - | | ↪ Table | |
|  | Acknowledgement Signal - An acknowledgement signal (that acknowledges the corresponding binary output relay) can be assigned to each output relay. The acknowledgement-signal is only effective if the parameter "Latched" is set to active. | | |


| Inverting | | Device Para / Binary Outputs / BO Slot X2 / BO 1 | |
|---|---|--|-----|
| Inactive | | Inactive, Active | S.3 |
| | | ↪ Table | |
|  | Inverting of the collective signal (OR-gate/disjunction). In combination with inverted input signals an AND-gate can be programmed (Conjunction). | | |

| Assignment 1 | | Device Para / Binary Outputs / BO Slot X2 / BO 1 | |
|---|---------------------------|--|-----|
| TripCmd | - ... Internal test state | | S.3 |
| | ↪ Table | | |
|  | <i>Assignment</i> | | |


| Inverting 1 | | Device Para / Binary Outputs / BO Slot X2 / BO 1 | |
|---|---|--|-----|
| Inactive | Inactive, Active | | S.3 |
| | ↪ Table | | |
|  | <i>Inverting of the state of the assigned signal.</i> | | |

| Assignment 2 | | Device Para / Binary Outputs / BO Slot X2 / BO 1 | |
|---|---------------------------|--|-----|
| - | - ... Internal test state | | S.3 |
| | ↪ Table | | |
|  | <i>Assignment</i> | | |

| Inverting 2 | | Device Para / Binary Outputs / BO Slot X2 / BO 1 | |
|---|---|--|-----|
| Inactive | Inactive, Active | | S.3 |
| | ↪ Table | | |
|  | <i>Inverting of the state of the assigned signal.</i> | | |


| Assignment 3 | | Device Para / Binary Outputs / BO Slot X2 / BO 1 | |
|---|---------------------------|--|-----|
| - | - ... Internal test state | | S.3 |
| | ↪ Table | | |
|  | <i>Assignment</i> | | |


| Inverting 3 | | Device Para / Binary Outputs / BO Slot X2 / BO 1 | |
|---|---|--|-----|
| Inactive | Inactive, Active | | S.3 |
| | ↪ Table | | |
|  | <i>Inverting of the state of the assigned signal.</i> | | |

| Assignment 4 | | Device Para / Binary Outputs / BO Slot X2 / BO 1 | |
|---|---------------------------|--|-----|
| - | - ... Internal test state | | S.3 |
| | ↪ Table | | |
|  | <i>Assignment</i> | | |


4 Hardware

4.3.2.1 BO Slot X2: Global Parameters


| | | | |
|---|------------------|--|-----|
| Inverting 4 | | Device Para / Binary Outputs / BO Slot X2 / BO 1 | |
| Inactive | Inactive, Active | ↩ Table | S.3 |
|  <i>Inverting of the state of the assigned signal.</i> | | | |

| | | | |
|---|---------------------------|--|-----|
| Assignment 5 | | Device Para / Binary Outputs / BO Slot X2 / BO 1 | |
| - | - ... Internal test state | ↩ Table | S.3 |
|  <i>Assignment</i> | | | |


| | | | |
|---|------------------|--|-----|
| Inverting 5 | | Device Para / Binary Outputs / BO Slot X2 / BO 1 | |
| Inactive | Inactive, Active | ↩ Table | S.3 |
|  <i>Inverting of the state of the assigned signal.</i> | | | |


| | | | |
|---|---------------------------|--|-----|
| Assignment 6 | | Device Para / Binary Outputs / BO Slot X2 / BO 1 | |
| - | - ... Internal test state | ↩ Table | S.3 |
|  <i>Assignment</i> | | | |


| | | | |
|---|------------------|--|-----|
| Inverting 6 | | Device Para / Binary Outputs / BO Slot X2 / BO 1 | |
| Inactive | Inactive, Active | ↩ Table | S.3 |
|  <i>Inverting of the state of the assigned signal.</i> | | | |


| | | | |
|---|---------------------------|--|-----|
| Assignment 7 | | Device Para / Binary Outputs / BO Slot X2 / BO 1 | |
| - | - ... Internal test state | ↩ Table | S.3 |
|  <i>Assignment</i> | | | |


| | | | |
|---|------------------|--|-----|
| Inverting 7 | | Device Para / Binary Outputs / BO Slot X2 / BO 1 | |
| Inactive | Inactive, Active | ↩ Table | S.3 |
|  <i>Inverting of the state of the assigned signal.</i> | | | |


| Operating Mode | | Device Para / Binary Outputs / BO Slot X2 / BO 2 | |
|---|--|--|-----|
| Normally open (NO) | Normally open (NO), Normally closed (NC) | | S.3 |
| | ↪ Table | | |
|  | <i>Operating Mode</i> | | |


| t-hold | | Device Para / Binary Outputs / BO Slot X2 / BO 2 | |
|---|--|--|-----|
| 0.00s | 0.00s ... 300.00s | | S.3 |
|  | <i>To clearly identify the state transition of a binary output relay, the "new state" is being hold, at least for the duration of the hold time.</i> | | |

| t-Off Delay | | Device Para / Binary Outputs / BO Slot X2 / BO 2 | |
|---|-------------------------|--|-----|
| 0.00s | 0.00s ... 300.00s | | S.3 |
|  | <i>Switch Off Delay</i> | | |

| Latched | | Device Para / Binary Outputs / BO Slot X2 / BO 2 | |
|---|---|--|-----|
| Inactive | Inactive, Active | | S.3 |
| | ↪ Table | | |
|  | <i>Defines whether the Relay Output will be latched when it picks up.</i> | | |


| Acknowledgement | | Device Para / Binary Outputs / BO Slot X2 / BO 2 | |
|--|---|--|-----|
| <ul style="list-style-type: none"> Only available if: Latched = Active | - ... Internal test state | | S.3 |
| - | ↪ Table | | |
|  | <i>Acknowledgement Signal - An acknowledgement signal (that acknowledges the corresponding binary output relay) can be assigned to each output relay. The acknowledgement-signal is only effective if the parameter "Latched" is set to active.</i> | | |


| Inverting | | Device Para / Binary Outputs / BO Slot X2 / BO 2 | |
|---|--|--|-----|
| Inactive | Inactive, Active | | S.3 |
| | ↪ Table | | |
|  | <i>Inverting of the collective signal (OR-gate/disjunction). In combination with inverted input signals an AND-gate can be programmed (Conjunction).</i> | | |

| Assignment 1 | | Device Para / Binary Outputs / BO Slot X2 / BO 2 | |
|---|---------------------------|--|-----|
| ON Cmd | - ... Internal test state | | S.3 |
| | ↪ Table | | |
|  | <i>Assignment</i> | | |


4 Hardware

4.3.2.1 BO Slot X2: Global Parameters


| | | | |
|---|---|--|-----|
| Inverting 1 | | Device Para / Binary Outputs / BO Slot X2 / BO 2 | |
| Inactive | Inactive, Active | | S.3 |
| | ↩ Table | | |
|  | <i>Inverting of the state of the assigned signal.</i> | | |

| | | | |
|---|---------------------------|--|-----|
| Assignment 2 | | Device Para / Binary Outputs / BO Slot X2 / BO 2 | |
| - | - ... Internal test state | | S.3 |
| | ↩ Table | | |
|  | <i>Assignment</i> | | |








| | | | |
|---|---|--|-----|
| Inverting 2 | | Device Para / Binary Outputs / BO Slot X2 / BO 2 | |
| Inactive | Inactive, Active | | S.3 |
| | ↩ Table | | |
|  | <i>Inverting of the state of the assigned signal.</i> | | |

| | | | |
|---|---------------------------|--|-----|
| Assignment 3 | | Device Para / Binary Outputs / BO Slot X2 / BO 2 | |
| - | - ... Internal test state | | S.3 |
| | ↩ Table | | |
|  | <i>Assignment</i> | | |

| | | | |
|---|---|--|-----|
| Inverting 3 | | Device Para / Binary Outputs / BO Slot X2 / BO 2 | |
| Inactive | Inactive, Active | | S.3 |
| | ↩ Table | | |
|  | <i>Inverting of the state of the assigned signal.</i> | | |


| | | | |
|---|---------------------------|--|-----|
| Assignment 4 | | Device Para / Binary Outputs / BO Slot X2 / BO 2 | |
| - | - ... Internal test state | | S.3 |
| | ↩ Table | | |
|  | <i>Assignment</i> | | |


| | | | |
|---|---|--|-----|
| Inverting 4 | | Device Para / Binary Outputs / BO Slot X2 / BO 2 | |
| Inactive | Inactive, Active | | S.3 |
| | ↩ Table | | |
|  | <i>Inverting of the state of the assigned signal.</i> | | |


| | | | |
|---|---|--|-----|
| Assignment 5 | | Device Para / Binary Outputs / BO Slot X2 / BO 2 | |
| - | - ... Internal test state | | S.3 |
| | ↪ Table | | |
|  | <i>Assignment</i> | | |
| Inverting 5 | | Device Para / Binary Outputs / BO Slot X2 / BO 2 | |
| Inactive | Inactive, Active | | S.3 |
| | ↪ Table | | |
|  | <i>Inverting of the state of the assigned signal.</i> | | |
| Assignment 6 | | Device Para / Binary Outputs / BO Slot X2 / BO 2 | |
| - | - ... Internal test state | | S.3 |
| | ↪ Table | | |
|  | <i>Assignment</i> | | |
| Inverting 6 | | Device Para / Binary Outputs / BO Slot X2 / BO 2 | |
| Inactive | Inactive, Active | | S.3 |
| | ↪ Table | | |
|  | <i>Inverting of the state of the assigned signal.</i> | | |
| Assignment 7 | | Device Para / Binary Outputs / BO Slot X2 / BO 2 | |
| - | - ... Internal test state | | S.3 |
| | ↪ Table | | |
|  | <i>Assignment</i> | | |
| Inverting 7 | | Device Para / Binary Outputs / BO Slot X2 / BO 2 | |
| Inactive | Inactive, Active | | S.3 |
| | ↪ Table | | |
|  | <i>Inverting of the state of the assigned signal.</i> | | |
| Operating Mode | | Device Para / Binary Outputs / BO Slot X2 / BO 3 | |
| Normally open (NO) | Normally open (NO), Normally closed (NC) | | S.3 |
| | ↪ Table | | |
|  | <i>Operating Mode</i> | | |


4 Hardware


4.3.2.1 BO Slot X2: Global Parameters


| | | |
|---|--|-----|
| t-hold | Device Para / Binary Outputs / BO Slot X2 / BO 3 | |
| 0.00s | 0.00s ... 300.00s | S.3 |
|  | <i>To clearly identify the state transition of a binary output relay, the "new state" is being hold, at least for the duration of the hold time.</i> | |


| | | |
|---|--|-----|
| t-Off Delay | Device Para / Binary Outputs / BO Slot X2 / BO 3 | |
| 0.00s | 0.00s ... 300.00s | S.3 |
|  | Switch Off Delay | |


| | | |
|---|---|-----|
| Latched | Device Para / Binary Outputs / BO Slot X2 / BO 3 | |
| Inactive | Inactive, Active ↳ Table | S.3 |
|  | <i>Defines whether the Relay Output will be latched when it picks up.</i> | |

| | | |
|--|---|-----|
| Acknowledgement | Device Para / Binary Outputs / BO Slot X2 / BO 3 | |
| <ul style="list-style-type: none"> Only available if: Latched = Active | - ... Internal test state ↳ Table | S.3 |
|  | <i>Acknowledgement Signal - An acknowledgement signal (that acknowledges the corresponding binary output relay) can be assigned to each output relay. The acknowledgement-signal is only effective if the parameter "Latched" is set to active.</i> | |


| | | |
|---|--|-----|
| Inverting | Device Para / Binary Outputs / BO Slot X2 / BO 3 | |
| Inactive | Inactive, Active ↳ Table | S.3 |
|  | <i>Inverting of the collective signal (OR-gate/disjunction). In combination with inverted input signals an AND-gate can be programmed (Conjunction).</i> | |

| | | |
|---|--|-----|
| Assignment 1 | Device Para / Binary Outputs / BO Slot X2 / BO 3 | |
| OFF Cmd | - ... Internal test state ↳ Table | S.3 |
|  | Assignment | |


| | | |
|---|---|-----|
| Inverting 1 | Device Para / Binary Outputs / BO Slot X2 / BO 3 | |
| Inactive | Inactive, Active ↳ Table | S.3 |
|  | <i>Inverting of the state of the assigned signal.</i> | |

| Assignment 2 | | Device Para / Binary Outputs / BO Slot X2 / BO 3 | |
|---|---------------------------|--|-----|
| - | - ... Internal test state | | S.3 |
| | ↩ Table | | |
|  | <i>Assignment</i> | | |


| Inverting 2 | | Device Para / Binary Outputs / BO Slot X2 / BO 3 | |
|---|---|--|-----|
| Inactive | Inactive, Active | | S.3 |
| | ↩ Table | | |
|  | <i>Inverting of the state of the assigned signal.</i> | | |

| Assignment 3 | | Device Para / Binary Outputs / BO Slot X2 / BO 3 | |
|---|---------------------------|--|-----|
| - | - ... Internal test state | | S.3 |
| | ↩ Table | | |
|  | <i>Assignment</i> | | |

| Inverting 3 | | Device Para / Binary Outputs / BO Slot X2 / BO 3 | |
|---|---|--|-----|
| Inactive | Inactive, Active | | S.3 |
| | ↩ Table | | |
|  | <i>Inverting of the state of the assigned signal.</i> | | |

| Assignment 4 | | Device Para / Binary Outputs / BO Slot X2 / BO 3 | |
|---|---------------------------|--|-----|
| - | - ... Internal test state | | S.3 |
| | ↩ Table | | |
|  | <i>Assignment</i> | | |


| Inverting 4 | | Device Para / Binary Outputs / BO Slot X2 / BO 3 | |
|---|---|--|-----|
| Inactive | Inactive, Active | | S.3 |
| | ↩ Table | | |
|  | <i>Inverting of the state of the assigned signal.</i> | | |

| Assignment 5 | | Device Para / Binary Outputs / BO Slot X2 / BO 3 | |
|---|---------------------------|--|-----|
| - | - ... Internal test state | | S.3 |
| | ↩ Table | | |
|  | <i>Assignment</i> | | |


4 Hardware

4.3.2.1 BO Slot X2: Global Parameters


| Inverting 5 | | Device Para / Binary Outputs / BO Slot X2 / BO 3 |
|---|---|--|
| Inactive | Inactive, Active | S.3 |
| | | ↩ Table |
|  | <i>Inverting of the state of the assigned signal.</i> | |


| Assignment 6 | | Device Para / Binary Outputs / BO Slot X2 / BO 3 |
|---|---------------------------|--|
| - | - ... Internal test state | S.3 |
| | | ↩ Table |
|  | <i>Assignment</i> | |


| Inverting 6 | | Device Para / Binary Outputs / BO Slot X2 / BO 3 |
|---|---|--|
| Inactive | Inactive, Active | S.3 |
| | | ↩ Table |
|  | <i>Inverting of the state of the assigned signal.</i> | |


| Assignment 7 | | Device Para / Binary Outputs / BO Slot X2 / BO 3 |
|---|---------------------------|--|
| - | - ... Internal test state | S.3 |
| | | ↩ Table |
|  | <i>Assignment</i> | |


| Inverting 7 | | Device Para / Binary Outputs / BO Slot X2 / BO 3 |
|---|---|--|
| Inactive | Inactive, Active | S.3 |
| | | ↩ Table |
|  | <i>Inverting of the state of the assigned signal.</i> | |

| DISARMED Ctrl | | Service / Test - Prot inhib. / DISARMED / BO Slot X2 |
|---|--|--|
| Inactive | Inactive, Active | S.3 |
| | | ↩ Table |
|  | <i>Enables and disables the disarming of the relay outputs. This is the first step of a two step process, to inhibit the operation or the relay outputs. Please refer to "DISARMED" for the second step.</i> | |


| Disarm Mode | | Service / Test - Prot inhib. / DISARMED / BO Slot X2 |
|---|--|--|
| permanent | permanent, timeout | S.3 |
| | | ↩ Table |
|  | <i>CAUTION! RELAYS DISARMED in order to safely perform maintenance while eliminating the risk of taking an entire process off-line. (Note: The Supervision Contact cannot be disarmed). YOU MUST ENSURE that the relays are ARMED AGAIN after maintenance.</i> | |


| t-Timeout DISARM | | Service / Test - Prot inhib. / DISARMED / BO Slot X2 |
|--|-------------------|--|
| <ul style="list-style-type: none"> Only available if: Disarm Mode = timeout 0.03s | 0.00s ... 300.00s | S.3 |
|  <i>The relays will be armed again after expiring of this time.</i> | | |

| Force Mode | | Service / Test - Prot inhib. / Force OR / BO Slot X2 |
|--|---|--|
| permanent | permanent, timeout ↪ Table | S.3 |
|  <i>By means of this function the normal Output Relay States can be overwritten (forced) in case that the Relay is not in a disarmed state. The relays can be set from normal operation (relay works according to the assigned signals) to "force energized" or "force de-energized" state.</i> | | |

| t-Timeout Force | | Service / Test - Prot inhib. / Force OR / BO Slot X2 |
|--|-------------------|--|
| <ul style="list-style-type: none"> Only available if: Force Mode = timeout 0.03s | 0.00s ... 300.00s | S.3 |
|  <i>The Output State will be set by force for the duration of this time. That means for the duration of this time the Output Relay does not show the state of the signals that are assigned on it.</i> | | |

4.3.2.2 BO Slot X2: Direct Controls

| DISARMED | | Service / Test - Prot inhib. / DISARMED / BO Slot X2 |
|--|---|--|
| Inactive | Inactive, Active ↪ Table | S.3 |
|  <i>This is the second step, after the "DISARMED Ctrl" has been activated, that is required to DISARM the relay outputs. This will DISARM those output relays that are currently not latched and that are not on "hold" by a pending minimum hold time. CAUTION! RELAYS DISARMED in order to safely perform maintenance while eliminating the risk of taking an entire process off-line. (Note: Zone Interlocking and Supervision Contact cannot be disarmed). YOU MUST ENSURE that the relays are ARMED AGAIN after maintenance.</i> | | |

| Force all Outs | | Service / Test - Prot inhib. / Force OR / BO Slot X2 |
|---|--|--|
| Normal | Normal, De-Energized, Energized ↪ Table | S.3 |
|  <i>By means of this function the normal Output Relay State can be overwritten (forced). The relay can be set from normal operation (relay works according to the assigned signals) to "force energized" or "force de-energized" state. Forcing all outputs relays of an entire assembly group is superior to forcing a single output relay.</i> | | |

4 Hardware

4.3.2.3 BO Slot X2: Signals (Output States)

| | | |
|------------------|--|-----|
| Force OR1 | Service / Test - Prot inhib. / Force OR / BO Slot X2 | |
| Force OR2 | | |
| , | | |
| Force OR3 | | |
| Normal | Normal, De-Energized, Energized | S.3 |
| | Table | |
| ⊙ | <i>By means of this function the normal Output Relay State can be overwritten (forced). The relay can be set from normal operation (relay works according to the assigned signals) to "force energized" or "force de-energized" state.</i> | |

4.3.2.3 BO Slot X2: Signals (Output States)

| | | |
|--------------------|---|--|
| BO 1 | Operation / Status Display / BO Slot X2 | |
| BO 2 | | |
| , | | |
| BO 3 | | |
| ↑↓ | Signal: Binary Output Relay | |

| | | |
|--------------------|--|--|
| DISARMED! | Operation / Status Display / BO Slot X2 | |
| ↑↓ | <i>Signal: CAUTION! RELAYS DISARMED in order to safely perform maintenance while eliminating the risk of taking an entire process off-line. (Note: The Self Supervision Contact cannot be disarmed). YOU MUST ENSURE that the relays are ARMED AGAIN after maintenance</i> | |


| | | |
|--------------------|---|--|
| Outs forced | Operation / Status Display / BO Slot X2 | |
| ↑↓ | <i>Signal: The State of at least one Relay Output has been set by force. That means that the state of at least one Relay is forced and hence does not show the state of the assigned signals.</i> | |


4.4 Analog Outputs

4.4.1 AnOut[1]

Analog Output

4.4.1.1 AnOut[1]: Global Parameters

| Assignment | | Device Para / Analog Outputs / AnOut[1] | |
|---|------------|--|-----|
| - | | - ... Hottest MotBearTemp Table | S.3 |
|  | Assignment | | |


| Range | | Device Para / Analog Outputs / AnOut[1] | |
|---|------------------|---|-----|
| 0...20mA | | 0...20mA, 4...20mA Table | S.3 |
|  | Adjustable range | | |

4 Hardware

4.4.1.1 AnOut[1]: Global Parameters


| Range max | Device Para / Analog Outputs / AnOut[1] | |
|---|---|-----|
| 1.00°C | Adjustable range: <ul style="list-style-type: none"> • 0.00°C ... 20.00°C, If: Assignment = IL1 lb • 0.00°C ... 20.00°C, If: Assignment = IL2 lb • 0.00°C ... 20.00°C, If: Assignment = IL3 lb • 0.00°C ... 20.00°C, If: Assignment = I3 P (%lb) avg • 0.00°C ... 20.00°C, If: Assignment = I3P Fla Demand • 0.00°C ... 200.00°C, If: Assignment = I2T Used • 0.00°C ... 100.00°C, If: Assignment = I2T Remained • 0.00°C ... 40.00°C, If: Assignment = IL1 RMS • 0.00°C ... 40.00°C, If: Assignment = IL2 RMS • 0.00°C ... 40.00°C, If: Assignment = IL3 RMS • 0.00°C ... 40.00°C, If: Assignment = IG meas RMS • 0.00°C ... 40.00°C, If: Assignment = IG calc RMS • 0.00°C ... 40.00°C, If: Assignment = IL1 THD • 0.00°C ... 40.00°C, If: Assignment = IL2 THD • 0.00°C ... 40.00°C, If: Assignment = IL3 THD • 0.00°C ... 200.00°C, If: Assignment = Windg1 • 0.00°C ... 200.00°C, If: Assignment = Windg2 • 0.00°C ... 200.00°C, If: Assignment = Windg3 • 0.00°C ... 200.00°C, If: Assignment = Windg4 • 0.00°C ... 200.00°C, If: Assignment = Windg5 • 0.00°C ... 200.00°C, If: Assignment = Windg6 • 0.00°C ... 200.00°C, If: Assignment = MotBear1 • 0.00°C ... 200.00°C, If: Assignment = MotBear2 • 0.00°C ... 200.00°C, If: Assignment = LoadBear1 • 0.00°C ... 200.00°C, If: Assignment = LoadBear2 • 0.00°C ... 200.00°C, If: Assignment = Aux1 • 0.00°C ... 200.00°C, If: Assignment = Aux2 • 0.00°C ... 200.00°C, If: Assignment = RTD Max • 0.00°C ... 200.00°C, If: Assignment = HottestWindingTemp • 0.00°C ... 200.00°C, If: Assignment = Hottest MotBearTemp • Else: -999999.00°C ... 999999.00°C | 5.3 |
|  | <i>Adjustable range maximum.</i> | |

| Range min | Device Para / Analog Outputs / AnOut[1] | |
|---|---|-----|
| 0.00°C | Adjustable range: <ul style="list-style-type: none"> • 0.00°C ... 20.00°C, If: Assignment = IL1 lb • 0.00°C ... 20.00°C, If: Assignment = IL2 lb • 0.00°C ... 20.00°C, If: Assignment = IL3 lb • 0.00°C ... 20.00°C, If: Assignment = I3 P (%lb) avg • 0.00°C ... 20.00°C, If: Assignment = I3P Fla Demand • 0.00°C ... 200.00°C, If: Assignment = I2T Used • 0.00°C ... 100.00°C, If: Assignment = I2T Remained • 0.00°C ... 40.00°C, If: Assignment = IL1 RMS • 0.00°C ... 40.00°C, If: Assignment = IL2 RMS • 0.00°C ... 40.00°C, If: Assignment = IL3 RMS • 0.00°C ... 40.00°C, If: Assignment = IG meas RMS • 0.00°C ... 40.00°C, If: Assignment = IG calc RMS • 0.00°C ... 40.00°C, If: Assignment = IL1 THD • 0.00°C ... 40.00°C, If: Assignment = IL2 THD • 0.00°C ... 40.00°C, If: Assignment = IL3 THD • 0.00°C ... 200.00°C, If: Assignment = Windg1 • 0.00°C ... 200.00°C, If: Assignment = Windg2 • 0.00°C ... 200.00°C, If: Assignment = Windg3 • 0.00°C ... 200.00°C, If: Assignment = Windg4 • 0.00°C ... 200.00°C, If: Assignment = Windg5 • 0.00°C ... 200.00°C, If: Assignment = Windg6 • 0.00°C ... 200.00°C, If: Assignment = MotBear1 • 0.00°C ... 200.00°C, If: Assignment = MotBear2 • 0.00°C ... 200.00°C, If: Assignment = LoadBear1 • 0.00°C ... 200.00°C, If: Assignment = LoadBear2 • 0.00°C ... 200.00°C, If: Assignment = Aux1 • 0.00°C ... 200.00°C, If: Assignment = Aux2 • 0.00°C ... 200.00°C, If: Assignment = RTD Max • 0.00°C ... 200.00°C, If: Assignment = HottestWindingTemp • 0.00°C ... 200.00°C, If: Assignment = Hottest MotBearTemp • Else: -999999.00°C ... 999999.00°C | S.3 |
|  | <i>Adjustable range minimum.</i> | |

| Force Mode | Service / Test - Prot inhib. / Analog Outputs / AnOut[1] | |
|---|--|-----|
| permanent | permanent, timeout ↪ Table | S.3 |
|  | <i>For commissioning purposes or for maintenance, Analog Outputs can be set by force. By means of this function the normal Analog Outputs can be overwritten (forced).</i> | |

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4.4.1.2 AnOut[1]: Direct Controls


| t-Timeout Force | | Service / Test - Prot inhib. / Analog Outputs / AnOut[1] |
|---|-------------------|--|
| <ul style="list-style-type: none"> Only available if: Force Mode = timeout 0.03s | 0.00s ... 300.00s | S.3 |
|  <i>The Analog Output Value will be set by force for the duration of this time. That means for the duration of this time the Analog Output does not show the value of the signals that are assigned on it.</i> | | |

4.4.1.2 AnOut[1]: Direct Controls

| Function | | Service / Test - Prot inhib. / Analog Outputs / AnOut[1] |
|---|---|--|
| Inactive | Inactive, Active Table | S.3 |
| <input checked="" type="radio"/> <i>Permanent activation or deactivation of module/stage.</i> | | |

| Force Value | | Service / Test - Prot inhib. / Analog Outputs / AnOut[1] |
|--|-------------------|--|
| 0% | 0.00% ... 100.00% | S.3 |
| <input checked="" type="radio"/> <i>By means of this function the Analog Output Value can be overwritten (forced).</i> | | |

4.4.1.3 AnOut[1]: Signals (Output States)


| Force Mode | | Operation / Status Display / Analog Outputs / AnOut[1] |
|---|--|--|
|  | <i>For commissioning purposes or for maintenance, Analog Outputs can be set by force. By means of this function the normal Analog Outputs can be overwritten (forced).</i> | |


4.5 LEDs


4.5.1 LEDs group A


LEDs at the left side of the display


4.5.1.1 LEDs group A: Global Parameters

| Latched | | Device Para / LEDs / LED 1 |
|---|--|----------------------------|
| Active | Inactive, Active, active, ack. by alarm | S.3 |
| | ↪ Table | |
|  | <i>Defines whether the LED will be latched when it picks up.</i> | |

| Ack signal | | Device Para / LEDs / LED 1 |
|--|---|----------------------------|
| <ul style="list-style-type: none"> Only available if: Latched = Active | - ... Internal test state | S.3 |
| - | ↪ Table | |
|  | <i>Acknowledgement signal for the LED. If latching is set to active the LED can only be acknowledged if those signals that initiated the setting are no longer present.</i> | |

| LED active color | | Device Para / LEDs / LED 1 |
|---|--|----------------------------|
| red | green, red, red flash, green flash, - | S.3 |
| | ↪ Table | |
|  | <i>The LED lights up in this color if the state of the OR-assignment of the signals is true.</i> | |


| LED inactive color | | Device Para / LEDs / LED 1 |
|---|--|----------------------------|
| - | green, red, red flash, green flash, - | S.3 |
| | ↪ Table | |
|  | <i>The LED lights up in this color if the state of the OR-assignment of the signals is untrue.</i> | |

| Assignment 1 | | Device Para / LEDs / LED 1 |
|---|---------------------------|----------------------------|
| TripCmd | - ... Internal test state | S.3 |
| | ↪ Table | |
|  | <i>Assignment</i> | |


| Inverting 1 | | Device Para / LEDs / LED 1 |
|---|---|----------------------------|
| Inactive | Inactive, Active | S.3 |
| | ↪ Table | |
|  | <i>Inverting of the state of the assigned signal.</i> | |


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4.5.1.1 LEDs group A: Global Parameters


| Assignment 2 | | Device Para / LEDs / LED 1 |
|---|---------------------------|----------------------------|
| - | - ... Internal test state | S.3 |
| | | ↪ Table |
|  | <i>Assignment</i> | |


| Inverting 2 | | Device Para / LEDs / LED 1 |
|---|---|----------------------------|
| Inactive | Inactive, Active | S.3 |
| | | ↪ Table |
|  | <i>Inverting of the state of the assigned signal.</i> | |

| Assignment 3 | | Device Para / LEDs / LED 1 |
|---|---------------------------|----------------------------|
| - | - ... Internal test state | S.3 |
| | | ↪ Table |
|  | <i>Assignment</i> | |

| Inverting 3 | | Device Para / LEDs / LED 1 |
|---|---|----------------------------|
| Inactive | Inactive, Active | S.3 |
| | | ↪ Table |
|  | <i>Inverting of the state of the assigned signal.</i> | |

| Assignment 4 | | Device Para / LEDs / LED 1 |
|---|---------------------------|----------------------------|
| - | - ... Internal test state | S.3 |
| | | ↪ Table |
|  | <i>Assignment</i> | |

| Inverting 4 | | Device Para / LEDs / LED 1 |
|---|---|----------------------------|
| Inactive | Inactive, Active | S.3 |
| | | ↪ Table |
|  | <i>Inverting of the state of the assigned signal.</i> | |

| Assignment 5 | | Device Para / LEDs / LED 1 |
|---|---------------------------|----------------------------|
| - | - ... Internal test state | S.3 |
| | | ↪ Table |
|  | <i>Assignment</i> | |


| Inverting 5 | | Device Para / LEDs / LED 1 |
|--------------------|-------------------------|----------------------------|
| Inactive | Inactive, Active | S.3 |
| | ↩ Table | |

 *Inverting of the state of the assigned signal.*

| Latched | | Device Para / LEDs / LED 2 |
|----------------|---|----------------------------|
| Active | Inactive, Active, active, ack. by alarm | S.3 |
| | ↩ Table | |

 *Defines whether the LED will be latched when it picks up.*

| Ack signal | | Device Para / LEDs / LED 2 |
|--|---------------------------|----------------------------|
| <ul style="list-style-type: none"> Only available if: Latched = Active | - ... Internal test state | S.3 |
| - | ↩ Table | |

 *Acknowledgement signal for the LED. If latching is set to active the LED can only be acknowledged if those signals that initiated the setting are no longer present.*

| LED active color | | Device Para / LEDs / LED 2 |
|-------------------------|---------------------------------------|----------------------------|
| red | green, red, red flash, green flash, - | S.3 |
| | ↩ Table | |

 *The LED lights up in this color if the state of the OR-assignment of the signals is true.*

| LED inactive color | | Device Para / LEDs / LED 2 |
|---------------------------|---------------------------------------|----------------------------|
| - | green, red, red flash, green flash, - | S.3 |
| | ↩ Table | |

 *The LED lights up in this color if the state of the OR-assignment of the signals is untrue.*

| Assignment 1 | | Device Para / LEDs / LED 2 |
|---------------------|---------------------------|----------------------------|
| Alarm | - ... Internal test state | S.3 |
| | ↩ Table | |


 *Assignment*


| Inverting 1 | | Device Para / LEDs / LED 2 |
|--------------------|-------------------------|----------------------------|
| Inactive | Inactive, Active | S.3 |
| | ↩ Table | |


 *Inverting of the state of the assigned signal.*

4 Hardware


4.5.1.1 LEDs group A: Global Parameters


| Assignment 2 | | Device Para / LEDs / LED 2 | |
|---|---------------------------|----------------------------|-----|
| - | - ... Internal test state | | S.3 |
| | ↩ Table | | |
|  | <i>Assignment</i> | | |


| Inverting 2 | | Device Para / LEDs / LED 2 | |
|---|---|----------------------------|-----|
| Inactive | Inactive, Active | | S.3 |
| | ↩ Table | | |
|  | <i>Inverting of the state of the assigned signal.</i> | | |








| Assignment 3 | | Device Para / LEDs / LED 2 | |
|---|---------------------------|----------------------------|-----|
| - | - ... Internal test state | | S.3 |
| | ↩ Table | | |
|  | <i>Assignment</i> | | |

| Inverting 3 | | Device Para / LEDs / LED 2 | |
|---|---|----------------------------|-----|
| Inactive | Inactive, Active | | S.3 |
| | ↩ Table | | |
|  | <i>Inverting of the state of the assigned signal.</i> | | |

| Assignment 4 | | Device Para / LEDs / LED 2 | |
|---|---------------------------|----------------------------|-----|
| - | - ... Internal test state | | S.3 |
| | ↩ Table | | |
|  | <i>Assignment</i> | | |


| Inverting 4 | | Device Para / LEDs / LED 2 | |
|---|---|----------------------------|-----|
| Inactive | Inactive, Active | | S.3 |
| | ↩ Table | | |
|  | <i>Inverting of the state of the assigned signal.</i> | | |

| Assignment 5 | | Device Para / LEDs / LED 2 | |
|---|---------------------------|----------------------------|-----|
| - | - ... Internal test state | | S.3 |
| | ↩ Table | | |
|  | <i>Assignment</i> | | |


| | | |
|--|---|-----|
| Inverting 5 | Device Para / LEDs / LED 2 | |
| Inactive | Inactive, Active ↪ Table | S.3 |
|  | <i>Inverting of the state of the assigned signal.</i> | |
| Latched | Device Para / LEDs / LED 3 | |
| Active | Inactive, Active, active, ack. by alarm ↪ Table | S.3 |
|  | <i>Defines whether the LED will be latched when it picks up.</i> | |
| Ack signal | Device Para / LEDs / LED 3 | |
| <ul style="list-style-type: none"> Only available if: Latched = Active - | - ... Internal test state ↪ Table | S.3 |
|  | <i>Acknowledgement signal for the LED. If latching is set to active the LED can only be acknowledged if those signals that initiated the setting are no longer present.</i> | |
| LED active color | Device Para / LEDs / LED 3 | |
| red | green, red, red flash, green flash, - ↪ Table | S.3 |
|  | <i>The LED lights up in this color if the state of the OR-assignment of the signals is true.</i> | |
| LED inactive color | Device Para / LEDs / LED 3 | |
| - | green, red, red flash, green flash, - ↪ Table | S.3 |
|  | <i>The LED lights up in this color if the state of the OR-assignment of the signals is untrue.</i> | |
| Assignment 1 | Device Para / LEDs / LED 3 | |
| Alarm | - ... Internal test state ↪ Table | S.3 |
|  | <i>Assignment</i> | |
| Inverting 1 | Device Para / LEDs / LED 3 | |
| Inactive | Inactive, Active ↪ Table | S.3 |
|  | <i>Inverting of the state of the assigned signal.</i> | |

4 Hardware


4.5.1.1 LEDs group A: Global Parameters


| Assignment 2 | | Device Para / LEDs / LED 3 |
|---|--|----------------------------|
| Alarm | - ... Internal test state Table | S.3 |
|  <i>Assignment</i> | | |


| Inverting 2 | | Device Para / LEDs / LED 3 |
|---|---|----------------------------|
| Inactive | Inactive, Active Table | S.3 |
|  <i>Inverting of the state of the assigned signal.</i> | | |

| Assignment 3 | | Device Para / LEDs / LED 3 |
|---|--|----------------------------|
| - | - ... Internal test state Table | S.3 |
|  <i>Assignment</i> | | |


| Inverting 3 | | Device Para / LEDs / LED 3 |
|---|---|----------------------------|
| Inactive | Inactive, Active Table | S.3 |
|  <i>Inverting of the state of the assigned signal.</i> | | |


| Assignment 4 | | Device Para / LEDs / LED 3 |
|---|--|----------------------------|
| - | - ... Internal test state Table | S.3 |
|  <i>Assignment</i> | | |


| Inverting 4 | | Device Para / LEDs / LED 3 |
|---|---|----------------------------|
| Inactive | Inactive, Active Table | S.3 |
|  <i>Inverting of the state of the assigned signal.</i> | | |


| Assignment 5 | | Device Para / LEDs / LED 3 |
|---|--|----------------------------|
| - | - ... Internal test state Table | S.3 |
|  <i>Assignment</i> | | |


| Inverting 5 | | Device Para / LEDs / LED 3 |
|---|---|----------------------------|
| Inactive | Inactive, Active ↪ Table | S.3 |
|  <i>Inverting of the state of the assigned signal.</i> | | |

| Latched | | Device Para / LEDs / LED 4 |
|--|--|----------------------------|
| Active | Inactive, Active, active, ack. by alarm ↪ Table | S.3 |
|  <i>Defines whether the LED will be latched when it picks up.</i> | | |

| Ack signal | | Device Para / LEDs / LED 4 |
|---|--|----------------------------|
| <ul style="list-style-type: none"> Only available if: Latched = Active - | - ... Internal test state ↪ Table | S.3 |
|  <i>Acknowledgement signal for the LED. If latching is set to active the LED can only be acknowledged if those signals that initiated the setting are no longer present.</i> | | |

| LED active color | | Device Para / LEDs / LED 4 |
|--|--|----------------------------|
| red | green, red, red flash, green flash, - ↪ Table | S.3 |
|  <i>The LED lights up in this color if the state of the OR-assignment of the signals is true.</i> | | |


| LED inactive color | | Device Para / LEDs / LED 4 |
|--|--|----------------------------|
| - | green, red, red flash, green flash, - ↪ Table | S.3 |
|  <i>The LED lights up in this color if the state of the OR-assignment of the signals is untrue.</i> | | |

| Assignment 1 | | Device Para / LEDs / LED 4 |
|---|--|----------------------------|
| Blo | - ... Internal test state ↪ Table | S.3 |
|  <i>Assignment</i> | | |


| Inverting 1 | | Device Para / LEDs / LED 4 |
|---|---|----------------------------|
| Inactive | Inactive, Active ↪ Table | S.3 |
|  <i>Inverting of the state of the assigned signal.</i> | | |

4 Hardware


4.5.1.1 LEDs group A: Global Parameters


| Assignment 2 | | Device Para / LEDs / LED 4 |
|---|--|----------------------------|
| - | - ... Internal test state ↪ Table | S.3 |
|  <i>Assignment</i> | | |


| Inverting 2 | | Device Para / LEDs / LED 4 |
|---|---|----------------------------|
| Inactive | Inactive, Active ↪ Table | S.3 |
|  <i>Inverting of the state of the assigned signal.</i> | | |

| Assignment 3 | | Device Para / LEDs / LED 4 |
|---|--|----------------------------|
| - | - ... Internal test state ↪ Table | S.3 |
|  <i>Assignment</i> | | |


| Inverting 3 | | Device Para / LEDs / LED 4 |
|---|---|----------------------------|
| Inactive | Inactive, Active ↪ Table | S.3 |
|  <i>Inverting of the state of the assigned signal.</i> | | |


| Assignment 4 | | Device Para / LEDs / LED 4 |
|---|--|----------------------------|
| - | - ... Internal test state ↪ Table | S.3 |
|  <i>Assignment</i> | | |


| Inverting 4 | | Device Para / LEDs / LED 4 |
|---|---|----------------------------|
| Inactive | Inactive, Active ↪ Table | S.3 |
|  <i>Inverting of the state of the assigned signal.</i> | | |


| Assignment 5 | | Device Para / LEDs / LED 4 |
|---|--|----------------------------|
| - | - ... Internal test state ↪ Table | S.3 |
|  <i>Assignment</i> | | |


| Inverting 5 | | Device Para / LEDs / LED 4 |
|---|---|----------------------------|
| Inactive | Inactive, Active ↪ Table | S.3 |
|  <i>Inverting of the state of the assigned signal.</i> | | |

| Latched | | Device Para / LEDs / LED 5 |
|--|--|----------------------------|
| Inactive | Inactive, Active, active, ack. by alarm ↪ Table | S.3 |
|  <i>Defines whether the LED will be latched when it picks up.</i> | | |

| Ack signal | | Device Para / LEDs / LED 5 |
|---|--|----------------------------|
| <ul style="list-style-type: none"> Only available if: Latched = Active - | - ... Internal test state ↪ Table | S.3 |
|  <i>Acknowledgement signal for the LED. If latching is set to active the LED can only be acknowledged if those signals that initiated the setting are no longer present.</i> | | |

| LED active color | | Device Para / LEDs / LED 5 |
|--|--|----------------------------|
| red flash | green, red, red flash, green flash, - ↪ Table | S.3 |
|  <i>The LED lights up in this color if the state of the OR-assignment of the signals is true.</i> | | |


| LED inactive color | | Device Para / LEDs / LED 5 |
|--|--|----------------------------|
| - | green, red, red flash, green flash, - ↪ Table | S.3 |
|  <i>The LED lights up in this color if the state of the OR-assignment of the signals is untrue.</i> | | |

| Assignment 1 | | Device Para / LEDs / LED 5 |
|---|--|----------------------------|
| Start | - ... Internal test state ↪ Table | S.3 |
|  <i>Assignment</i> | | |


| Inverting 1 | | Device Para / LEDs / LED 5 |
|---|---|----------------------------|
| Inactive | Inactive, Active ↪ Table | S.3 |
|  <i>Inverting of the state of the assigned signal.</i> | | |


4 Hardware


4.5.1.1 LEDs group A: Global Parameters


| Assignment 2 | | Device Para / LEDs / LED 5 |
|---|---------------------------|----------------------------|
| - | - ... Internal test state | S.3 |
| | | ↪ Table |
|  | <i>Assignment</i> | |


| Inverting 2 | | Device Para / LEDs / LED 5 |
|---|---|----------------------------|
| Inactive | Inactive, Active | S.3 |
| | | ↪ Table |
|  | <i>Inverting of the state of the assigned signal.</i> | |

| Assignment 3 | | Device Para / LEDs / LED 5 |
|---|---------------------------|----------------------------|
| - | - ... Internal test state | S.3 |
| | | ↪ Table |
|  | <i>Assignment</i> | |


| Inverting 3 | | Device Para / LEDs / LED 5 |
|---|---|----------------------------|
| Inactive | Inactive, Active | S.3 |
| | | ↪ Table |
|  | <i>Inverting of the state of the assigned signal.</i> | |


| Assignment 4 | | Device Para / LEDs / LED 5 |
|---|---------------------------|----------------------------|
| - | - ... Internal test state | S.3 |
| | | ↪ Table |
|  | <i>Assignment</i> | |


| Inverting 4 | | Device Para / LEDs / LED 5 |
|---|---|----------------------------|
| Inactive | Inactive, Active | S.3 |
| | | ↪ Table |
|  | <i>Inverting of the state of the assigned signal.</i> | |


| Assignment 5 | | Device Para / LEDs / LED 5 |
|---|---------------------------|----------------------------|
| - | - ... Internal test state | S.3 |
| | | ↪ Table |
|  | <i>Assignment</i> | |


| Inverting 5 | | Device Para / LEDs / LED 5 |
|---|---|----------------------------|
| Inactive | Inactive, Active ↪ Table | S.3 |
|  <i>Inverting of the state of the assigned signal.</i> | | |

| Latched | | Device Para / LEDs / LED 6 |
|--|--|----------------------------|
| Inactive | Inactive, Active, active, ack. by alarm ↪ Table | S.3 |
|  <i>Defines whether the LED will be latched when it picks up.</i> | | |

| Ack signal | | Device Para / LEDs / LED 6 |
|---|--|----------------------------|
| <ul style="list-style-type: none"> Only available if: Latched = Active - | - ... Internal test state ↪ Table | S.3 |
|  <i>Acknowledgement signal for the LED. If latching is set to active the LED can only be acknowledged if those signals that initiated the setting are no longer present.</i> | | |

| LED active color | | Device Para / LEDs / LED 6 |
|--|--|----------------------------|
| red | green, red, red flash, green flash, - ↪ Table | S.3 |
|  <i>The LED lights up in this color if the state of the OR-assignment of the signals is true.</i> | | |


| LED inactive color | | Device Para / LEDs / LED 6 |
|--|--|----------------------------|
| - | green, red, red flash, green flash, - ↪ Table | S.3 |
|  <i>The LED lights up in this color if the state of the OR-assignment of the signals is untrue.</i> | | |

| Assignment 1 | | Device Para / LEDs / LED 6 |
|---|--|----------------------------|
| Run | - ... Internal test state ↪ Table | S.3 |
|  <i>Assignment</i> | | |


| Inverting 1 | | Device Para / LEDs / LED 6 |
|---|---|----------------------------|
| Inactive | Inactive, Active ↪ Table | S.3 |
|  <i>Inverting of the state of the assigned signal.</i> | | |

4 Hardware


4.5.1.1 LEDs group A: Global Parameters

| | | | |
|---|---------------------------|----------------------------|-----|
| Assignment 2 | | Device Para / LEDs / LED 6 | |
| - | - ... Internal test state | | S.3 |
| | ↪ Table | | |
|  | <i>Assignment</i> | | |


| | | | |
|---|---|----------------------------|-----|
| Inverting 2 | | Device Para / LEDs / LED 6 | |
| Inactive | Inactive, Active | | S.3 |
| | ↪ Table | | |
|  | <i>Inverting of the state of the assigned signal.</i> | | |

| | | | |
|---|---------------------------|----------------------------|-----|
| Assignment 3 | | Device Para / LEDs / LED 6 | |
| - | - ... Internal test state | | S.3 |
| | ↪ Table | | |
|  | <i>Assignment</i> | | |


| | | | |
|---|---|----------------------------|-----|
| Inverting 3 | | Device Para / LEDs / LED 6 | |
| Inactive | Inactive, Active | | S.3 |
| | ↪ Table | | |
|  | <i>Inverting of the state of the assigned signal.</i> | | |


| | | | |
|---|---------------------------|----------------------------|-----|
| Assignment 4 | | Device Para / LEDs / LED 6 | |
| - | - ... Internal test state | | S.3 |
| | ↪ Table | | |
|  | <i>Assignment</i> | | |


| | | | |
|---|---|----------------------------|-----|
| Inverting 4 | | Device Para / LEDs / LED 6 | |
| Inactive | Inactive, Active | | S.3 |
| | ↪ Table | | |
|  | <i>Inverting of the state of the assigned signal.</i> | | |


| | | | |
|---|---------------------------|----------------------------|-----|
| Assignment 5 | | Device Para / LEDs / LED 6 | |
| - | - ... Internal test state | | S.3 |
| | ↪ Table | | |
|  | <i>Assignment</i> | | |


| Inverting 5 | | Device Para / LEDs / LED 6 |
|---|---|----------------------------|
| Inactive | Inactive, Active | S.3 |
| | ↪ Table | |
|  | <i>Inverting of the state of the assigned signal.</i> | |

| Latched | | Device Para / LEDs / LED 7 |
|---|--|----------------------------|
| Inactive | Inactive, Active, active, ack. by alarm | S.3 |
| | ↪ Table | |
|  | <i>Defines whether the LED will be latched when it picks up.</i> | |

| Ack signal | | Device Para / LEDs / LED 7 |
|--|---|----------------------------|
| <ul style="list-style-type: none"> Only available if: Latched = Active | - ... Internal test state | S.3 |
| - | ↪ Table | |
|  | <i>Acknowledgement signal for the LED. If latching is set to active the LED can only be acknowledged if those signals that initiated the setting are no longer present.</i> | |

| LED active color | | Device Para / LEDs / LED 7 |
|---|--|----------------------------|
| green | green, red, red flash, green flash, - | S.3 |
| | ↪ Table | |
|  | <i>The LED lights up in this color if the state of the OR-assignment of the signals is true.</i> | |


| LED inactive color | | Device Para / LEDs / LED 7 |
|---|--|----------------------------|
| - | green, red, red flash, green flash, - | S.3 |
| | ↪ Table | |
|  | <i>The LED lights up in this color if the state of the OR-assignment of the signals is untrue.</i> | |

| Assignment 1 | | Device Para / LEDs / LED 7 |
|---|---------------------------|----------------------------|
| Stop | - ... Internal test state | S.3 |
| | ↪ Table | |
|  | <i>Assignment</i> | |


| Inverting 1 | | Device Para / LEDs / LED 7 |
|---|---|----------------------------|
| Inactive | Inactive, Active | S.3 |
| | ↪ Table | |
|  | <i>Inverting of the state of the assigned signal.</i> | |


4 Hardware


4.5.1.1 LEDs group A: Global Parameters

| Assignment 2 | | Device Para / LEDs / LED 7 |
|---|--|----------------------------|
| - | - ... Internal test state Table | S.3 |
|  <i>Assignment</i> | | |


| Inverting 2 | | Device Para / LEDs / LED 7 |
|---|---|----------------------------|
| Inactive | Inactive, Active Table | S.3 |
|  <i>Inverting of the state of the assigned signal.</i> | | |

| Assignment 3 | | Device Para / LEDs / LED 7 |
|---|--|----------------------------|
| - | - ... Internal test state Table | S.3 |
|  <i>Assignment</i> | | |

| Inverting 3 | | Device Para / LEDs / LED 7 |
|---|---|----------------------------|
| Inactive | Inactive, Active Table | S.3 |
|  <i>Inverting of the state of the assigned signal.</i> | | |





| Assignment 4 | | Device Para / LEDs / LED 7 |
|---|--|----------------------------|
| - | - ... Internal test state Table | S.3 |
|  <i>Assignment</i> | | |

| Inverting 4 | | Device Para / LEDs / LED 7 |
|---|---|----------------------------|
| Inactive | Inactive, Active Table | S.3 |
|  <i>Inverting of the state of the assigned signal.</i> | | |

| Assignment 5 | | Device Para / LEDs / LED 7 |
|---|--|----------------------------|
| - | - ... Internal test state Table | S.3 |
|  <i>Assignment</i> | | |

| Inverting 5 | | Device Para / LEDs / LED 7 | |
|---|---|----------------------------|-----|
| Inactive | Inactive, Active | | 5.3 |
| | ↩> Table | | |
|  | <i>Inverting of the state of the assigned signal.</i> | | |


5 Security

-  Modbus . Smart view via Modbus
-  Ctrl . Switching Authority
-  HMI . Conf. Dev. Reset
-  HMI . t-max Edit/Access
- HMI . Conf. Dev. Reset
- Modbus . Smart view via Modbus


5.1 Syslog

Module for sending (device-internal) log messages to some server computer via network (UDP/IP)


5.1.1 Syslog: Device Planning Parameters

| Mode | Device planning / Projected Elements | |
|---|---|-----|
| - | -, use ↪ Table | S.3 |
|  | Syslog [Module for sending (device-internal) log messages to some server computer via network (UDP/IP)], general operation mode | |


5.1.2 Syslog: Global Parameters

| Function | Device Para / Security / Syslog | |
|---|---|-----|
| Inactive | Inactive, Active ↪ Table | S.3 |
|  | Permanent activation or deactivation of module/stage. | |

| IP port number | Device Para / Security / Syslog | |
|---|--|-----|
| 514 | 1 ... 65535 | S.3 |
|  | <p>IP port number.</p> <p>This is the port on which the Syslog server computer listens and receives log messages. (Since the default, port 514, is a general protocol standard it is recommended to keep this default, unless there are network-related or security-related reasons against it.)</p> | |

| IP address, part 1 ... IP address, part 4 | Device Para / Security / Syslog | |
|---|--|-----|
| 0 | 0 ... 255 | S.3 |
|  | <p>IP address (IPv4) of the Syslog server computer, that receives the log messages.</p> <p>IP1.IP2.IP3.IP4</p> | |

5.1.3 Syslog: Signals (Output States)


| Active | Operation / Status Display / Syslog | |
|---|-------------------------------------|--|
|  | Signal: active | |


6 System


System


| Messages | |
|---|---|
|  | <p><i>Internal messages</i></p> <p>This item represents a special dialog. (See the Technical Manual for details.)</p> |


6.1 Sys: Global Parameters


| PSet-Switch | | Protection Para / PSet-Switch |
|---|--|-------------------------------|
| PS1 | PS1, PS2, PS3, PS4, PSS via Inp fct, PSS via Scada | P.2 |
| | | ↩ Table |
|  | <i>Switching Parameter Set</i> | |


| PS1: activated by | | Protection Para / PSet-Switch |
|--|---|-------------------------------|
| ... | | |
| PS4: activated by | | |
| <ul style="list-style-type: none"> Only available if: PSet-Switch = PSS via Inp fct | - ... Maint Mode Inactive | P.2 |
| | | ↩ Table |
| | | - |
|  | <i>This Setting Group will be the active one if: The Parameter Setting Group Switch is set to "Switch via Input" and the other three input functions are inactive at the same time. In case that there is more than one input function active, no Parameter Setting Group Switch will be executed. In case all input functions are inactive, the device will keep working with the Setting Group that was activated lastly.</i> | |


| Ack via »C« key | | Device Para / Acknowledge |
|---|---|---------------------------|
| Ack LEDs w/o passw. | Nothing, Ack LEDs w/o passw., Ack LEDs, Ack LEDs and relays, Ack Everything | P.2 |
| | | ↩ Table |
|  | <i>Select which acknowledgeable elements can be reset via pressing the »C« key.</i> | |


| Remote Reset | | Device Para / Acknowledge |
|---|--|---------------------------|
| Active | Inactive, Active | P.2 |
| | | ↩ Table |
|  | <i>Enables or disables the option to acknowledge from external/remote via signals (assignments) and SCADA.</i> | |


| Ack LED | | Device Para / Acknowledge |
|--|--|---------------------------|
| <ul style="list-style-type: none"> Only available if: Remote Reset = Active | - ... Internal test state Table | S.3 |
|  <i>All acknowledgeable LEDs will be acknowledged if the state of the assigned signal becomes true.</i> | | |


| Ack BO | | Device Para / Acknowledge |
|--|--|---------------------------|
| <ul style="list-style-type: none"> Only available if: Remote Reset = Active | - ... Internal test state Table | S.3 |
|  <i>All acknowledgeable binary output relays will be acknowledged if the state of the assigned signal becomes true.</i> | | |

| Ack Scada | | Device Para / Acknowledge |
|---|--|---------------------------|
| <ul style="list-style-type: none"> Only available if: Remote Reset = Active | - ... Internal test state Table | S.3 |
|  <i>Latched SCADA signals are acknowledged if the state of the assigned signal becomes true.</i> | | |

| Scaling | | Device Para / Measurem Display / General Settings |
|--|--|---|
| Per unit values | Per unit values, Primary values, Secondary values Table | S.3 |
|  <i>Display of the measured values as primary, secondary or per unit values</i> | | |

| Maint Mode | | Service / Maint Mode |
|--|---|----------------------|
| Inactive | Inactive, Activation Manually, Activation via SCADA, Activation via DI Table | S.3 |
|  <i>Activation Mode of the Arc Flash Reduction. Switching into another mode is only possible when no Activation Signal is active (pending).</i> | | |

| Maint Mode Activated by | | Service / Maint Mode |
|---|--|----------------------|
| <ul style="list-style-type: none"> Only available if: Maint Mode = Activation via DI | - ... LE80.Out inverted Table | S.3 |
|  <i>Activation Signal for the Arc Flash Reduction Maintenance Switch</i> | | |

| Program Mode | | Field Para / General Settings |
|--|---|-------------------------------|
| Either Motor Stopped or Running | Either Motor Stopped or Running, Motor Stop | P.2 |
| | | ↪ Table |
|  Program Mode | | |

6.2 Sys: Direct Controls

| Ack BO LED Scd Trips | | Operation / Reset/Acknowledge / Acknowledge |
|---|------------------|---|
| Inactive | Inactive, Active | P.1 |
| | | ↪ Table |
| <input checked="" type="radio"/> Acknowledge (reset) latched binary output relays, LEDs, SCADA and Trips. | | |

| Ack LED | | Operation / Reset/Acknowledge / Acknowledge |
|---|------------------|---|
| Inactive | Inactive, Active | P.1 |
| | | ↪ Table |
| <input checked="" type="radio"/> All acknowledgeable LEDs will be acknowledged. | | |

| Ack BO | | Operation / Reset/Acknowledge / Acknowledge |
|---|------------------|---|
| Inactive | Inactive, Active | P.1 |
| | | ↪ Table |
| <input checked="" type="radio"/> All acknowledgeable binary output relays are acknowledged. | | |

| Ack Scada | | Operation / Reset/Acknowledge / Acknowledge |
|--|------------------|---|
| <ul style="list-style-type: none"> Only available if: Protocol ≠ - Inactive | Inactive, Active | P.1 |
| | | ↪ Table |
| <input checked="" type="radio"/> Latched SCADA signals are acknowledged. | | |

| Res OperationsCr | | Operation / Reset/Acknowledge / History |
|---|------------------|---|
| Inactive | Inactive, Active | P.1 |
| | | ↪ Table |
| <input checked="" type="radio"/> Reset all counters in history group operations | | |


| Res AlarmCr | | Operation / Reset/Acknowledge / History |
|---|------------------|---|
| Inactive | Inactive, Active | P.1 |
| | | ↪ Table |
| <input checked="" type="radio"/> Reset all counters in history group alarms | | |

| | | |
|---|--|-----|
| Res TripCmdCr | Operation / Reset/Acknowledge / History | |
| Inactive | Inactive, Active ↩> Table | P.1 |
|  | <i>Reset all counters in history group Trip Commands</i> | |

| | | |
|---|--|-----|
| Res TotalCr | Operation / Reset/Acknowledge / History | |
| Inactive | Inactive, Active ↩> Table | P.1 |
|  | <i>Reset all counters in history group total</i> | |


| | | |
|---|---|-----|
| Res All | Operation / Reset/Acknowledge / History | |
| Inactive | Inactive, Active ↩> Table | P.1 |
|  | <i>Reset of all Counters</i> | |


| | | |
|---|--|-----|
| Reboot | Service / General | |
| no | no, yes ↩> Table | S.3 |
|  | <i>Rebooting the device.</i> | |

| | | |
|---|---|-----|
| Setting Lock Bypass | Field Para / General Settings | |
| Inactive | Inactive, Active ↩> Table | P.1 |
|  | <i>Short-period unlock of the Setting Lock</i> | |

| | | |
|---|---|-----|
| Reset-FADC | Service / Diagnostic Data / FADC | |
| Inactive | Inactive, Active ↩> Table | P.1 |
|  | <i>Reset: FADC-Counter</i> | |

6.3 Sys: Input States

| | | |
|---|--|--|
| Ack LED-I | Operation / Status Display / Sys | |
|  | <i>Module input state: LEDs acknowledgement by digital input</i> | |

| | | |
|---|--|--|
| Ack BO-I | Operation / Status Display / Sys | |
|  | <i>Module input state: Acknowledgement of the binary Output Relays</i> | |

6 System

6.4 Sys: Signals (Output States)

| | |
|--------------------|----------------------------------|
| Ack Scada-I | Operation / Status Display / Sys |
|--------------------|----------------------------------|

| |
|--|
| <p>↓</p> <ul style="list-style-type: none"> • Only available if: Protocol ≠ - <p><i>Module input state: Acknowledge latched SCADA signals.</i></p> |
|--|

| | |
|-------------------------------------|----------------------------------|
| PS1-I ... PS4-I | Operation / Status Display / Sys |
|-------------------------------------|----------------------------------|

| |
|---|
| <p>↓</p> <p><i>State of the module input respectively of the signal, that should activate this Parameter Setting Group.</i></p> |
|---|

| | |
|---------------------|----------------------------------|
| Maint Mode-I | Operation / Status Display / Sys |
|---------------------|----------------------------------|

| |
|---|
| <p>↓</p> <p><i>Module Input State: Arc Flash Reduction Maintenance Switch</i></p> |
|---|

6.4 Sys: Signals (Output States)

| | |
|---------------|----------------------------------|
| Reboot | Operation / Status Display / Sys |
|---------------|----------------------------------|

| |
|--|
| <p>↓</p> <p><i>Signal: Rebooting the device.</i></p> <p><i>Device Start-up Codes: 1=Normal Start-up; 2=Reboot by the Operator; 3=Reboot by means of Super Reset; 4=outdated; 5=outdated; 6=Unknown Error Source; 7=Forced Reboot (initiated by the main processor); 8=Exceeded Time Limit of the Protection Cycle; 9= Forced Reboot (initiated by the digital signal processor); 10=Exceeded Time Limit of the Measured Value Processing; 11=Sags of the Supply Voltage; 12=Illegal Memory Access.</i></p> |
|--|

| | |
|----------------|---|
| Act Set | Operation / Status Display / Sys Protection Para / PSet-Switch |
|----------------|---|

| |
|---|
| <p>↓</p> <p><i>Signal: Active Parameter Set</i></p> |
|---|

| | |
|-------------|----------------------------------|
| PS 1 | Operation / Status Display / Sys |
|-------------|----------------------------------|

| |
|---|
| <p>↓</p> <p><i>Signal: The currently active Parameter Set is PS 1</i></p> |
|---|

| | |
|-------------|----------------------------------|
| PS 2 | Operation / Status Display / Sys |
|-------------|----------------------------------|

| |
|---|
| <p>↓</p> <p><i>Signal: The currently active Parameter Set is PS 2</i></p> |
|---|

| | |
|-------------|----------------------------------|
| PS 3 | Operation / Status Display / Sys |
|-------------|----------------------------------|

| |
|---|
| <p>↓</p> <p><i>Signal: The currently active Parameter Set is PS 3</i></p> |
|---|











| | |
|-------------|----------------------------------|
| PS 4 | Operation / Status Display / Sys |
|-------------|----------------------------------|

| |
|---|
| <p>↓</p> <p><i>Signal: The currently active Parameter Set is PS 4</i></p> |
|---|

| | |
|----------------------------|--|
| PSS manual | Operation / Status Display / Sys |
| ↑ | <i>Signal: Manual Switch over of a Parameter Set</i> |
| PSS via Scada | Operation / Status Display / Sys |
| ↑ | <ul style="list-style-type: none"> • Only available if: Protocol ≠ - <i>Signal: Parameter Set Switch via Scada. Write into this output byte the integer of the parameter set that should become active (e.g. 4 => Switch onto parameter set 4).</i> |
| PSS via Inp fct | Operation / Status Display / Sys |
| ↑ | <i>Signal: Parameter Set Switch via input function</i> |
| min 1 param changed | Operation / Status Display / Sys |
| ↑ | <i>Signal: At least one parameter has been changed</i> |
| Setting Lock Bypass | Operation / Status Display / Sys |
| ↑ | <i>Signal: Short-period unlock of the Setting Lock</i> |
| Maint Mode Active | Operation / Status Display / Sys |
| ↑ | <i>Signal: Arc Flash Reduction Maintenance Active</i> |
| Maint Mode Inactive | Operation / Status Display / Sys |
| ↑ | <i>Signal: Arc Flash Reduction Maintenance Inactive</i> |
| MaintMode Manually | Operation / Status Display / Sys |
| ↑ | <i>Signal: Arc Flash Reduction Maintenance Manual Mode</i> |
| Maint Mode SCADA | Operation / Status Display / Sys |
| ↑ | <i>Signal: Arc Flash Reduction Maintenance SCADA Mode</i> |
| Maint Mode DI | Operation / Status Display / Sys |
| ↑ | <i>Signal: Arc Flash Reduction Maintenance Digital Input Mode</i> |
| Ack LED | Operation / Status Display / Sys |
| ↑ | <i>Signal: LEDs acknowledgement</i> |
| Ack BO | Operation / Status Display / Sys |
| ↑ | <i>Signal: Acknowledgement of the Binary Outputs</i> |

6 System

6.4 Sys: Signals (Output States)

| | |
|---|--|
| Ack Scada | Operation / Status Display / Sys |
|  | <ul style="list-style-type: none">• Only available if: Protocol ≠ - <p><i>Signal: Acknowledge latched SCADA signals</i></p> |
| Ack TripCmd | Operation / Status Display / Sys |
|  | <p><i>Signal: Reset Trip Command</i></p> |
| Ack LED-HMI | Operation / Status Display / Sys |
|  | <p><i>Signal: LEDs acknowledgement, triggered at the HMI</i></p> |
| Ack BO-HMI | Operation / Status Display / Sys |
|  | <p><i>Signal: Acknowledgement of the Binary Outputs, triggered at the HMI</i></p> |
| Ack Scada-HMI | Operation / Status Display / Sys |
|  | <ul style="list-style-type: none">• Only available if: Protocol ≠ - <p><i>Signal: Acknowledge latched SCADA signals, triggered at the HMI</i></p> |
| Ack TripCmd-HMI | Operation / Status Display / Sys |
|  | <p><i>Signal: Reset Trip Command, triggered at the HMI</i></p> |
| Ack LED-Sca | Operation / Status Display / Sys |
|  | <ul style="list-style-type: none">• Only available if: Protocol ≠ - <p><i>Signal: LEDs acknowledgement, triggered via SCADA</i></p> |
| Ack BO-Sca | Operation / Status Display / Sys |
|  | <ul style="list-style-type: none">• Only available if: Protocol ≠ - <p><i>Signal: Acknowledgement of the Binary Outputs, triggered via SCADA</i></p> |
| Ack Counter-Sca | Operation / Status Display / Sys |
|  | <ul style="list-style-type: none">• Only available if: Protocol ≠ - <p><i>Signal: Reset of all Counters, triggered via SCADA</i></p> |
| Ack Scada-Sca | Operation / Status Display / Sys |
|  | <ul style="list-style-type: none">• Only available if: Protocol ≠ - <p><i>Signal: Acknowledge latched SCADA signals, triggered via SCADA</i></p> |


| | |
|--|----------------------------------|
| Ack TripCmd-Sca | Operation / Status Display / Sys |
| <ul style="list-style-type: none"> • Only available if: Protocol ≠ - <p><i>Signal: Reset Trip Command, triggered via SCADA</i></p> | |
| Res OperationsCr | Operation / Status Display / Sys |
| <i>Signal:: Res OperationsCr</i> | |
| Res AlarmCr | Operation / Status Display / Sys |
| <i>Signal:: Res AlarmCr</i> | |
| Res TripCmdCr | Operation / Status Display / Sys |
| <i>Signal:: Res TripCmdCr</i> | |
| Res TotalCr | Operation / Status Display / Sys |
| <i>Signal:: Res TotalCr</i> | |

6.5 Sys: Values

| | |
|---|-----------------------|
| Bootloader Build | Device Para / Version |
| <i>Build number of the bootloader</i> | |
| Build | Device Para / Version |
| <i>Build Number</i> | |
| SW version | Device Para / Version |
| <i>Version of the device firmware</i> | |
| CAT No | Device Para / Version |
| <i>»CAT No.«, Order Code as printed on the nameplate of the device.</i> | |
| REV. | Device Para / Version |
| <i>Revision (as printed on the nameplate of the device).</i> | |
| S/N | Device Para / Version |
| <i>The serial number of the device.</i> | |




6 System

6.5 Sys: Values

| | |
|---|-------------------------------------|
| DM version | Device Para / Version |
|  <i>Version of the device model</i> | |
| Operating hours Cr | Operation / Count and RevData / Sys |
|  <i>Operating hours counter of the protective device</i> | |
| Hours Counter | Operation / History / TotalCr |
|  <i>Resettable device operation hours counter. Resettable with »Sys . Res TotalCr« or »Sys . Res All«.</i> | |
| FADC_TR | Service / Diagnostic Data / FADC |
|  <i>FADC_TR: total (retain)</i> | |
| FADC_LR | Service / Diagnostic Data / FADC |
|  <i>FADC-LR: long (10min, max, retain)</i> | |
| FADC_MR | Service / Diagnostic Data / FADC |
|  <i>FADC-MR: mid (10s, max, retain)</i> | |
| FADC_SR | Service / Diagnostic Data / FADC |
|  <i>FADC-SR: short(0.2s, max, retain)</i> | |
| FADC_LM | Service / Diagnostic Data / FADC |
|  <i>FADC-LM: long (10min, max, since reset)</i> | |
| FADC_MM | Service / Diagnostic Data / FADC |
|  <i>FADC-MM: mid (10s, max, since reset)</i> | |
| FADC_SM | Service / Diagnostic Data / FADC |
|  <i>FADC-SM: short (0.2s, max, since reset)</i> | |
| FADC_L | Service / Diagnostic Data / FADC |
|  <i>FADC-L: long (10mmin)</i> | |
| FADC_M | Service / Diagnostic Data / FADC |
|  <i>FADC-M: mid (10s)</i> | |
| FADC_S | Service / Diagnostic Data / FADC |
|  <i>FADC-S: short (0.2s)</i> | |

6.6 Sys

System




| Security Logger | |
|---|---|
|  | <p><i>Security-related messages</i></p> <p>This item represents a special dialog. (See the Technical Manual for details.)</p> |
| Password | |
|  | <p><i>Changing the password</i></p> <p>This item represents a special dialog. (See the Technical Manual for details.)</p> |
| Access Level | |
|  | <p><i>Access Level</i></p> <p>This item represents a special dialog. (See the Technical Manual for details.)</p> |

6.6.1 Sys: Direct Controls

| Smart view via USB | | Device Para / Security / Communication |
|----------------------------------|--|--|
| Active | Inactive, Active | S.3 |
| | ↩> Table | |
| <input checked="" type="radio"/> | <i>Activate (allow) or inactivate (disallow) the Smart view access via the USB interface.</i> | |
| Smart view via Eth | | Device Para / Security / Communication |
| Active | Inactive, Active | S.3 |
| | ↩> Table | |
| <input checked="" type="radio"/> | <i>Activate (allow) or inactivate (disallow) the Smart view access via the Ethernet interface.</i> | |

6.6.2 Sys: Values

| Smart view via USB | | Operation / Security / Security States |
|---|--|--|
|  | <i>Information whether or not the Smart view access via the USB interface is activated (allowed).</i> | |
| Smart view via Eth | | Operation / Security / Security States |
|  | <i>Information whether or not the Smart view access via the Ethernet interface is activated (allowed).</i> | |

| | |
|---|--|
| TLS Certificate | Operation / Security / Security States |
|  <i>Type of certificate that the device uses for the encrypted communication. This value is directly related to the security-level of the communication.</i> | |
| Passw.remote net.conn. | Operation / Security / Security States |
|  <i>Type / Security-level of the connection password that is used for a Smart view connection via some network interface.</i> | |
| Passw. for USB conn. | Operation / Security / Security States |
|  <i>Type / Security-level of the connection password that is used for a USB connection.</i> | |

6.7 TimeSync


Time synchronisation

| Date and Time | |
|---|--|
|  | (Re-)setting Date and Time |
| | This item represents a special dialog. (See the Technical Manual for details.) |


6.7.1 TimeSync: Global Parameters







| DST offset | |
|---|---|
| 60min | Device Para / Time / Timezone -180min ... 180min S.3 |
|  | Difference to wintertime |


| DST manual | |
|---|--|
| Active | Device Para / Time / Timezone Inactive, Active S.3 Table |
|  | Manual setting of the Daylight Saving Time |


| Summertime | |
|---|--|
| <ul style="list-style-type: none"> Only available if: DST manual = Active Inactive | Device Para / Time / Timezone Inactive, Active S.3 Table |
|  | Daylight Saving Time |


| Summertime m | |
|--|--|
| <ul style="list-style-type: none"> Only available if: DST manual = Inactive March | Device Para / Time / Timezone January ... December S.3 Table |
|  | Month of clock change summertime |


| Summertime d | |
|---|--|
| <ul style="list-style-type: none"> Only available if: DST manual = Inactive Sunday | Device Para / Time / Timezone Sunday ... General day S.3 Table |
|  | Day of clock change summertime |

| Summertime w | | Device Para / Time / Timezone | |
|--|---|-------------------------------|-----|
| <ul style="list-style-type: none"> Only available if: DST manual = Inactive | First, Second, Third, Fourth, Last | Table | S.3 |
| Last | | | |
|  | <i>Place of selected day in month (for clock change summertime)</i> | | |
| Summertime h | | Device Para / Time / Timezone | |
| <ul style="list-style-type: none"> Only available if: DST manual = Inactive | 0h ... 23h | | S.3 |
| 2h | | | |
|  | <i>Hour of clock change summertime</i> | | |
| Summertime min | | Device Para / Time / Timezone | |
| <ul style="list-style-type: none"> Only available if: DST manual = Inactive | 0min ... 59min | | S.3 |
| 0min | | | |
|  | <i>Minute of clock change summertime</i> | | |
| Wintertime m | | Device Para / Time / Timezone | |
| <ul style="list-style-type: none"> Only available if: DST manual = Inactive | January ... December | Table | S.3 |
| October | | | |
|  | <i>Month of clock change wintertime</i> | | |
| Wintertime d | | Device Para / Time / Timezone | |
| <ul style="list-style-type: none"> Only available if: DST manual = Inactive | Sunday ... General day | Table | S.3 |
| Sunday | | | |
|  | <i>Day of clock change wintertime</i> | | |
| Wintertime w | | Device Para / Time / Timezone | |
| <ul style="list-style-type: none"> Only available if: DST manual = Inactive | First, Second, Third, Fourth, Last | Table | S.3 |
| Last | | | |
|  | <i>Place of selected day in month (for clock change wintertime)</i> | | |


| Wintertime h | | Device Para / Time / Timezone | |
|--|------------|-------------------------------|-----|
| <ul style="list-style-type: none"> Only available if: DST manual = Inactive 3h | 0h ... 23h | | S.3 |
|  <i>Hour of clock change wintertime</i> | | | |

| Wintertime min | | Device Para / Time / Timezone | |
|--|----------------|-------------------------------|-----|
| <ul style="list-style-type: none"> Only available if: DST manual = Inactive 0min | 0min ... 59min | | S.3 |
|  <i>Minute of clock change wintertime</i> | | | |

| Time Zones | | Device Para / Time / Timezone | |
|--|---|-------------------------------|-----|
| UTC+0 London | UTC+14 Kiritimati ... UTC-11 Midway Islands | | S.3 |
| Table | | | |
|  <i>Time Zones</i> | | | |


| TimeSync | | Device Para / Time / TimeSync / TimeSync | |
|---|--|--|-----|
| - | -, IRIG-B, SNTP, Modbus, IEC 60870-5-103, IEC104, DNP3 | | S.3 |
| Table | | | |
|  <i>Time synchronisation</i> | | | |

6.7.2 TimeSync: Signals (Output States)



| synchronized | | Operation / Status Display / TimeSync / TimeSync | |
|---|--|--|--|
|  <i>Clock is synchronized.</i> | | | |

7 Communication

7.1 Scada: Device Planning Parameters

| Protocol | Device planning / Projected Elements | |
|---|--|-----|
| - | - ... Profibus Table | S.3 |
|  | <i>Select the SCADA protocol to be used.</i> | |


7.2 Scada: Signals (Output States)


| SCADA connected | Operation / Status Display / Scada | |
|---|--|--|
|  | <i>At least one SCADA System is connected to the device.</i> | |
| SCADA not connected | Operation / Status Display / Scada | |
|  | <i>No SCADA System is connected to the device</i> | |


7.3 Tcplp

| TCP/IP config | |
|---|--|
|  | <p><i>configuration of the TCP/IP protocol</i></p> <p>This item represents a special dialog. (See the Technical Manual for details.)</p> |

7.3.1 Tcplp: Global Parameters

| Keep Alive Time | Device Para / TCP/IP / Advanced Settings | |
|---|---|-----|
| 720s | 1s ... 7200s | S.3 |
|  | <i>Keep Alive Time is the duration between two keep alive transmissions in idle condition</i> | |


| Keep Alive Interval | Device Para / TCP/IP / Advanced Settings | |
|---|---|-----|
| 15s | 1s ... 60s | S.3 |
|  | <i>Keep Alive Interval is the duration between two successive keep alive retransmissions, if the acknowledgement to the previous keepalive transmission was not received.</i> | |


| Keep Alive Retry | Device Para / TCP/IP / Advanced Settings | |
|---|---|-----|
| 3 | 3 ... 3 | S.3 |
|  | <i>Keep alive retry is the number of retransmissions to be carried out before declaring that the remote end is not available.</i> | |


7.4 DNP3


Distributed Network Protocol


7.4.1 DNP3: Global Parameters

| Function | Device Para / DNP3 / Communication | |
|---|--|-----|
| Inactive | Inactive, Active ↪ Table | S.3 |
|  | <i>Permanent activation or deactivation of module/stage.</i> | |


| IP Port Number | Device Para / DNP3 / Communication | |
|--|---|-----|
| Only available if: <ul style="list-style-type: none"> • Protocol = DNP3 TCP • Protocol = DNP3 UDP 20000 | 0 ... 65535 ↪ Table | S.3 |
|  | <i>IP Port Number.</i> <i>In general it is recommended to keep the default value. If this is not possible then select a number out of the private range 49152-52151 or 52164-65535 that is not yet in use within your network.</i> | |


| Baud rate | Device Para / DNP3 / Communication | |
|--|--|-----|
| <ul style="list-style-type: none"> • Only available if: Protocol = DNP3 RTU 19200 | 1200 ... 115200 ↪ Table | S.3 |
|  | <i>Baud rate for communication</i> | |


| Frame Layout | Device Para / DNP3 / Communication | |
|--|---|-----|
| <ul style="list-style-type: none"> • Only available if: Protocol = DNP3 RTU 8E1 | 8E1, 8O1, 8N1, 8N2 ↪ Table | S.3 |
|  | <i>Frame Layout</i> | |

| Optical rest position | Device Para / DNP3 / Communication | |
|---|--|-----|
| Light on | Light off, Light on ↪ Table | S.3 |
|  | <i>Optical rest position</i> | |


| SelfAddress | | Device Para / DNP3 / Communication | |
|---|--|------------------------------------|-----|
| Inactive | Inactive, Active | | S.3 |
| | ↪ Table | | |
|  | <i>Support of self (automatic) addresses</i> | | |


| DataLink confirm | | Device Para / DNP3 / Communication | |
|---|---|------------------------------------|-----|
| Never | Never, Always, On_Large | | S.3 |
| | ↪ Table | | |
|  | <i>Enables or disables the data layer confirmation (ack).</i> | | |


| t-DataLink confirm | | Device Para / DNP3 / Communication | |
|---|--|------------------------------------|-----|
| 1s | 0.1s ... 10.0s | | S.3 |
|  | <i>Data layer confirmation timeout</i> | | |


| DataLink num retries | | Device Para / DNP3 / Communication | |
|---|---|------------------------------------|-----|
| 3 | 0 ... 255 | | S.3 |
|  | <i>Number of repetition of data link packet sending after failing</i> | | |


| Direction Bit | | Device Para / DNP3 / Communication | |
|---|---|------------------------------------|-----|
| Inactive | Inactive, Active | | S.3 |
| | ↪ Table | | |
|  | <i>Enables Direction Bit functionality. The Direction Bit is 0 for SlaveStation and 1 for MasterStation</i> | | |


| Max Frame Size | | Device Para / DNP3 / Communication | |
|---|---|------------------------------------|-----|
| 255 | 64 ... 255 | | S.3 |
|  | <i>This value is used to limit the net Frame Size</i> | | |


| Test Link Period | | Device Para / DNP3 / Communication | |
|---|--|------------------------------------|-----|
| 0s | 0.0s ... 120.0s | | S.3 |
|  | <i>This value specifies the time period when to send a Test Link-Frame</i> | | |


| AppLink confirm | | Device Para / DNP3 / Communication | |
|---|--|------------------------------------|-----|
| Always | Never, Always, Event | | S.3 |
| | ↪ Table | | |
|  | <i>Determines if the device will request that the Application Layer response be confirmed or not</i> | | |


| t-AppLink confirm | | Device Para / DNP3 / Communication | |
|---|---|------------------------------------|-----|
| 5s | | 0.1s ... 10.0s | S.3 |
|  | <i>Application layer response timeout</i> | | |

| AppLink num retries | | Device Para / DNP3 / Communication | |
|---|---|------------------------------------|-----|
| 0 | | 0 ... 255 | S.3 |
|  | <i>The number of times the device will retransmit an Application Layer fragment</i> | | |


| Unsol Reporting | | Device Para / DNP3 / Communication | |
|---|---|---|-----|
| Inactive | | Inactive, Active ↳ Table | S.3 |
|  | <i>Enables unsolicited reporting. This is available only for DNP3 TCP connections, and for DNP3 RTU in case of a peer-to-peer connection.</i> | | |

| Unsol Reporting Timeout | | Device Para / DNP3 / Communication | |
|--|--|------------------------------------|-----|
| <ul style="list-style-type: none"> Only available if: Protocol ≠ DNP3 UDP 10s | | 1.0s ... 60.0s | S.3 |
|  | <i>Set the amount of time that the outstation will wait for an Application Layer confirmation back from the master indicating that the master received the unsolicited response message.</i> | | |


| Unsol Reporting Retry | | Device Para / DNP3 / Communication | |
|--|---|------------------------------------|-----|
| <ul style="list-style-type: none"> Only available if: Protocol ≠ DNP3 UDP 2 | | 0 ... 255 | S.3 |
|  | <i>Set the number of retries that an outstation transmits in each unsolicited response series if it does not receive confirmation back from the master.</i> | | |


| TestSeqNo | | Device Para / DNP3 / Communication | |
|---|---|---|-----|
| Inactive | | Inactive, Active ↳ Table | S.3 |
|  | <i>Test if sequence number of request is incremented. If it is not correctly incremented the request will be ignored. It is recommended to have it inactive but some older DNP implementations need it activated.</i> | | |


| TestSBO | | Device Para / DNP3 / Communication | |
|---|--|---|-----|
| Active | | Inactive, Active ↳ Table | S.3 |
|  | <i>It enables a stricter comparing of SBO and operate command. For older DNP versions it is recommended to deactivated it.</i> | | |


| | | |
|---|--|-----|
| Timeout SBO | Device Para / DNP3 / Communication | |
| 30s | 1.0s ... 60.0s | S.3 |
|  | <i>DNP Outputs can be controlled in a two stage procedure (SBO: Select Before Operate). These outputs are to be selected first by a Select command. After this the bit is reserved for this Operate request. This setting defines the timer for this reservation: After the timer has elapsed the bit is released.</i> | |


| | | |
|---|---|-----|
| ColdRestart | Device Para / DNP3 / Communication | |
| Inactive | Inactive, Active ↳ Table | S.3 |
|  | <i>Enables support for Cold Restart function.</i> | |


| | | |
|---|------------------------------------|-----|
| Deadb integr time | Device Para / DNP3 / Communication | |
| 1 | 0 ... 300 | S.3 |
|  | <i>Deadband integration time.</i> | |


| | | |
|---|---|-----|
| BinaryInput 0 ... BinaryInput 63 | Device Para / DNP3 / Point map / Binary Inputs | |
| - | - ... Internal test state ↳ Table | S.3 |
|  | <i>Virtual Digital Input (DNP). This corresponds to a virtual binary output of the protective device.</i> | |

| | | |
|---|---|-----|
| DoubleBitInput 0 ... DoubleBitInput 5 | Device Para / DNP3 / Point map / Double Bit Inputs | |
| - | -, Pos ↳ Table | S.3 |
|  | <i>Double Bit Digital Input (DNP). This corresponds to a double bit binary output of the protective device.</i> | |


| | | |
|---|--|-----|
| BinaryCounter 0 ... BinaryCounter 7 | Device Para / DNP3 / Point map / BinaryCounter | |
| - | - ... Hours Counter ↳ Table | S.3 |
|  | <i>Counter can be used to report counter values to the DNP master.</i> | |


| | | |
|---|--|-----|
| Analog value 0 ... | Device Para / DNP3 / Point map / Analog Input | |
| Analog value 31 | | |
| - | - ... Hottest Aux Temp ↳ Table | S.3 |
|  | <i>Analog value can be used to report values to the master (DNP)</i> | |

| | | |
|---|--|-----|
| Scale Factor 0 ... | Device Para / DNP3 / Point map / Analog Input | |
| Scale Factor 31 | | |
| 1 | 0.001 ... 1000000 ↳ Table | S.3 |
|  | <i>The scale factor is used to convert the measured value in an integer format</i> | |

| | | |
|---|--|-----|
| Dead Band 0 ... | Device Para / DNP3 / Point map / Analog Input | |
| Dead Band 31 | | |
| 1% | 0.01% ... 100.00% | S.3 |
|  | <i>If a change of measured value is greater than the deadband value it will be reported to the master.</i> | |

7.4.2 DNP3: Direct Controls

| | | |
|---|---|-----|
| Res all Diag Cr | Operation / Count and RevData / DNP3 Operation / Reset/Acknowledge / Reset | |
| Inactive | Inactive, Active ↳ Table | S.3 |
|  | <i>Reset all diagnosis counters</i> | |

| | | |
|---|---|-----|
| Slave Id | Device Para / DNP3 / Communication | |
| 1 | 0 ... 65519 | S.3 |
|  | <i>Slaveld defines the DNP3 address of this device (Outstation)</i> | |

| | | |
|---|--|-----|
| Master Id | Device Para / DNP3 / Communication | |
| 65500 | 0 ... 65519 | S.3 |
|  | <i>MasterId defines the DNP3 address of master (SCADA)</i> | |

7.4.3 DNP3: Input States

| | |
|--|---|
| BinaryInput0-I ... BinaryInput15-I (↪ DNP3 . BinaryInput 0) | Operation / Status Display / DNP3 / Binary Inputs |
| ↓ | <i>Virtual Digital Input (DNP). This corresponds to a virtual binary output of the protective device.</i> |

| | |
|---|---|
| BinaryInput16-I ... BinaryInput31-I | Operation / Status Display / DNP3 / Binary Inputs |
| ↓ | <i>Virtual Digital Input (DNP). This corresponds to a virtual binary output of the protective device.</i> |

| | |
|---|---|
| BinaryInput32-I ... BinaryInput47-I | Operation / Status Display / DNP3 / Binary Inputs |
| ↓ | <i>Virtual Digital Input (DNP). This corresponds to a virtual binary output of the protective device.</i> |

| | |
|---|---|
| BinaryInput48-I ... BinaryInput63-I | Operation / Status Display / DNP3 / Binary Inputs |
| ↓ | <i>Virtual Digital Input (DNP). This corresponds to a virtual binary output of the protective device.</i> |

| | |
|--|---|
| DoubleBitInput0-I ... DoubleBitInput5-I (↪ DNP3 . DoubleBitInput 0) | Operation / Status Display / DNP3 / Double Bit Inputs |
| ↓ | <i>Double Bit Digital Input (DNP). This corresponds to a double bit binary output of the protective device.</i> |

7.4.4 DNP3: Signals (Output States)

| | |
|-------------------|---|
| busy | Operation / Status Display / DNP3 / State |
| ↑ | <i>This message is set if the protocol is started. It will be reset if the protocol is shut down.</i> |

| | |
|-------------------|---|
| ready | Operation / Status Display / DNP3 / State |
| ↑ | <i>The message will be set if the protocol is successfully started and ready for data exchange.</i> |

| | |
|---------------|---|
| Active | Operation / Status Display / DNP3 / State |
| ↑ | <i>The communication with the Master (SCADA) is active.</i> |
| | <i>Note that for TCP/UDP, this state is permanently "Low" unless »DataLink confirm« is set to "Always".</i> |

7.4.5 DNP3: Counters

| | |
|------------------|--|
| NReceived | Operation / Count and RevData / DNP3 |
| # | <i>Diagnostic counter: Number of received characters</i> |

| | |
|--------------|--|
| NSent | Operation / Count and RevData / DNP3 |
| # | <i>Diagnostic counter: Number of sent characters</i> |

| | |
|---------------------|--|
| NBadFramings | Operation / Count and RevData / DNP3 |
| # | <i>Diagnostic counter: Number of bad framings. A large number indicates a disturbed serial connection.</i> |


| | |
|---------------------|---|
| NBadParities | Operation / Count and RevData / DNP3 |
| # | <i>Diagnostic counter: Number of parity errors. A large number indicates a disturbed serial connection.</i> |


| | |
|----------------------|---|
| NBreakSignals | Operation / Count and RevData / DNP3 |
| # | <i>Diagnostic counter: Number of break signals. A large number indicates a disturbed serial connection.</i> |


| | |
|---------------------|---|
| NBadChecksum | Operation / Count and RevData / DNP3 |
| # | <i>Diagnostic counter: Number of frames received with bad checksum.</i> |


7.5 Modbus


7.5.1 Modbus: Global Parameters


| TCP Port Config | | Device Para / Modbus / Communication / TCP |
|--|---|--|
| Only available if: | Default, Private | S.3 |
| <ul style="list-style-type: none"> • Protocol = Modbus TCP • Protocol = Modbus TCP/RTU | ↪ Table | |
| Default | | |
|  | <i>TCP Port Configuration. This parameter needs to be set to "Private" only if another TCP Port than the default one shall be used.</i> | |


| Port | | Device Para / Modbus / Communication / TCP |
|--|---|--|
| Only available if: | Adjustable range: | S.3 |
| <ul style="list-style-type: none"> • Protocol = Modbus TCP • Protocol = Modbus TCP/RTU | <ul style="list-style-type: none"> • 502 ... 502, If: TCP Port Config = Default • 49152 ... 65535, If: TCP Port Config = Private | |
| 502 | | |
|  | <i>IP Port Number.</i> | |
| | <i>In general it is recommended to keep the default value. if this is not possible then select a number out of the private range 49152-52151 or 52164-65535 that is not yet in use within your network.</i> | |


| t-timeout | | Device Para / Modbus / Communication / RTU |
|--|--|--|
| Only available if: | 0.01s ... 10.00s | S.3 |
| <ul style="list-style-type: none"> • Protocol = Modbus RTU • Protocol = Modbus TCP/RTU | | |
| 2s | | |
|  | <i>Maximum time that is available to the device for sending an answer to the SCADA system. If the device detects that this time has elapsed (i.e. it failed to send its answer within this time) then it cancels the answer. The time set here must not be longer than the corresponding timeout set for the SCADA system.</i> | |


| Baud rate | | Device Para / Modbus / Communication / RTU |
|--|--------------------------------------|--|
| Only available if: | 1200, 2400, 4800, 9600, 19200, 38400 | S.3 |
| <ul style="list-style-type: none"> • Protocol = Modbus RTU • Protocol = Modbus TCP/RTU | ↪ Table | |
| 19200 | | |
|  | <i>Baud rate</i> | |


| Physical Settings | | Device Para / Modbus / Communication / RTU | |
|--|---|--|-----|
| Only available if: | 8E1, 8O1, 8N1, 8N2 | | S.3 |
| <ul style="list-style-type: none"> • Protocol = Modbus RTU • Protocol = Modbus TCP/RTU | ↪ Table | | |
| 8E1 | | | |
|  | <p><i>Digit 1: Number of bits. Digit 2: E=even parity, O=odd parity, N=no parity. Digit 3: Number of stop bits. More information on the parity: It is possible that the last data bit is followed by a parity bit which is used for recognition of communication errors. The parity bit ensures that with even parity ("EVEN") always an even number of bits with valence "1" or with odd parity ("ODD") an odd number of "1" valence bits are transmitted. But it is also possible to transmit no parity bits (here the setting is "Parity = None"). More information on the stop-bits: The end of a data byte is terminated by the stop-bits.</i></p> | | |


| t-call | | Device Para / Modbus / Communication / General Settings | |
|---|---|---|-----|
| 10s | 1s ... 3600s | | S.3 |
|  | <p><i>If there is no request telegram sent from Scada to the device after expiry of this time - the device concludes a communication failure within the Scada system.</i></p> | | |


| Scada CmdBlo | | Device Para / Modbus / Communication / General Settings | |
|---|--|---|-----|
| Inactive | Inactive, Active | | S.3 |
| | ↪ Table | | |
|  | <p><i>Activating (allowing)/ Deactivating (disallowing) the blocking of the Scada Commands</i></p> | | |


| Disable Latching | | Device Para / Modbus / Communication / General Settings | |
|---|--|---|-----|
| Inactive | Inactive, Active | | S.3 |
| | ↪ Table | | |
|  | <p><i>Disable Latching: If this parameter is active (true), none of the Modbus states will be latched. That means that trip signals wont be latched by Modbus.</i></p> | | |


| AllowGap | | Device Para / Modbus / Communication / General Settings | |
|---|--|---|-----|
| Inactive | Inactive, Active | | S.3 |
| | ↪ Table | | |
|  | <p><i>If this parameter is active (True), the user can request a set of modbus register without getting an exception, because of invalid address in the requested array. The invalid addresses have a special value 0xFAFA, but the user is responsible for ignoring invalid addresses. Attention: This special value can be valid, if address is valid.</i></p> | | |

| Optical rest position | | Device Para / Modbus / Communication / General Settings | |
|---|-------------------------------------|---|-----|
| Light on | Light off, Light on | | S.3 |
| | ↪ Table | | |
|  | <p><i>Optical rest position</i></p> | | |

| | | |
|---|---|-----|
| Config Bin Inp1 ... Config Bin Inp32 | Device Para / Modbus / Config Registers / States | |
| - | - ... Internal test state ↳ Table | S.3 |
|  | <i>Virtual Digital Input. This corresponds to a virtual binary output of the protective device.</i> | |

| | | |
|---|--|-----|
| Latched Config Bin Inp1 ... Latched Config Bin Inp32 | Device Para / Modbus / Config Registers / States | |
| Inactive | Inactive, Active ↳ Table | S.3 |
|  | <i>Latched Configurable Binary Input</i> | |

| | | |
|---|--|-----|
| Mapped Meas 1 ... Mapped Meas 16 | Device Para / Modbus / Config Registers / Measured Values | |
| - | - ... Hottest Aux Temp ↳ Table | S.3 |
|  | <i>Mapped Measured Values. They can be used to provide measured values to the Modbus Master.</i> | |

| | | |
|---|--|-----|
| Type of SCADA mapping | Device Para / Modbus / Config. Data Obj. | |
| Standard | Standard, User-defined ↳ Table | S.3 |
|  | <i>This setting decides whether the communication protocol shall use the default mapping of data objects, or some user-defined mapping that has been loaded from a *.HptSMap file.</i> | |

7.5.2 Modbus: Direct Controls

| | | |
|---|---|-----|
| Res Diagn Cr | Operation / Reset/Acknowledge / Reset | |
| Inactive | Inactive, Active ↳ Table | P.1 |
|  | <i>All Modbus Diagnosis Counters will be reset.</i> | |

| | | |
|----------------------------------|--|-----|
| Smart view via Modbus | Device Para / Security / Communication | |
| Inactive | Inactive, Active ↩ Table | P.1 |
| <input checked="" type="radio"/> | Activate (allow) or inactivate (disallow) the Smart view access via the Modbus tunnel. | |

| | | |
|--|--|-----|
| Slave ID | Device Para / Modbus / Communication / RTU | |
| Only available if: <ul style="list-style-type: none"> • Protocol = Modbus RTU • Protocol = Modbus TCP/RTU 1 | 1 ... 247 | P.1 |
| <input checked="" type="radio"/> | Device address (Slave ID) within the bus system. Each device address has to be unique within a bus system. | |

| | | |
|--|---|-----|
| Unit ID | Device Para / Modbus / Communication / TCP | |
| Only available if: <ul style="list-style-type: none"> • Protocol = Modbus TCP • Protocol = Modbus TCP/RTU 255 | 1 ... 255 | P.1 |
| <input checked="" type="radio"/> | The Unit Identifier is used for routing. This parameter is to be set, if a Modbus RTU and a Modbus TCP network should be coupled. | |

7.5.3 Modbus: Input States

| | | |
|--|--|--|
| Config Bin Inp1-I ... Config Bin Inp16-I (↩ Modbus . Config Bin Inp1) | Operation / Status Display / Modbus / Config Registers | |
| ↓ | State of the module input: Config Bin Inp | |

| | | |
|---|--|--|
| Config Bin Inp17-I ... Config Bin Inp32-I | Operation / Status Display / Modbus / Config Registers | |
| ↓ | State of the module input: Config Bin Inp | |

7.5.4 Modbus: Signals (Output States)

| Transmission RTU | | Operation / Status Display / Modbus / State |
|------------------|--|---|
| ↑ | <p>Only available if:</p> <ul style="list-style-type: none"> • Protocol = Modbus RTU • Protocol = Modbus TCP/RTU <p>Signal: SCADA active</p> | |

| Transmission TCP | | Operation / Status Display / Modbus / State |
|------------------|--|---|
| ↑ | <p>Only available if:</p> <ul style="list-style-type: none"> • Protocol = Modbus TCP • Protocol = Modbus TCP/RTU <p>Signal: SCADA active</p> | |

| Scada Cmd 1 | | Operation / Status Display / Modbus / Commands |
|--------------|---------------|--|
| ... | | |
| Scada Cmd 16 | | |
| ↑ | Scada Command | |

| Device Type | | Operation / Status Display / Modbus / State |
|-------------|--|---|
| ↑ | <p>Device type code for relationship between device name and its Modbus code.</p> <p>HighPROTEC:</p> <p>MRI4 - 1000</p> <p>MRU4 - 1001</p> <p>MRA4 - 1002</p> <p>MCA4 - 1003</p> <p>MRDT4 - 1005</p> <p>MCDTV4 - 1006</p> <p>MCDGV4 - 1007</p> <p>MRM4 - 1009</p> <p>MRMV4 - 1010</p> <p>MCDLV4 - 1011</p> | |

| Comm Version | | Operation / Status Display / Modbus / State |
|--------------|---|---|
| ↑ | <p>Modbus Communication version. This version number changes if something becomes incompatible between different Modbus releases.</p> | |

7.5.5 Modbus: Values, Counters

| NoOfRequestsTotal | | Operation / Count and RevData / Modbus / RTU |
|--------------------------|--|--|
| # | Only available if: <ul style="list-style-type: none">• Protocol = Modbus RTU• Protocol = Modbus TCP/RTU <p><i>Total number of requests. Includes requests for other slaves.</i></p> | |

| NoOfReqForMe | | Operation / Count and RevData / Modbus / RTU |
|---------------------|---|--|
| # | Only available if: <ul style="list-style-type: none">• Protocol = Modbus RTU• Protocol = Modbus TCP/RTU <p><i>Total Number of requests for this slave.</i></p> | |

| NoOfResponse | | Operation / Count and RevData / Modbus / RTU |
|---------------------|--|--|
| # | Only available if: <ul style="list-style-type: none">• Protocol = Modbus RTU• Protocol = Modbus TCP/RTU <p><i>Total number of requests having been responded.</i></p> | |

| NoOfFrameErrors | | Operation / Count and RevData / Modbus / RTU |
|------------------------|--|--|
| # | Only available if: <ul style="list-style-type: none">• Protocol = Modbus RTU• Protocol = Modbus TCP/RTU <p><i>Total Number of Frame Errors. Physically corrupted Frame.</i></p> | |

| NoOfParityErrors | | Operation / Count and RevData / Modbus / RTU |
|-------------------------|---|--|
| # | Only available if: <ul style="list-style-type: none">• Protocol = Modbus RTU• Protocol = Modbus TCP/RTU <p><i>Total number of parity errors. Physically corrupted Frame.</i></p> | |

| NoOfRespTimeOverruns | | Operation / Count and RevData / Modbus / RTU |
|-----------------------------|--|--|
| # | Only available if: <ul style="list-style-type: none">• Protocol = Modbus RTU• Protocol = Modbus TCP/RTU <p><i>Total number of requests with exceeded response time. Physically corrupted Frame.</i></p> | |

| NoOfOverrunErros | Operation / Count and RevData / Modbus / RTU |
|------------------|--|
|------------------|--|

| | |
|---|--|
| # | <p>Only available if:</p> <ul style="list-style-type: none"> • Protocol = Modbus RTU • Protocol = Modbus TCP/RTU <p><i>Total Number of Overrun Failures. Physically corrupted Frame.</i></p> |
|---|--|

| NoOfBreaks | Operation / Count and RevData / Modbus / RTU |
|------------|--|
|------------|--|

| | |
|---|--|
| # | <p>Only available if:</p> <ul style="list-style-type: none"> • Protocol = Modbus RTU • Protocol = Modbus TCP/RTU <p><i>Number of detected communication aborts</i></p> |
|---|--|

| NoOfRequestsTotal | Operation / Count and RevData / Modbus / TCP |
|-------------------|--|
|-------------------|--|

| | |
|---|--|
| # | <p>Only available if:</p> <ul style="list-style-type: none"> • Protocol = Modbus TCP • Protocol = Modbus TCP/RTU <p><i>Total number of requests. Includes requests for other slaves.</i></p> |
|---|--|

| NoOfReqForMe | Operation / Count and RevData / Modbus / TCP |
|--------------|--|
|--------------|--|

| | |
|---|---|
| # | <p>Only available if:</p> <ul style="list-style-type: none"> • Protocol = Modbus TCP • Protocol = Modbus TCP/RTU <p><i>Total Number of requests for this slave.</i></p> |
|---|---|

| NoOfResponse | Operation / Count and RevData / Modbus / TCP |
|--------------|--|
|--------------|--|

| | |
|---|--|
| # | <p>Only available if:</p> <ul style="list-style-type: none"> • Protocol = Modbus TCP • Protocol = Modbus TCP/RTU <p><i>Total number of requests having been responded.</i></p> |
|---|--|

| NoOfQueryInvalid | Operation / Count and RevData / Modbus / TCP |
|------------------|--|
|------------------|--|

| | |
|---|---|
| # | <p>Only available if:</p> <ul style="list-style-type: none"> • Protocol = Modbus TCP • Protocol = Modbus TCP/RTU <p><i>Total number of Request errors. Request could not be interpreted</i></p> |
|---|---|

| | |
|--------------------------|--|
| NoOfInternalError | Operation / Count and RevData / Modbus / TCP |
|--------------------------|--|

| | |
|---|--|
| # | <p>Only available if:</p> <ul style="list-style-type: none"> • Protocol = Modbus TCP • Protocol = Modbus TCP/RTU <p><i>Total Number of Internal errors while interpreting the request.</i></p> |
|---|--|

| | |
|-----------------------------|--|
| Mapped Meas 1 ... | Operation / Count and RevData / Modbus / Measured Values |
| Mapped Meas 16 | |

| | |
|--|--|
| | <i>Mapped Measured Values. They can be used to provide measured values to the Modbus Master.</i> |
|--|--|

| | |
|------------------------------|--|
| Smart view via Modbus | Operation / Security / Security States |
|------------------------------|--|

| | |
|--|---|
| | <i>Activate (allow) or inactivate (disallow) the Smart view access via the Modbus tunnel.</i> |
|--|---|

| | |
|--------------------|--|
| Config info | Device Para / Modbus / Config. Data Obj. |
|--------------------|--|

| | |
|--|---|
| | <i>Configuration comment (entered by the user during SCADA configuration)</i> |
|--|---|

| | |
|-----------------------|--|
| Config version | Device Para / Modbus / Config. Data Obj. |
|-----------------------|--|

| | |
|--|--|
| | <i>Version of the user-defined SCADA configuration</i> |
|--|--|

| | |
|----------------------|--|
| Config status | Device Para / Modbus / Config. Data Obj. |
|----------------------|--|


| | |
|--|--|
| | <p><i>Status of the user-defined SCADA configuration.</i></p> <p><i>Possible values:</i></p> <ul style="list-style-type: none"> - <i>New SCADA configuration is being loaded, but not active yet.</i> - <i>The SCADA configuration is active.</i> - <i>The user-defined SCADA configuration is not available (e.g. has not been loaded into the device).</i> - <i>Unexpected error. Please contact our service-team.</i> |
|--|--|

7.6 IEC 61850

IEC 61850 communication


7.6.1 IEC 61850: Global Parameters

| Function | Device Para / IEC 61850 / Communication | |
|---|---|-----|
| Inactive | Inactive, Active ↪ Table | S.3 |
|  | Permanent activation or deactivation of module/stage. | |


| Deadb integr time | Device Para / IEC 61850 / Communication | |
|---|---|-----|
| 0 | 0 ... 300 | S.3 |
|  | Deadband integration time. | |


7.6.2 IEC 61850: Direct Controls

| ResetStatistic | Operation / Reset/Acknowledge / Reset | |
|---|---|-----|
| Inactive | Inactive, Active ↪ Table | P.1 |
|  | Reset of all IEC61850 diagnostic counters | |

| Simulation Mode | Device Para / IEC 61850 / Communication | |
|---|--|-----|
| Inactive | Inactive, Active ↪ Table | P.1 |
|  | Direct Command to activate the IEC61850 Simulation Mode, so that the "test" flag is set in all GOOSE messages that the device transmits. Moreover, the device reacts in Simulation Mode to only those messages that have this "test" flag set. | |

7.6.3 IEC 61850: Signals (Output States)

| MMS Client connected | Operation / Status Display / IEC 61850 / State | |
|---|--|--|
|  | At least one MMS client is connected to the device | |

| All Goose Subscriber active | Operation / Status Display / IEC 61850 / State | |
|---|--|--|
|  | All Goose subscriber in the device are working | |

7 Communication

7.6.3 IEC 61850: Signals (Output States)

| | |
|--|---|
| GOSINGGIO1.Ind1.stVal ... GOSINGGIO1.Ind16.stVal | Operation / Status Display / IEC 61850 / Virtual Inputs 1 |
|--|---|

[!\[\]\(eafc244b53721dd1ec133f0772f70fc7_img.jpg\)](#) *Signal: Virtual Input (IEC61850 GGIO Ind): State*

| | |
|---|---|
| GOSINGGIO1.Ind17.stVal ... GOSINGGIO1.Ind32.stVal | Operation / Status Display / IEC 61850 / Virtual Inputs 1 |
|---|---|

[!\[\]\(950a62bbddad88d64435fd35607dfc42_img.jpg\)](#) *Signal: Virtual Input (IEC61850 GGIO Ind): State*

| | |
|--|---|
| GOSINGGIO2.Ind1.stVal ... GOSINGGIO2.Ind16.stVal | Operation / Status Display / IEC 61850 / Virtual Inputs 2 |
|--|---|

[!\[\]\(10f8862fc183b400327470ea85afe9ae_img.jpg\)](#) *Signal: Virtual Input (IEC61850 GGIO Ind): State*

| | |
|---|---|
| GOSINGGIO2.Ind17.stVal ... GOSINGGIO2.Ind32.stVal | Operation / Status Display / IEC 61850 / Virtual Inputs 2 |
|---|---|

[!\[\]\(73002692dd5e7a64e60946be3158e719_img.jpg\)](#) *Signal: Virtual Input (IEC61850 GGIO Ind): State*

| | |
|--|---|
| GOSINGGIO1.Ind1.q ... GOSINGGIO1.Ind16.q | Operation / Status Display / IEC 61850 / Virtual Inputs 1 |
|--|---|


[!\[\]\(35dc653d59570f8f891c312eeece91a2_img.jpg\)](#) *Signal: Virtual Input (IEC61850 GGIO Ind): Self-Supervision of the GGIO Input*


| | |
|---|---|
| GOSINGGIO1.Ind17.q ... GOSINGGIO1.Ind32.q | Operation / Status Display / IEC 61850 / Virtual Inputs 1 |
|---|---|


[!\[\]\(104fbf564e2e5a8fbd84f31656d114c7_img.jpg\)](#) *Signal: Virtual Input (IEC61850 GGIO Ind): Self-Supervision of the GGIO Input*

| | |
|--|---|
| GOSINGGIO2.Ind1.q ... GOSINGGIO2.Ind16.q | Operation / Status Display / IEC 61850 / Virtual Inputs 2 |
|--|---|


[!\[\]\(b538fe54c1f3a7343e37e85cc2d00497_img.jpg\)](#) *Signal: Virtual Input (IEC61850 GGIO Ind): Self-Supervision of the GGIO Input*


| | |
|--|---|
| GOSINGGIO2.Ind17.q ... GOSINGGIO2.Ind32.q | Operation / Status Display / IEC 61850 / Virtual Inputs 2 |
|  <i>Signal: Virtual Input (IEC61850 GGIO Ind): Self-Supervision of the GGIO Input</i> | |


| | |
|---|--|
| CTLGGIO1.SPCSO1.stVal ... CTLGGIO1.SPCSO16.stVal | Operation / Status Display / IEC 61850 / ControlInputs |
|  <i>Status bit that can be set by clients like e.g. SCADA (Single Point Controllable Status Output).</i> | |


| | |
|---|--|
| CTLGGIO1.SPCSO17.stVal ... CTLGGIO1.SPCSO32.stVal | Operation / Status Display / IEC 61850 / ControlInputs |
|  <i>Status bit that can be set by clients like e.g. SCADA (Single Point Controllable Status Output).</i> | |


7.6.4 IEC 61850: Values, Counters


| | |
|---|--|
| GoosePublisherState | Operation / Status Display / IEC 61850 / State |
|  <i>State of the GOOSE Publisher (on or off)</i> | |


| | |
|--|--|
| GooseSubscriberState | Operation / Status Display / IEC 61850 / State |
|  <i>State of the GOOSE Subscriber (on or off)</i> | |

| | |
|--|--|
| MmsServerState | Operation / Status Display / IEC 61850 / State |
|  <i>State of MMS Server (on or off)</i> | |

| | |
|---|---|
| NoOfGooseRxAll | Operation / Count and RevData / IEC 61850 |
|  <i>Total number of received GOOSE messages including messages for other devices (subscribed and not subscribed messages).</i> | |

| | |
|---|---|
| NoOfGooseRxSubscribed | Operation / Count and RevData / IEC 61850 |
|  <i>Total Number of subscribed GOOSE messages including messages with incorrect content.</i> | |

| | |
|--|---|
| NoOfGooseRxCorrect | Operation / Count and RevData / IEC 61850 |
|  <i>Total Number of subscribed and correctly received GOOSE messages.</i> | |

| | |
|---|---|
| NoOfGooseRxNew | Operation / Count and RevData / IEC 61850 |
|  <i>Number of subscribed and correctly received GOOSE messages with new content.</i> | |

7 Communication


7.6.4 IEC 61850: Values, Counters

| | |
|-----------------------------------|---|
| NoOfGooseTxAll | Operation / Count and RevData / IEC 61850 |
| # | <i>Total Number of GOOSE messages that have been published by this device.</i> |
| NoOfGooseTxNew | Operation / Count and RevData / IEC 61850 |
| # | <i>Total Number of new GOOSE messages (modified content) that have been published by this device.</i> |
| NoOf Srv.Req.All | Operation / Count and RevData / IEC 61850 |
| # | <i>Total number of MMS Server requests including incorrect requests.</i> |
| NoOfDataReadAll | Operation / Count and RevData / IEC 61850 |
| # | <i>Total Number of values read from this device including incorrect requests.</i> |
| NoOfDataReadCorrect | Operation / Count and RevData / IEC 61850 |
| # | <i>Total Number of correctly read values from this device.</i> |
| NoOfDataWrittenAll | Operation / Count and RevData / IEC 61850 |
| # | <i>Total Number of values written by this device including incorrect ones.</i> |
| NoOfDataWrittenCorrect | Operation / Count and RevData / IEC 61850 |
| # | <i>Total Number of correctly written values by this device.</i> |
| NoOfDataChangeNotification | Operation / Count and RevData / IEC 61850 |
| # | <i>Number of detected changes within the datasets that are published with GOOSE messages.</i> |
| No of Client Connections | Operation / Count and RevData / IEC 61850 |
| # | <i>Number of active MMS client connections</i> |


7.6.5 IEC 61850, IEC 61850


IEC 61850 communication

7.6.5.1 IEC 61850, IEC 61850: Global Parameters

| | | |
|--|--|-----|
| COU_{TGGIO1}.Ind1.stVal ... COU_{TGGIO1}.Ind32.stVal | Device Para / IEC 61850 / Virtual Outputs 1 | |
| - | - ... Internal test state Table | S.3 |
|  | <i>Virtual Output. This signal can be assigned or visualized via the SCD file to other devices within the IEC61850 substation.</i> | |

7.6.5.2 IEC 61850, IEC 61850: Input States


| | | |
|---|--|--|
| COU_{TGGIO1}.Ind1.stVal-I ... COU_{TGGIO1}.Ind16.stVal-I (IEC 61850 . COU_{TGGIO1}.Ind1.stVal) | Operation / Status Display / IEC 61850 / Virtual Outputs 1 | |
|  | <i>Module input state: Binary state of the Virtual Output (GGIO)</i> | |


| | | |
|---|--|--|
| COU_{TGGIO1}.Ind17.stVal-I ... COU_{TGGIO1}.Ind32.stVal-I | Operation / Status Display / IEC 61850 / Virtual Outputs 1 | |
|  | <i>Module input state: Binary state of the Virtual Output (GGIO)</i> | |


7.7 IEC103


IEC 60870-5-103 communication


7.7.1 IEC103: Global Parameters


| Function | Device Para / IEC103 / General Settings | |
|---|--|-----|
| Inactive | Inactive, Active ↪ Table | S.3 |
|  | <i>Activation or deactivation of the IEC103 communication.</i> | |


| Baud rate | Device Para / IEC103 / General Settings | |
|---|--|-----|
| 19200 | 1200, 2400, 4800, 9600, 19200, 38400, 57600 ↪ Table | S.3 |
|  | <i>Baud rate</i> | |


| Physical Settings | Device Para / IEC103 / General Settings | |
|---|--|-----|
| 8E1 | 8E1, 8O1, 8N1, 8N2 ↪ Table | S.3 |
|  | <i>Digit 1: Number of bits. Digit 2: E=even parity, O=odd parity, N=no parity. Digit 3: Number of stop bits. More information on the parity: It is possible that the last data bit is followed by a parity bit which is used for recognition of communication errors. The parity bit ensures that with even parity ("EVEN") always an even number of bits with valence "1" or with odd parity ("ODD") an odd number of "1" valence bits are transmitted. But it is also possible to transmit no parity bits (here the setting is "Parity = None"). More information on the stop-bits: The end of a data byte is terminated by the stop-bits.</i> | |


| t-call | Device Para / IEC103 / General Settings | |
|---|--|-----|
| 60s | 1s ... 3600s | S.3 |
|  | <i>If there is no request telegram sent from Scada to the device after expiry of this time - the device concludes a communication failure within the Scada system.</i> | |


| Transfer Disturb Rec | Device Para / IEC103 / General Settings | |
|---|--|-----|
| Inactive | Inactive, Active ↪ Table | S.3 |
|  | <i>Activates the transmission of disturbance records</i> | |


| Timezone | Device Para / IEC103 / General Settings | |
|---|---|-----|
| UTC | UTC, Local Time ↪ Table | S.3 |
|  | <i>Selection whether the timestamps in IEC103 messages shall be given as UTC or local time. ("Local time" always includes the actual daylight saving settings.)</i> | |

| Energy Pulse Rate | | Device Para / IEC103 / General Settings |
|---|--|---|
| 0 | 0 ... 100 | S.3 |
|  | <i>The energy values are always transmitted as counter values (i.e. as integer numbers). This setting defines the unit: If "1" is set then each counter increment is 1 kWh, if "2" is set then each counter increment is 2 kWh, etc. The setting "0" has the effect that no energy values are transmitted.</i> | |

| DFC-Compat. | | Device Para / IEC103 / General Settings |
|---|---|---|
| Inactive | Inactive, Active ↪ Table | S.3 |
|  | <i>This setting is only required for certain substation implementations. If there should be communication problems related to the Command Response Queue this setting switches the device over to a different behavior.</i> | |


| Ex activate test mode | | Service / Test - Prot inhib. / Scada / IEC103 |
|---|--|---|
| Running | - ... Internal test state ↪ Table | S.3 |
|  | <i>The signal assigned to this parameter switches the IEC103 communication into Test Mode.</i> | |

| Ex activate Block MD | | Service / Test - Prot inhib. / Scada / IEC103 |
|---|--|---|
| - | - ... Internal test state ↪ Table | S.3 |
|  | <i>The signal assigned to this parameter activates the blocking of IEC103 transmission in monitor direction.</i> | |


| Type of SCADA mapping | | Device Para / IEC103 / Config. Data Obj. |
|---|--|--|
| Standard | Standard, User-defined ↪ Table | S.3 |
|  | <i>This setting decides whether the communication protocol shall use the default mapping of data objects, or some user-defined mapping that has been loaded from a *.HptSMap file.</i> | |

7.7.2 IEC103: Direct Controls


| Activate test mode | | Service / Test - Prot inhib. / Scada / IEC103 |
|---|---|---|
| Inactive | Inactive, Active ↪ Table | S.3 |
|  | <i>This Direct Control parameter switches the IEC103 communication into Test Mode (or back to normal mode).</i> | |


| Activate Block MD | | Service / Test - Prot inhib. / Scada / IEC103 |
|---|---|---|
| Inactive | Inactive, Active ↪ Table | S.3 |
|  | <i>This Direct Control parameter activates (or deactivates) the blocking of IEC103 transmission in monitor direction.</i> | |


| | | |
|---|---------------------------------------|-----|
| Res all Diag Cr | Operation / Reset/Acknowledge / Reset | |
| Inactive | Inactive, Active | S.3 |
| | ↩ Table | |
|  | <i>Reset all diagnosis counters</i> | |


| | | |
|---|---|-----|
| Slave ID | Device Para / IEC103 / General Settings | |
| 1 | 1 ... 247 | S.3 |
|  | <i>Device address (Slave ID) within the bus system. Each device address has to be unique within a bus system.</i> | |


7.7.3 IEC103: Signals (Output States)

| | | |
|---|-------------------------------------|--|
| Scada Cmd 1 ... Scada Cmd 10 | Operation / Status Display / IEC103 | |
|  | <i>Scada Command</i> | |


| | | |
|---|-------------------------------------|--|
| Transmission | Operation / Status Display / IEC103 | |
|  | <i>Signal: SCADA active</i> | |


| | | |
|---|-------------------------------------|--|
| Failure Event lost | Operation / Status Display / IEC103 | |
|  | <i>Failure event lost</i> | |




| | | |
|---|--|--|
| Test mode active | Operation / Status Display / IEC103 | |
|  | <i>Signal: IEC103 communication has been switched over into Test Mode.</i> | |

| | | |
|---|---|--|
| Block MD active | Operation / Status Display / IEC103 | |
|  | <i>Signal: The blocking of IEC103 transmission in monitor direction has been activated.</i> | |

7.7.4 IEC103: Values, Counters

| | | |
|---|--|--|
| NReceived | Operation / Count and RevData / IEC103 | |
|  | <i>Total Number of received Messages</i> | |


| | | |
|---|--|--|
| NSent | Operation / Count and RevData / IEC103 | |
|  | <i>Total Number of sent Messages</i> | |


| | |
|---|---|
| NBadFramings | Operation / Count and RevData / IEC103 |
| # | Number of bad Messages |
| NBadParities | Operation / Count and RevData / IEC103 |
| # | Number of Parity Errors |
| NBreakSignals | Operation / Count and RevData / IEC103 |
| # | <p>Number of transmission errors with respect to the (electric) signal transport (physical layer).</p> <p>If the counter value gets increased constantly you should check for problems with the electrical connection (e.g. missing termination impedance of the serial interface), and make sure the transmission parameters (especially the baud rate) are correct.</p> |
| NInternalError | Operation / Count and RevData / IEC103 |
| # | Number of Internal Errors |
| NBadCharChecksum | Operation / Count and RevData / IEC103 |
| # | Number of Checksum Errors |
| Config info | Device Para / IEC103 / Config. Data Obj. |
|  | Configuration comment (entered by the user during SCADA configuration) |
| Config version | Device Para / IEC103 / Config. Data Obj. |
|  | Version of the user-defined SCADA configuration |
| Config status | Device Para / IEC103 / Config. Data Obj. |
|  | <p>Status of the user-defined SCADA configuration.</p> <p>Possible values:</p> <ul style="list-style-type: none"> - Changing: New SCADA configuration is being loaded, but not active yet. - OK: The SCADA configuration is active. - Config. not avail.: The user-defined SCADA configuration is not available (e.g. has not been loaded into the device). - Error: Unexpected error. Please contact our service-team. |


7.8 IEC104


IEC 60870-5-104 communication


7.8.1 IEC104: Global Parameters


| Function | Device Para / IEC104 / General Settings | |
|---|--|-----|
| Inactive | Inactive, Active ↪ Table | S.3 |
|  | <i>Activation or deactivation of the IEC104 communication.</i> | |


| TCP Port Config | Device Para / IEC104 / General Settings | |
|---|---|-----|
| Default | Default, Private ↪ Table | S.3 |
|  | <i>TCP Port Configuration. This parameter needs to be set to "Private" only if another TCP Port than the default one shall be used.</i> | |


| Port | Device Para / IEC104 / General Settings | |
|---|---|-----|
| 2404 | Adjustable range: <ul style="list-style-type: none"> • 2404 ... 2404, If: TCP Port Config = Default • 49152 ... 65535, If: TCP Port Config = Private | S.3 |
|  | <i>IP Port Number.</i> <i>In general it is recommended to keep the default value. if this is not possible then select a number out of the private range 49152-52151 or 52164-65535 that is not yet in use within your network.</i> | |


| Timeout t0 | Device Para / IEC104 / Advanced | |
|---|--|-----|
| 30s | 30s ... 30s | S.3 |
|  | <i>Timeout of connection establishment</i> | |

| Timeout t1 | Device Para / IEC104 / Advanced | |
|---|--------------------------------------|-----|
| 15s | 15s ... 15s | S.3 |
|  | <i>Timeout of send or test APDUs</i> | |


| Timeout t2 | Device Para / IEC104 / Advanced | |
|---|---|-----|
| 10s | 10s ... 10s | S.3 |
|  | <i>Timeout for acknowledges in case of no data messages</i> | |


| Timeout t3 | Device Para / IEC104 / Advanced | |
|---|---|-----|
| 20s | 20s ... 20s | S.3 |
|  | <i>Timeout for sending test frames in case of a long idle state</i> | |


| Param k | | Device Para / IEC104 / Advanced |
|---|-----------------------------|---------------------------------|
| 12 | 12 ... 12 | S.3 |
|  | <i>Protocol parameter k</i> | |


| Param w | | Device Para / IEC104 / Advanced |
|---|-----------------------------|---------------------------------|
| 8 | 8 ... 8 | S.3 |
|  | <i>Protocol parameter w</i> | |


| Length of address | | Device Para / IEC104 / Advanced |
|---|--|---------------------------------|
| 2 | 2 ... 2 | S.3 |
|  | <i>Number of bytes of the Common Address of the ASDU</i> | |


| Length of CoT | | Device Para / IEC104 / Advanced |
|---|---|---------------------------------|
| 2 | 2 ... 2 | S.3 |
|  | <i>Number of bytes of the Cause of Transmission</i> | |


| Length of Inf Obj addr | | Device Para / IEC104 / Advanced |
|---|---|---------------------------------|
| 3 | 3 ... 3 | S.3 |
|  | <i>Number of bytes of the address of the Information Object</i> | |


| Timezone | | Device Para / IEC104 / General Settings |
|---|---|---|
| UTC | UTC, Local Time | S.3 |
| | ↩ Table | |
|  | <i>Selection whether the timestamps in the transmitted communication telegrams shall be given as UTC or local time. ("Local time" always includes the actual daylight saving settings.)</i> | |


| Deadb integr time | | Device Para / IEC104 / General Settings |
|---|-----------------------------------|---|
| 1s | 0s ... 1000s | S.3 |
|  | <i>Deadband integration time.</i> | |

| Timeout SBE | | Device Para / IEC104 / General Settings |
|---|---|---|
| 30s | 1s ... 60s | S.3 |
|  | <i>The communication outputs can be controlled in a two-stage procedure (SBE: Select Before Execute). These outputs have to be selected first by a Select command. After this the bit is reserved for this Execute request. This setting defines the timer for this reservation: After the timer has elapsed the bit is released.</i> | |

| Update time | | Device Para / IEC104 / Advanced |
|---|--|---------------------------------|
| 1s | 1s ... 60s | S.3 |
|  | <i>This setting specifies the time after which measurement values are refreshed. If cyclic transmission is selected new values are reported after this time has elapsed.</i> | |

| Transmit Int. State | | Device Para / IEC104 / Advanced | |
|---|---|---------------------------------|-----|
| Active | Inactive, Active | | S.3 |
| | ↩> Table | | |
|  | <i>If this parameter is set to "active" (default) then the intermediate position of a switchgear, too, is transmitted. This needs to be changed to "inactive" only in the rare case that the substation communication does not support the reporting of intermediate positions.</i> | | |

| Trans. Cmd. State | | Device Para / IEC104 / Advanced | |
|---|--|---------------------------------|-----|
| Active | Inactive, Active | | S.3 |
| | ↩> Table | | |
|  | <i>_ If false it suppress change events for command states (Same address as cmd)</i> | | |


| Type of SCADA mapping | | Device Para / IEC104 / Config. Data Obj. | |
|---|--|--|-----|
| Standard | Standard, User-defined | | S.3 |
| | ↩> Table | | |
|  | <i>This setting decides whether the communication protocol shall use the default mapping of data objects, or some user-defined mapping that has been loaded from a *.HptSMap file.</i> | | |


7.8.2 IEC104: Direct Controls

| Res all Diag Cr | | Operation / Reset/Acknowledge / Reset | |
|----------------------------------|-------------------------------------|---------------------------------------|-----|
| Inactive | Inactive, Active | | S.3 |
| | ↩> Table | | |
| <input checked="" type="radio"/> | <i>Reset all diagnosis counters</i> | | |

| Common address | | Device Para / IEC104 / General Settings | |
|----------------------------------|-----------------------------------|---|-----|
| 1 | 1 ... 65535 | | S.3 |
| <input checked="" type="radio"/> | <i>Common Address of the ASDU</i> | | |

7.8.3 IEC104: Signals (Output States)


| busy | | Operation / Status Display / IEC104 | |
|---|---|-------------------------------------|--|
|  | <i>This message is set if the protocol is started. It will be reset if the protocol is shut down.</i> | | |

| ready | | Operation / Status Display / IEC104 | |
|---|---|-------------------------------------|--|
|  | <i>The message will be set if the protocol is successfully started and ready for data exchange.</i> | | |

| | |
|---------------------------|-------------------------------------|
| Transmission | Operation / Status Display / IEC104 |
| ↑ | <i>Signal: SCADA active</i> |
| Failure Event lost | Operation / Status Display / IEC104 |
| ↑ | <i>Failure event lost</i> |
| Scada Cmd 1 ... | Operation / Status Display / IEC104 |
| Scada Cmd 16 | |
| ↑ | <i>Scada Command</i> |

7.8.4 IEC104: Values, Counters


| | |
|---------------------------|---|
| NReceived | Operation / Count and RevData / IEC104 |
| # | <i>Diagnostic counter: Number of received characters</i> |
| NSent | Operation / Count and RevData / IEC104 |
| # | <i>Diagnostic counter: Number of sent characters</i> |
| Num. of lost conn. | Operation / Count and RevData / IEC104 |
| # | <i>Diagnostic counter: Number of lost connections</i> |
| NBadChecksum | Operation / Count and RevData / IEC104 |
| # | <i>Diagnostic counter: Number of frames received with bad checksum.</i> |
| Config info | Device Para / IEC104 / Config. Data Obj. |
| | <i>Configuration comment (entered by the user during SCADA configuration)</i> |
| Config version | Device Para / IEC104 / Config. Data Obj. |
| | <i>Version of the user-defined SCADA configuration</i> |

| Config status | Device Para / IEC104 / Config. Data Obj. |
|---|--|
|  | <p><i>Status of the user-defined SCADA configuration.</i></p> <p><i>Possible values:</i></p> <ul style="list-style-type: none">- <i>Changing: New SCADA configuration is being loaded, but not active yet.</i>- <i>OK: The SCADA configuration is active.</i>- <i>Config. not avail.: The user-defined SCADA configuration is not available (e.g. has not been loaded into the device).</i>- <i>Error: Unexpected error. Please contact our service-team.</i> |


7.9 Profibus

Profibus Module


7.9.1 Profibus: Global Parameters

| ConfigBinInp 1 | | Device Para / Profibus / ConfigBinInp 1-16 |
|---|--|--|
| - | - ... Internal test state ↪ Table | S.3 |
|  <i>Virtual Digital Input. This corresponds to a virtual binary output of the protective device.</i> | | |


| Latched 1 | | Device Para / Profibus / ConfigBinInp 1-16 |
|--|---|--|
| Inactive | Inactive, Active ↪ Table | S.3 |
|  <i>Defines whether the Input is latched.</i> | | |

| ConfigBinInp 2 | | Device Para / Profibus / ConfigBinInp 1-16 |
|---|--|--|
| - | - ... Internal test state ↪ Table | S.3 |
|  <i>Virtual Digital Input. This corresponds to a virtual binary output of the protective device.</i> | | |


| Latched 2 | | Device Para / Profibus / ConfigBinInp 1-16 |
|--|---|--|
| Inactive | Inactive, Active ↪ Table | S.3 |
|  <i>Defines whether the Input is latched.</i> | | |


| ConfigBinInp 3 | | Device Para / Profibus / ConfigBinInp 1-16 |
|---|--|--|
| - | - ... Internal test state ↪ Table | S.3 |
|  <i>Virtual Digital Input. This corresponds to a virtual binary output of the protective device.</i> | | |


| Latched 3 | | Device Para / Profibus / ConfigBinInp 1-16 |
|--|---|--|
| Inactive | Inactive, Active ↪ Table | S.3 |
|  <i>Defines whether the Input is latched.</i> | | |


| ConfigBinInp 4 | | Device Para / Profibus / ConfigBinInp 1-16 |
|---|---------------------------|--|
| - | - ... Internal test state | S.3 |
| | | ↪ Table |
|  <i>Virtual Digital Input. This corresponds to a virtual binary output of the protective device.</i> | | |


| Latched 4 | | Device Para / Profibus / ConfigBinInp 1-16 |
|--|------------------|--|
| Inactive | Inactive, Active | S.3 |
| | | ↪ Table |
|  <i>Defines whether the Input is latched.</i> | | |


| ConfigBinInp 5 | | Device Para / Profibus / ConfigBinInp 1-16 |
|---|---------------------------|--|
| - | - ... Internal test state | S.3 |
| | | ↪ Table |
|  <i>Virtual Digital Input. This corresponds to a virtual binary output of the protective device.</i> | | |


| Latched 5 | | Device Para / Profibus / ConfigBinInp 1-16 |
|--|------------------|--|
| Inactive | Inactive, Active | S.3 |
| | | ↪ Table |
|  <i>Defines whether the Input is latched.</i> | | |


| ConfigBinInp 6 | | Device Para / Profibus / ConfigBinInp 1-16 |
|---|---------------------------|--|
| - | - ... Internal test state | S.3 |
| | | ↪ Table |
|  <i>Virtual Digital Input. This corresponds to a virtual binary output of the protective device.</i> | | |


| Latched 6 | | Device Para / Profibus / ConfigBinInp 1-16 |
|--|------------------|--|
| Inactive | Inactive, Active | S.3 |
| | | ↪ Table |
|  <i>Defines whether the Input is latched.</i> | | |


| ConfigBinInp 7 | | Device Para / Profibus / ConfigBinInp 1-16 |
|---|---------------------------|--|
| - | - ... Internal test state | S.3 |
| | | ↪ Table |
|  <i>Virtual Digital Input. This corresponds to a virtual binary output of the protective device.</i> | | |


| Latched 7 | | Device Para / Profibus / ConfigBinInp 1-16 |
|---|---|--|
| Inactive | Inactive, Active ↩ Table | S.3 |
|  Defines whether the Input is latched. | | |


| ConfigBinInp 8 | | Device Para / Profibus / ConfigBinInp 1-16 |
|--|--|--|
| - | - ... Internal test state ↩ Table | S.3 |
|  Virtual Digital Input. This corresponds to a virtual binary output of the protective device. | | |


| Latched 8 | | Device Para / Profibus / ConfigBinInp 1-16 |
|---|---|--|
| Inactive | Inactive, Active ↩ Table | S.3 |
|  Defines whether the Input is latched. | | |

| ConfigBinInp 9 | | Device Para / Profibus / ConfigBinInp 1-16 |
|--|--|--|
| - | - ... Internal test state ↩ Table | S.3 |
|  Virtual Digital Input. This corresponds to a virtual binary output of the protective device. | | |


| Latched 9 | | Device Para / Profibus / ConfigBinInp 1-16 |
|---|---|--|
| Inactive | Inactive, Active ↩ Table | S.3 |
|  Defines whether the Input is latched. | | |


| ConfigBinInp 10 | | Device Para / Profibus / ConfigBinInp 1-16 |
|--|--|--|
| - | - ... Internal test state ↩ Table | S.3 |
|  Virtual Digital Input. This corresponds to a virtual binary output of the protective device. | | |


| Latched 10 | | Device Para / Profibus / ConfigBinInp 1-16 |
|---|---|--|
| Inactive | Inactive, Active ↩ Table | S.3 |
|  Defines whether the Input is latched. | | |


| | | | |
|---|---|--|-----|
| ConfigBinInp 11 | | Device Para / Profibus / ConfigBinInp 1-16 | |
| - | - ... Internal test state | | S.3 |
| | ↪ Table | | |
|  | <i>Virtual Digital Input. This corresponds to a virtual binary output of the protective device.</i> | | |


| | | | |
|---|--|--|-----|
| Latched 11 | | Device Para / Profibus / ConfigBinInp 1-16 | |
| Inactive | Inactive, Active | | S.3 |
| | ↪ Table | | |
|  | <i>Defines whether the Input is latched.</i> | | |

| | | | |
|---|---|--|-----|
| ConfigBinInp 12 | | Device Para / Profibus / ConfigBinInp 1-16 | |
| - | - ... Internal test state | | S.3 |
| | ↪ Table | | |
|  | <i>Virtual Digital Input. This corresponds to a virtual binary output of the protective device.</i> | | |


| | | | |
|---|--|--|-----|
| Latched 12 | | Device Para / Profibus / ConfigBinInp 1-16 | |
| Inactive | Inactive, Active | | S.3 |
| | ↪ Table | | |
|  | <i>Defines whether the Input is latched.</i> | | |


| | | | |
|---|---|--|-----|
| ConfigBinInp 13 | | Device Para / Profibus / ConfigBinInp 1-16 | |
| - | - ... Internal test state | | S.3 |
| | ↪ Table | | |
|  | <i>Virtual Digital Input. This corresponds to a virtual binary output of the protective device.</i> | | |


| | | | |
|---|--|--|-----|
| Latched 13 | | Device Para / Profibus / ConfigBinInp 1-16 | |
| Inactive | Inactive, Active | | S.3 |
| | ↪ Table | | |
|  | <i>Defines whether the Input is latched.</i> | | |

| | | | |
|---|---|--|-----|
| ConfigBinInp 14 | | Device Para / Profibus / ConfigBinInp 1-16 | |
| - | - ... Internal test state | | S.3 |
| | ↪ Table | | |
|  | <i>Virtual Digital Input. This corresponds to a virtual binary output of the protective device.</i> | | |


| | | |
|---|--|-----|
| Latched 14 | Device Para / Profibus / ConfigBinInp 1-16 | |
| Inactive | Inactive, Active ↪ Table | S.3 |
|  | <i>Defines whether the Input is latched.</i> | |


| | | |
|---|---|-----|
| ConfigBinInp 15 | Device Para / Profibus / ConfigBinInp 1-16 | |
| - | - ... Internal test state ↪ Table | S.3 |
|  | <i>Virtual Digital Input. This corresponds to a virtual binary output of the protective device.</i> | |


| | | |
|---|--|-----|
| Latched 15 | Device Para / Profibus / ConfigBinInp 1-16 | |
| Inactive | Inactive, Active ↪ Table | S.3 |
|  | <i>Defines whether the Input is latched.</i> | |


| | | |
|---|---|-----|
| ConfigBinInp 16 | Device Para / Profibus / ConfigBinInp 1-16 | |
| - | - ... Internal test state ↪ Table | S.3 |
|  | <i>Virtual Digital Input. This corresponds to a virtual binary output of the protective device.</i> | |


| | | |
|---|--|-----|
| Latched 16 | Device Para / Profibus / ConfigBinInp 1-16 | |
| Inactive | Inactive, Active ↪ Table | S.3 |
|  | <i>Defines whether the Input is latched.</i> | |


| | | |
|---|---|-----|
| ConfigBinInp 17 | Device Para / Profibus / ConfigBinInp 17-32 | |
| - | - ... Internal test state ↪ Table | S.3 |
|  | <i>Virtual Digital Input. This corresponds to a virtual binary output of the protective device.</i> | |


| | | |
|---|--|-----|
| Latched 17 | Device Para / Profibus / ConfigBinInp 17-32 | |
| Inactive | Inactive, Active ↪ Table | S.3 |
|  | <i>Defines whether the Input is latched.</i> | |


| | | |
|---|---|-----|
| ConfigBinInp 18 | Device Para / Profibus / ConfigBinInp 17-32 | |
| - | - ... Internal test state ↳ Table | S.3 |
|  | <i>Virtual Digital Input. This corresponds to a virtual binary output of the protective device.</i> | |


| | | |
|---|--|-----|
| Latched 18 | Device Para / Profibus / ConfigBinInp 17-32 | |
| Inactive | Inactive, Active ↳ Table | S.3 |
|  | <i>Defines whether the Input is latched.</i> | |


| | | |
|---|---|-----|
| ConfigBinInp 19 | Device Para / Profibus / ConfigBinInp 17-32 | |
| - | - ... Internal test state ↳ Table | S.3 |
|  | <i>Virtual Digital Input. This corresponds to a virtual binary output of the protective device.</i> | |


| | | |
|---|--|-----|
| Latched 19 | Device Para / Profibus / ConfigBinInp 17-32 | |
| Inactive | Inactive, Active ↳ Table | S.3 |
|  | <i>Defines whether the Input is latched.</i> | |


| | | |
|---|---|-----|
| ConfigBinInp 20 | Device Para / Profibus / ConfigBinInp 17-32 | |
| - | - ... Internal test state ↳ Table | S.3 |
|  | <i>Virtual Digital Input. This corresponds to a virtual binary output of the protective device.</i> | |


| | | |
|---|--|-----|
| Latched 20 | Device Para / Profibus / ConfigBinInp 17-32 | |
| Inactive | Inactive, Active ↳ Table | S.3 |
|  | <i>Defines whether the Input is latched.</i> | |


| | | |
|---|---|-----|
| ConfigBinInp 21 | Device Para / Profibus / ConfigBinInp 17-32 | |
| - | - ... Internal test state ↳ Table | S.3 |
|  | <i>Virtual Digital Input. This corresponds to a virtual binary output of the protective device.</i> | |


| Latched 21 | | Device Para / Profibus / ConfigBinInp 17-32 |
|---|--|---|
| Inactive | Inactive, Active | S.3 |
| | | ↪ Table |
|  | <i>Defines whether the Input is latched.</i> | |


| ConfigBinInp 22 | | Device Para / Profibus / ConfigBinInp 17-32 |
|---|---|---|
| - | - ... Internal test state | S.3 |
| | | ↪ Table |
|  | <i>Virtual Digital Input. This corresponds to a virtual binary output of the protective device.</i> | |








| Latched 22 | | Device Para / Profibus / ConfigBinInp 17-32 |
|---|--|---|
| Inactive | Inactive, Active | S.3 |
| | | ↪ Table |
|  | <i>Defines whether the Input is latched.</i> | |


| ConfigBinInp 23 | | Device Para / Profibus / ConfigBinInp 17-32 |
|---|---|---|
| - | - ... Internal test state | S.3 |
| | | ↪ Table |
|  | <i>Virtual Digital Input. This corresponds to a virtual binary output of the protective device.</i> | |


| Latched 23 | | Device Para / Profibus / ConfigBinInp 17-32 |
|---|--|---|
| Inactive | Inactive, Active | S.3 |
| | | ↪ Table |
|  | <i>Defines whether the Input is latched.</i> | |


| ConfigBinInp 24 | | Device Para / Profibus / ConfigBinInp 17-32 |
|---|---|---|
| - | - ... Internal test state | S.3 |
| | | ↪ Table |
|  | <i>Virtual Digital Input. This corresponds to a virtual binary output of the protective device.</i> | |


| Latched 24 | | Device Para / Profibus / ConfigBinInp 17-32 |
|---|--|---|
| Inactive | Inactive, Active | S.3 |
| | | ↪ Table |
|  | <i>Defines whether the Input is latched.</i> | |


| | | |
|---|---|-----|
| ConfigBinInp 25 | Device Para / Profibus / ConfigBinInp 17-32 | |
| - | - ... Internal test state ↳ Table | S.3 |
|  | <i>Virtual Digital Input. This corresponds to a virtual binary output of the protective device.</i> | |
| Latched 25 | Device Para / Profibus / ConfigBinInp 17-32 | |
| Inactive | Inactive, Active ↳ Table | S.3 |
|  | <i>Defines whether the Input is latched.</i> | |
| ConfigBinInp 26 | Device Para / Profibus / ConfigBinInp 17-32 | |
| - | - ... Internal test state ↳ Table | S.3 |
|  | <i>Virtual Digital Input. This corresponds to a virtual binary output of the protective device.</i> | |
| Latched 26 | Device Para / Profibus / ConfigBinInp 17-32 | |
| Inactive | Inactive, Active ↳ Table | S.3 |
|  | <i>Defines whether the Input is latched.</i> | |
| ConfigBinInp 27 | Device Para / Profibus / ConfigBinInp 17-32 | |
| - | - ... Internal test state ↳ Table | S.3 |
|  | <i>Virtual Digital Input. This corresponds to a virtual binary output of the protective device.</i> | |
| Latched 27 | Device Para / Profibus / ConfigBinInp 17-32 | |
| Inactive | Inactive, Active ↳ Table | S.3 |
|  | <i>Defines whether the Input is latched.</i> | |
| ConfigBinInp 28 | Device Para / Profibus / ConfigBinInp 17-32 | |
| - | - ... Internal test state ↳ Table | S.3 |
|  | <i>Virtual Digital Input. This corresponds to a virtual binary output of the protective device.</i> | |


| Latched 28 | | Device Para / Profibus / ConfigBinInp 17-32 |
|---|---|---|
| Inactive | Inactive, Active ↩ Table | S.3 |
|  Defines whether the Input is latched. | | |


| ConfigBinInp 29 | | Device Para / Profibus / ConfigBinInp 17-32 |
|--|--|---|
| - | - ... Internal test state ↩ Table | S.3 |
|  Virtual Digital Input. This corresponds to a virtual binary output of the protective device. | | |


| Latched 29 | | Device Para / Profibus / ConfigBinInp 17-32 |
|---|---|---|
| Inactive | Inactive, Active ↩ Table | S.3 |
|  Defines whether the Input is latched. | | |


| ConfigBinInp 30 | | Device Para / Profibus / ConfigBinInp 17-32 |
|--|--|---|
| - | - ... Internal test state ↩ Table | S.3 |
|  Virtual Digital Input. This corresponds to a virtual binary output of the protective device. | | |


| Latched 30 | | Device Para / Profibus / ConfigBinInp 17-32 |
|---|---|---|
| Inactive | Inactive, Active ↩ Table | S.3 |
|  Defines whether the Input is latched. | | |


| ConfigBinInp 31 | | Device Para / Profibus / ConfigBinInp 17-32 |
|--|--|---|
| - | - ... Internal test state ↩ Table | S.3 |
|  Virtual Digital Input. This corresponds to a virtual binary output of the protective device. | | |

| Latched 31 | | Device Para / Profibus / ConfigBinInp 17-32 |
|---|---|---|
| Inactive | Inactive, Active ↩ Table | S.3 |
|  Defines whether the Input is latched. | | |

| ConfigBinInp 32 | | Device Para / Profibus / ConfigBinInp 17-32 |
|---|---|---|
| - | - ... Internal test state ↪ Table | S.3 |
|  | <i>Virtual Digital Input. This corresponds to a virtual binary output of the protective device.</i> | |


| Latched 32 | | Device Para / Profibus / ConfigBinInp 17-32 |
|---|--|---|
| Inactive | Inactive, Active ↪ Table | S.3 |
|  | <i>Defines whether the Input is latched.</i> | |

| Little Endian | | Device Para / Profibus / Bus parameters |
|---|---|---|
| Active | Inactive, Active ↪ Table | S.3 |
|  | <i>If this setting is "active" all numbers are transmitted with the byte order Little Endian, otherwise the byte order Big Endian is used. (If all numbers received by your SCADA system should be completely wrong, changing this setting might help.)</i> | |


| Type of SCADA mapping | | Device Para / Profibus / Config. Data Obj. |
|---|--|--|
| Standard | Standard, User-defined ↪ Table | S.3 |
|  | <i>This setting decides whether the communication protocol shall use the default mapping of data objects, or some user-defined mapping that has been loaded from a *.HptSMap file.</i> | |

7.9.2 Profibus: Direct Controls

| Reset Comds | | Operation / Reset/Acknowledge / Reset |
|---|---|---------------------------------------|
| Inactive | Inactive, Active ↪ Table | P.1 |
|  | <i>All Profibus Commands will be reset.</i> | |


| Slave ID | | Operation / Status Display / Profibus / State Device Para / Profibus / Bus parameters |
|---|---|--|
| 2 | 2 ... 125 | P.1 |
|  | <i>Device address (Slave ID) within the bus system. Each device address has to be unique within a bus system.</i> | |


7.9.3 Profibus: Input States


| | |
|--|---|
| Assignment 1-I ... Assignment 16-I (↪ Profibus . ConfigBinInp 1) | Operation / Status Display / Profibus / ConfigBinInp 1-16 |
|  Module input state: Scada Assignment | |


| | |
|--|--|
| Assignment 17-I ... Assignment 32-I (↪ Profibus . ConfigBinInp 17) | Operation / Status Display / Profibus / ConfigBinInp 17-32 |
|  Module input state: Scada Assignment | |

7.9.4 Profibus: Signals (Output States)


| | |
|--|---|
| Data OK | Operation / Status Display / Profibus / State |
|  Data within the Input field are OK (Yes=1) | |


| | |
|--|---|
| SubModul Err | Operation / Status Display / Profibus / State |
|  Assignable Signal, Failure in Sub-Module, Communication Failure. | |

| | |
|---|---|
| Connection active | Operation / Status Display / Profibus / State |
|  Connection active | |


| | |
|---|--|
| Scada Cmd 1 ... Scada Cmd 16 | Operation / Status Display / Profibus / Commands |
|  Scada Command | |

7.9.5 Profibus: Values, Counters

| | |
|---|--|
| Fr Sync Err | Operation / Count and RevData / Profibus |
|  Frames, that were sent from the Master to the Slave are faulty. | |

| | |
|---|--|
| Num. CRC err. | Operation / Count and RevData / Profibus |
|  Number of CRC errors that the subsystem manager has recognized in the received response frames from the subsystem. (Each error caused a subsystem reset.) | |


| | |
|-----------------------------|---|
| Num. frame loss err. | Operation / Count and RevData / Profibus |
| # | <i>Number of frame loss errors that the subsystem manager has recognized in the received response frames from the subsystem. (Each error caused a subsystem reset.)</i> |
| Num. trig. CRC err. | Operation / Count and RevData / Profibus |
| # | <i>Number of CRC errors that the subsystem has recognized in the received trigger frames from the host.</i> |
| Num. subsys. res. | Operation / Count and RevData / Profibus |
| # | <i>Number of subsystem restarts or resets that the subsystem manager has caused.</i> |
| Slave State | Operation / Status Display / Profibus / State |
| | <i>Communication State between Slave and Master.</i> |
| Baud rate | Operation / Status Display / Profibus / State |
| | <i>The baud rate that has been detected lastly, will still be shown after a connection issue.</i> |
| PNO Id | Operation / Status Display / Profibus / State |
| | <i>PNO Identification Number. GSD Identification Number.</i> |
| Master ID | Operation / Status Display / Profibus / State |
| # | <i>Device address (Master ID) within the bus system. Each device address has to be unique within a bus system.</i> |
| HO Id PSub | Operation / Status Display / Profibus / State |
| # | <i>Handoff Id of PbSub</i> |
| t-WatchDog | Operation / Status Display / Profibus / State |
| # | <i>The Profibus Chip detects a communication issue if this timer is expired without any communication (Parameterising telegram).</i> |
| Config info | Operation / Status Display / Profibus / State Device Para / Profibus / Config. Data Obj. |
| | <i>Configuration comment (entered by the user during SCADA configuration)</i> |
| Config version | Operation / Status Display / Profibus / State Device Para / Profibus / Config. Data Obj. |
| | <i>Version of the user-defined SCADA configuration</i> |

| | |
|---|---|
| Config status | Operation / Status Display / Profibus / State Device Para / Profibus / Config. Data Obj. |
|  | <i>Status of the user-defined SCADA configuration.</i> <i>Possible values:</i> |


7.10 IRIG-B


IRIG-B-Module

7.10.1 IRIG-B: Device Planning Parameters

| Mode | Device planning / Projected Elements | |
|---|--|-----|
| - | -, use ↪ Table | S.3 |
|  | <i>IRIG-B-Module, general operation mode</i> | |

7.10.2 IRIG-B: Global Parameters


| Function | Device Para / Time / TimeSync / IRIG-B | |
|--|--|-----|
| Inactive | Inactive, Active ↪ Table | S.3 |
|  | <i>Permanent activation or deactivation of module/stage.</i> | |


| IRIG-B00X | Device Para / Time / TimeSync / IRIG-B | |
|---|---|-----|
| IRIGB-000 | IRIGB-000 ... IRIGB-007 ↪ Table | S.3 |
|  | <i>Determination of the Type: IRIG-B00X. IRIG-B types differ in types of included "Coded Expressions" (year, control-functions, straight-binary-seconds).</i> | |

7.10.3 IRIG-B: Direct Controls

| Res IRIG-B Cr | Operation / Reset/Acknowledge / Reset | |
|---|--|-----|
| Inactive | Inactive, Active ↪ Table | P.1 |
|  | <i>Resetting of the Diagnosis Counters: IRIG-B</i> | |

7.10.4 IRIG-B: Signals (Output States)

| IRIG-B active | Operation / Status Display / TimeSync / IRIG-B | |
|---|---|--|
|  | <i>Signal: If there is no valid IRIG-B signal for 60 sec, IRIG-B is regarded as inactive.</i> | |

| High-Low Invert | Operation / Status Display / TimeSync / IRIG-B | |
|---|--|--|
|  | <i>Signal: The High and Low signals of the IRIG-B are inverted. This does NOT mean that the wiring is faulty. If the wiring is faulty no IRIG-B signal will be detected.</i> | |

| | |
|---|--|
| Control Signal1 ... Control Signal9 | Operation / Status Display / TimeSync / IRIG-B |
|---|--|

↑ Signal: IRIG-B Control Signal. The external IRIG-B generator can set these signals. They can be used for further control procedures inside the device (e.g. logic funtions).

| | |
|---|--|
| Control Signal10 ... Control Signal18 | Operation / Status Display / TimeSync / IRIG-B |
|---|--|

↑ Signal: IRIG-B Control Signal. The external IRIG-B generator can set these signals. They can be used for further control procedures inside the device (e.g. logic funtions).

7.10.5 IRIG-B: Counters

| | |
|---------------------|---|
| NoOfFramesOK | Operation / Count and RevData / TimeSync / IRIG-B |
|---------------------|---|

Total Number valid Frames.

| | |
|------------------------|---|
| NoOfFrameErrors | Operation / Count and RevData / TimeSync / IRIG-B |
|------------------------|---|

Total Number of Frame Errors. Physically corrupted Frame.


| | |
|--------------|---|
| Edges | Operation / Count and RevData / TimeSync / IRIG-B |
|--------------|---|

Edges: Total number of rising and falling edges. This signal indicates if a signal is available at the IRIG-B input.

7.11 SNTP


SNTP-Module

7.11.1 SNTP: Device Planning Parameters


| | | |
|--|--------------------------------------|-----|
| Mode | Device planning / Projected Elements | |
| - | -, use ↪ Table | S.3 |
|  <i>SNTP-Module, general operation mode</i> | | |

7.11.2 SNTP: Global Parameters

| | | |
|--|---|-----|
| Server1 | Device Para / Time / TimeSync / SNTP | |
| Inactive | Inactive, Active ↪ Table | S.3 |
|  <i>Server 1</i> | | |

| | | |
|--|--------------------------------------|-----|
| IP Byte1 ... IP Byte4 | Device Para / Time / TimeSync / SNTP | |
| 0 | 0 ... 255 | S.3 |
|  <i>IP1.IP2.IP3.IP4</i> | | |


| | | |
|---|---|-----|
| Server2 | Device Para / Time / TimeSync / SNTP | |
| Inactive | Inactive, Active ↪ Table | S.3 |
|  <i>Server 2</i> | | |

| | | |
|--|--------------------------------------|-----|
| IP Byte1 ... IP Byte4 | Device Para / Time / TimeSync / SNTP | |
| 0 | 0 ... 255 | S.3 |
|  <i>IP1.IP2.IP3.IP4</i> | | |


7.11.3 SNTP: Direct Controls


| | | |
|---|---|-----|
| Res Counter | Operation / Reset/Acknowledge / Reset | |
| Inactive | Inactive, Active ↩ Table | P.1 |
|  | Reset all Counters. | |


7.11.4 SNTP: Signals (Output States)


| | | |
|---|---|--|
| SNTP active | Operation / Status Display / TimeSync / SNTP | |
|  | Signal: If there is no valid SNTP signal for 120 sec, SNTP is regarded as inactive. | |


7.11.5 SNTP: Values, Counters


| | | |
|--|---|--|
| NoOfSyncs | Operation / Count and RevData / TimeSync / SNTP | |
|  | Total Number of Synchronizations. | |


| | | |
|---|--|--|
| NoOfConnectLost | Operation / Count and RevData / TimeSync / SNTP | |
|  | Total Number of lost SNTP Connections (no sync for 120 sec). | |


| | | |
|---|---|--|
| NoOfSmallSyncs | Operation / Count and RevData / TimeSync / SNTP | |
|  | Service counter: Total Number of very small Time Corrections. | |

| | | |
|---|--|--|
| NoOfNormSyncs | Operation / Count and RevData / TimeSync / SNTP | |
|  | Service counter: Total Number of normal Time Corrections | |

| | | |
|---|---|--|
| NoOfBigSyncs | Operation / Count and RevData / TimeSync / SNTP | |
|  | Service counter: Total Number of big Time Corrections | |

| | | |
|---|--|--|
| NoOfFiltSyncs | Operation / Count and RevData / TimeSync / SNTP | |
|  | Service counter: Total Number of filtered Time Corrections | |

| | | |
|---|--|--|
| NoOfSlowTrans | Operation / Count and RevData / TimeSync / SNTP | |
|  | Service counter: Total Number of slow Transfers. | |

| | | |
|---|---|--|
| NoOfHighOffs | Operation / Count and RevData / TimeSync / SNTP | |
|  | Service counter: Total Number of high Offsets. | |

| | |
|------------------------|---|
| NoOfIntTimeouts | Operation / Count and RevData / TimeSync / SNTP |
| # | <i>Service counter: Total Number of internal timeouts.</i> |
| Used Server | Operation / Status Display / TimeSync / SNTP |
| | <i>Which Server is used for SNTP synchronization.</i> |
| StratumServer1 | Operation / Status Display / TimeSync / SNTP |
| # | <i>Stratum of Server 1</i> |
| PrecServer1 | Operation / Status Display / TimeSync / SNTP |
| | <i>Precision of Server 1</i> |
| StratumServer2 | Operation / Status Display / TimeSync / SNTP |
| # | <i>Stratum of Server 2</i> |
| PrecServer2 | Operation / Status Display / TimeSync / SNTP |
| | <i>Precision of Server 2</i> |
| ServerQty | Operation / Status Display / TimeSync / SNTP |
| | <i>Quality of Server used for Synchronization (GOOD, SUFFICIENT, BAD)</i> |
| NetConn | Operation / Status Display / TimeSync / SNTP |
| | <i>Quality of Network Connection (GOOD, SUFFICIENT, BAD).</i> |

8 Field settings

8.1 Field Para

Field settings


8.1.1 Field Para: Global Parameters


| Phase Sequence | | Field Para / General Settings | |
|---|-------------------|---------------------------------------|-----|
| ABC | | ABC, ACB ↪ Table | S.3 |
|  | Phase Sequence | | |
| f | | Field Para / General Settings | |
| 50Hz | | 50Hz, 60Hz ↪ Table | S.3 |
|  | Nominal frequency | | |


8.2 CT


Current Transformer


8.2.1 CT: Global Parameters


| CT pri | Field Para / CT | |
|---|---|-----|
| 10A | 1A ... 50000A | S.3 |
|  | <i>Nominal current of the primary side of the current transformers.</i> | |


| CT sec | Field Para / CT | |
|---|---|-----|
| 1A | 1A, 5A Table | S.3 |
|  | <i>Nominal current of the secondary side of the current transformers.</i> | |


| CT dir | Field Para / CT | |
|---|---|-----|
| 0° | 0°, 180° Table | S.3 |
|  | <i>Protection functions with directional feature can only work properly if the connection of the current transformers is free of wiring errors. If all current transformers are connected to the device with an incorrect polarity, the wiring error can be compensated by this parameter. This parameter turns the current vectors by 180 degrees.</i> | |


| ECT pri | Field Para / CT | |
|---|---|-----|
| 50A | 1A ... 50000A | S.3 |
|  | <i>This parameter defines the primary nominal current of the connected earth current transformer. If the earth current is measured via the Holmgreen connection, the primary value of the phase current transformer must be entered here.</i> | |


| ECT sec | Field Para / CT | |
|---|---|-----|
| 1A | 1A, 5A Table | S.3 |
|  | <i>This parameter defines the secondary nominal current of the connected earth current transformer. If the earth current is done via the Holmgreen connection, the primary value of the phase current transformer must be entered here.</i> | |

| ECT dir | Field Para / CT | |
|---|---|-----|
| 0° | 0°, 180° Table | S.3 |
|  | <i>Earth fault protection with directional feature depends also on the correct wiring of the earth current transformer. An incorrect polarity/wiring can be corrected by means of the settings "0°" or "180°". The operator has the possibility of turning the current vector by 180 degrees (change of sign) without modification of the wiring. This means, that - in terms of figures - the determined current indicator was turned by 180° by the device.</i> | |


| | | |
|---|---|-----|
| IL1, IL2, IL3 Cutoff Level | Device Para / Measurem Display / Current | |
| 0.005In | 0.0In ... 0.100In | S.3 |
|  | <i>The Current shown in the Display or within the PC Software will be displayed as zero, if the Current falls below this Cutoff Level. This parameter has no impact on recorders.</i> | |

| | | |
|---|---|-----|
| IG meas Cutoff Level | Device Para / Measurem Display / Current | |
| 0.005In | 0.0In ... 0.100In | S.3 |
|  | <i>The measured Earth Current shown in the Display or within the PC Software will be displayed as zero, if the measured Earth Current falls below this Cutoff Level. This parameter has no impact on recorders.</i> | |


| | | |
|---|---|-----|
| IG calc Cutoff Level | Device Para / Measurem Display / Current | |
| 0.005In | 0.0In ... 0.100In | S.3 |
|  | <i>The calculated Earth Current shown in the Display or within the PC Software will be displayed as zero, if the calculated Earth Current falls below this Cutoff Level. This parameter has no impact on recorders.</i> | |


| | | |
|---|---|-----|
| I012 Cutoff Level | Device Para / Measurem Display / Current | |
| 0.005In | 0.0In ... 0.100In | S.3 |
|  | <i>The Symmetrical Component shown in the Display or within the PC Software will be displayed as zero, if the Symmetrical Component falls below this Cutoff Level. This parameter has no impact on recorders.</i> | |


8.2.2 CT: Signals (Output States)


| | | |
|---|---|--|
| Phase seq. wrong | Operation / Status Display / Supervision / Phase Sequence | |
|  | <i>Signal that the device has detected a phase sequence (L1-L2-L3 / L1-L3-L2) that is different from the one that had been set at [Field settings / General Settings] »Phase Sequence«.</i> | |

8.2.3 CT: Values










| | | |
|---|--|--|
| IL1 | Operation / Measured Values / Current | |
|  | <i>Measured value: Phase current (fundamental)</i> | |


| | | |
|---|--|--|
| IL2 | Operation / Measured Values / Current | |
|  | <i>Measured value: Phase current (fundamental)</i> | |


| | | |
|---|--|--|
| IL3 | Operation / Measured Values / Current | |
|  | <i>Measured value: Phase current (fundamental)</i> | |


| | | |
|---|--|--|
| IG meas | Operation / Measured Values / Current | |
|  | <i>Measured value (measured): IG (fundamental)</i> | |


8 Field settings
8.2.3 CT: Values


| | |
|--|--|
| IG calc | Operation / Measured Values / Current |
|  Measured value (calculated): IG (fundamental) | |
| I0 | Operation / Measured Values / Current |
|  Measured value (calculated): Zero current (fundamental) | |
| I1 | Operation / Measured Values / Current |
|  Measured value (calculated): Positive phase sequence current (fundamental) | |
| I2 | Operation / Measured Values / Current |
|  Measured value (calculated): Unbalanced load current (fundamental) | |
| phi IL1 | Operation / Measured Values / Current |
|  Measured value (calculated): Angle of Phasor IL1 | |
| | Reference phasor is required to calculate the angle. This is the first measured voltage (or current) channel with sufficiently high amplitude. |
| phi IL2 | Operation / Measured Values / Current |
|  Measured value (calculated): Angle of Phasor IL2 | |
| | Reference phasor is required to calculate the angle. This is the first measured voltage (or current) channel with sufficiently high amplitude. |
| phi IL3 | Operation / Measured Values / Current |
|  Measured value (calculated): Angle of Phasor IL3 | |
| | Reference phasor is required to calculate the angle. This is the first measured voltage (or current) channel with sufficiently high amplitude. |
| phi IG meas | Operation / Measured Values / Current |
|  Measured value (calculated): Angle of Phasor IG meas | |
| | Reference phasor is required to calculate the angle. This is the first measured voltage (or current) channel with sufficiently high amplitude. |
| phi IG calc | Operation / Measured Values / Current |
|  Measured value (calculated): Angle of Phasor IG calc | |
| | Reference phasor is required to calculate the angle. This is the first measured voltage (or current) channel with sufficiently high amplitude. |


| | |
|---|--|
| phi I0 | Operation / Measured Values / Current |
|  | <p><i>Measured value (calculated): Angle Zero Sequence System</i></p> <p><i>Reference phasor is required to calculate the angle. This is the first measured voltage (or current) channel with sufficiently high amplitude.</i></p> |


| | |
|---|---|
| phi I1 | Operation / Measured Values / Current |
|  | <p><i>Measured value (calculated): Angle of Positive Sequence System</i></p> <p><i>Reference phasor is required to calculate the angle. This is the first measured voltage (or current) channel with sufficiently high amplitude.</i></p> |


| | |
|---|---|
| phi I2 | Operation / Measured Values / Current |
|  | <p><i>Measured Value (calculated): Angle of Negative Sequence System</i></p> <p><i>Reference phasor is required to calculate the angle. This is the first measured voltage (or current) channel with sufficiently high amplitude.</i></p> |


| | |
|---|--|
| IL1 RMS | Operation / Measured Values / Current RMS |
|  | <i>Measured value: Phase current (RMS)</i> |


| | |
|---|--|
| IL2 RMS | Operation / Measured Values / Current RMS |
|  | <i>Measured value: Phase current (RMS)</i> |


| | |
|---|--|
| IL3 RMS | Operation / Measured Values / Current RMS |
|  | <i>Measured value: Phase current (RMS)</i> |

| | |
|---|--|
| IG meas RMS | Operation / Measured Values / Current RMS |
|  | <i>Measured value (measured): IG (RMS)</i> |

| | |
|---|--|
| IG calc RMS | Operation / Measured Values / Current RMS |
|  | <i>Measured value (calculated): IG (RMS)</i> |





| | |
|---|---|
| %IL1 THD | Operation / Measured Values / Current RMS |
|  | <i>Measured value (calculated): IL1 Total Harmonic Distortion</i> |

| | |
|---|---|
| %IL2 THD | Operation / Measured Values / Current RMS |
|  | <i>Measured value (calculated): IL2 Total Harmonic Distortion</i> |

| | |
|---|---|
| %IL3 THD | Operation / Measured Values / Current RMS |
|  | <i>Measured value (calculated): IL3 Total Harmonic Distortion</i> |

8 Field settings

8.2.4 CT: Statistical Values

| | |
|---|---|
| IL1 THD | Operation / Measured Values / Current RMS |
|  <i>Measured value (calculated): IL1 Total Harmonic Current</i> | |
| IL2 THD | Operation / Measured Values / Current RMS |
|  <i>Measured value (calculated): IL2 Total Harmonic Current</i> | |
| IL3 THD | Operation / Measured Values / Current RMS |
|  <i>Measured value (calculated): IL3 Total Harmonic Current</i> | |
| %(I2/I1) | Operation / Measured Values / Current |
|  <i>Measured value (calculated): I2/I1, phase sequence will be taken into account automatically.</i> | |

8.2.4 CT: Statistical Values

| | |
|--|--|
| I1 max | Operation / Statistics / Max / Current |
| <input checked="" type="checkbox"/> <i>Maximum value positive phase sequence current (fundamental)</i> | |
| I1 min | Operation / Statistics / Min / Current |
| <input checked="" type="checkbox"/> <i>Minimum value positive phase sequence current (fundamental)</i> | |
| I2 max | Operation / Statistics / Max / Current |
| <input checked="" type="checkbox"/> <i>Maximum value negative sequence current (fundamental)</i> | |
| I2 min | Operation / Statistics / Min / Current |
| <input checked="" type="checkbox"/> <i>Minimum value unbalanced load current (fundamental)</i> | |
| IL1 max RMS | Operation / Statistics / Max / Current |
| <input checked="" type="checkbox"/> <i>IL1 maximum value (RMS)</i> | |
| IL1 avg RMS | Operation / Statistics / Demand / Current Demand |
| <input checked="" type="checkbox"/> <i>IL1 average value (RMS)</i> | |
| IL1 min RMS | Operation / Statistics / Min / Current |
| <input checked="" type="checkbox"/> <i>IL1 minimum value (RMS)</i> | |
| IL2 max RMS | Operation / Statistics / Max / Current |
| <input checked="" type="checkbox"/> <i>IL2 maximum value (RMS)</i> | |

| | |
|---|--|
| IL2 avg RMS | Operation / Statistics / Demand / Current Demand |
| <input checked="" type="checkbox"/> IL2 average value (RMS) | |
| IL2 min RMS | Operation / Statistics / Min / Current |
| <input checked="" type="checkbox"/> IL2 minimum value (RMS) | |
| IL3 max RMS | Operation / Statistics / Max / Current |
| <input checked="" type="checkbox"/> IL3 maximum value (RMS) | |
| IL3 avg RMS | Operation / Statistics / Demand / Current Demand |
| <input checked="" type="checkbox"/> IL3 average value (RMS) | |
| IL3 min RMS | Operation / Statistics / Min / Current |
| <input checked="" type="checkbox"/> IL3 minimum value (RMS) | |
| IG meas max RMS | Operation / Statistics / Max / Current |
| <input checked="" type="checkbox"/> Measured value: IG maximum value (RMS) | |
| IG meas min RMS | Operation / Statistics / Min / Current |
| <input checked="" type="checkbox"/> Measured value: IG minimum value (RMS) | |
| IG calc max RMS | Operation / Statistics / Max / Current |
| <input checked="" type="checkbox"/> Measured value (calculated):IG maximum value (RMS) | |
| IG calc min RMS | Operation / Statistics / Min / Current |
| <input checked="" type="checkbox"/> Measured value (calculated):IG minimum value (RMS) | |
| %(I2/I1) max | Operation / Statistics / Max / Current |
| <input checked="" type="checkbox"/> Measured value (calculated): I2/I1 maximum value, phase sequence will be taken into account automatically | |
| %(I2/I1) min | Operation / Statistics / Min / Current |
| <input checked="" type="checkbox"/> Measured value (calculated): I2/I1 minimum value, phase sequence will be taken into account automatically | |
| IL1 Peak (Demand) | Operation / Statistics / Demand / Current Demand |
| <input checked="" type="checkbox"/> IL1 Peak value, RMS value | |
| IL2 Peak (Demand) | Operation / Statistics / Demand / Current Demand |
| <input checked="" type="checkbox"/> IL2 Peak value, RMS value | |

8 Field settings


8.2.4 CT: Statistical Values

| IL3 Peak (Demand) | Operation / Statistics / Demand / Current Demand |
|-------------------------------------|--|
| <input checked="" type="checkbox"/> | <i>IL3 Peak value, RMS value</i> |


9 Protection


Module General Protection


9.1 Prot: Global Parameters

| Function | Protection Para / Global Prot Para / Prot |
|---|---|
| Active | Inactive, Active ↪ Table |
|  Permanent activation or deactivation of module/stage. | P.2 |

| ExBlo Fc | Protection Para / Global Prot Para / Prot |
|--|---|
| Inactive | Inactive, Active ↪ Table |
|  Activate (allow) the external blocking of the global protection functionality of the device. | P.2 |


| ExBlo1 ExBlo2 | Protection Para / Global Prot Para / Prot |
|---|--|
| - | - ... Internal test state ↪ Table |
|  If external blocking of this module is activated (allowed), the global protection functionality of the device will be blocked if the state of the assigned signal becomes true. | P.2 |

| Blo TripCmd | Protection Para / Global Prot Para / Prot |
|--|---|
| Inactive | Inactive, Active ↪ Table |
|  Permanent blocking of the Trip Command of the entire Protection. | P.2 |

| ExBlo TripCmd Fc | Protection Para / Global Prot Para / Prot |
|--|---|
| Inactive | Inactive, Active ↪ Table |
|  Activate (allow) the external blocking of the trip command of the entire device. | P.2 |

9 Protection

9.2 Prot: Direct Controls


| | | |
|---|---|-----|
| ExBlo TripCmd | Protection Para / Global Prot Para / Prot | |
| - | - ... Internal test state ↳ Table | P.2 |
|  | <i>If external blocking of the tripping command is activated (allowed), the tripping command of the entire device will be blocked if the state of the assigned signal becomes true.</i> | |


9.2 Prot: Direct Controls


| | | |
|---|---|-----|
| Res FaultNo a GridFaultNo | Operation / Reset/Acknowledge / Reset | |
| Inactive | Inactive, Active ↳ Table | P.1 |
|  | <i>Resetting of fault number and grid fault number.</i> | |

| | | |
|---|--|-----|
| Reset I-Prot | Operation / Reset/Acknowledge / Reset | |
| Inactive | Inactive, Active ↳ Table | P.1 |
|  | <i>Reset all overcurrent protection functions (ANSI 50/51/46/67)</i> | |


9.3 Prot: Input States


| | | |
|---|---|--|
| ExBlo1-I (↳ Prot . ExBlo1) | Operation / Status Display / Prot | |
|  | <i>Module input state: External blocking1</i> | |

| | | |
|---|---|--|
| ExBlo2-I | Operation / Status Display / Prot | |
|  | <i>Module input state: External blocking2</i> | |

| | | |
|---|--|--|
| ExBlo TripCmd-I (↳ Prot . ExBlo TripCmd) | Operation / Status Display / Prot | |
|  | <i>Module input state: External Blocking of the Trip Command</i> | |





9.4 Prot: Signals (Output States)

| | | |
|---|--|--|
| available | Operation / Status Display / Prot | |
|  | <i>Signal: Protection is available</i> | |

| | |
|--|---|
| Active | Operation / Status Display / All Actives Operation / Status Display / Prot |
|  <i>Signal: active</i> | |
| ExBlo | Operation / Status Display / Prot |
|  <i>Signal: External Blocking</i> | |
| Blo TripCmd | Operation / Status Display / Prot |
|  <i>Signal: Trip Command blocked</i> | |
| ExBlo TripCmd | Operation / Status Display / Prot |
|  <i>Signal: External Blocking of the Trip Command</i> | |
| Alarm L1 | Operation / Status Display / Prot |
|  <i>Signal: General-Alarm L1</i> | |
| Alarm L2 | Operation / Status Display / Prot |
|  <i>Signal: General-Alarm L2</i> | |
| Alarm L3 | Operation / Status Display / Prot |
|  <i>Signal: General-Alarm L3</i> | |
| Alarm G | Operation / Status Display / Prot |
|  <i>Signal: General-Alarm - Earth fault</i> | |
| Alarm | Operation / Status Display / Alarms Operation / Status Display / Prot |
|  <i>Signal: General Alarm</i> | |
| Trip L1 | Operation / Status Display / Prot |
|  <i>Signal: General Trip L1</i> | |
| Trip L2 | Operation / Status Display / Prot |
|  <i>Signal: General Trip L2</i> | |
| Trip L3 | Operation / Status Display / Prot |
|  <i>Signal: General Trip L3</i> | |

9 Protection

9.4 Prot: Signals (Output States)


| | |
|---|---|
| Trip G | Operation / Status Display / Prot |
|  <i>Signal: General Trip Ground fault</i> | |
| Trip | Operation / Status Display / Trips Operation / Status Display / Prot |
|  <i>Signal: General Trip</i> | |
| Res FaultNo a GridFaultNo | Operation / Status Display / Prot |
|  <i>Signal: Resetting of fault number and grid fault number.</i> | |
| Fault No. | Operation / Count and RevData / Prot |
|  <i>Fault number</i> | |

9.5 MStart

Motor Start


9.5.1 MStart: Global Parameters


| Reversing | | Field Para / Motor Nominal Values |
|-----------|-------------------------|-----------------------------------|
| Inactive | Inactive, Active | P.2 |
| | ↩ Table | |


 This setting specifies whether or not the starter for this motor is designed to reverse the phase sequence and to make the motor run in either direction.


If set to "active", either phase sequence is accepted during a motor start.


If set to "inactive", the reversed phase sequence leads to a trip.

| Ib | | Field Para / Motor Nominal Values |
|---|---|-----------------------------------|
| 10A | 10A ... 6000A | P.2 |
|  | Full load current (amperes). Set to maximum stator continuous RMS current primary (actual motor winding) amperes in each phase. Use motor nameplate or manufacturers data. Note that the ratio Ib/CT prim must lie between 0.25 and 1.5 in order to have reliable motor protection. | |

| LRC | | Field Para / Motor Nominal Values |
|---|--|-----------------------------------|
| 3.00Ib | 3.00Ib ... 12.00Ib | P.2 |
|  | Set to the locked-rotor current (the current the motor draws when stalled), in times of Ib. Use motor nameplate or manufacturers data. | |








| LRTC | | Field Para / Motor Nominal Values |
|---|--|-----------------------------------|
| 1s | 1s ... 120s | P.2 |
|  | Specifies how long a locked-rotor or stall condition can be maintained before the motor is damaged, in seconds, for a cold start. Use motor nameplate or manufacturers data. | |

| STPC | | Field Para / Motor Nominal Values |
|---|---|-----------------------------------|
| 0.02Ib | 0.02Ib ... 0.20Ib | P.2 |
|  | Stop current threshold, in percent of Ib, if the actual current is below the threshold for at least 300 milliseconds. If a stop state occurs, the jogging functions Starts per Hour Allowed (SPH), Time Between Starts (TBS) and Anti-Backspin (ABS) are enforced. All phases of the current must be below this level before a stop will be declared. | |


| k-Factor | | Field Para / Motor Nominal Values |
|---|--|-----------------------------------|
| 0.85 | 0.25 ... 1.50 | P.2 |
|  | The k-Factor is to be calculated by the maximum allowed continuous current over the rated current transformer current (e.g. 1.2 times rated motor current over rated transformer current). | |

9 Protection


9.5.1 MStart: Global Parameters


| | | | |
|--|--|---|-----|
| ExBlo TripCmd | | Protection Para / Global Prot Para / MStart / Start Control | |
| - | - ... Internal test state | | P.2 |
| | ↪ Table | | |
|  | <i>External blocking of the Trip Command of the module/the stage, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true.</i> | | |
| RemStartBlo Fc | | Protection Para / Global Prot Para / MStart / Start Control | |
| Inactive | Inactive, Active | | P.2 |
| | ↪ Table | | |
|  | <i>RemStartBlo Fc</i> | | |
| ThermBlo Fc | | Protection Para / Global Prot Para / MStart / Start Control | |
| Inactive | Inactive, Active | | P.2 |
| | ↪ Table | | |
|  | <i>ThermBlo Fc</i> | | |
| TRN Criterion | | Protection Para / Global Prot Para / MStart / Start Control | |
| TRN T and I | TRN I, TRN TIME, TRN T and I, TRN T or I | | P.2 |
| | ↪ Table | | |
|  | <i>Start transition criterion</i> | | |
| TRNT | | Protection Para / Global Prot Para / MStart / Start Control | |
| 10s | 0s ... 1200s | | P.2 |
|  | <i>Motor start transition time limit</i> | | |
| TRNC | | Protection Para / Global Prot Para / MStart / Start Control | |
| Only available if: | 0.10Ib ... 3.00Ib | | P.2 |
| <ul style="list-style-type: none"> • TRN Criterion = TRN I • TRN Criterion = TRN T and I • TRN Criterion = TRN T or I | | | |
| 1.30Ib | | | |
|  | <i>Motor start transitions current level in Ib%</i> | | |
| NOCS | | Protection Para / Global Prot Para / MStart / Start Control | |
| 1 | 1 ... 5 | | P.2 |
|  | <i>Number of cold starts limit</i> | | |


| TBS Fc | | Protection Para / Global Prot Para / MStart / Start Control | |
|---|-----------------------------------|---|-----|
| Inactive | Inactive, Active | ↪ Table | P.2 |
|  | <i>Time Between Starts on/off</i> | | |

| TBS Timer | | Protection Para / Global Prot Para / MStart / Start Control | |
|---|----------------------------------|---|-----|
| <ul style="list-style-type: none"> Only available if: TBS Fc = Active 60min | 1min ... 240min | ↪ Table | P.2 |
|  | <i>Time Between Starts Limit</i> | | |

| SPH Fc | | Protection Para / Global Prot Para / MStart / Start Control | |
|---|------------------------|---|-----|
| Inactive | Inactive, Active | ↪ Table | P.2 |
|  | <i>Starts Per Hour</i> | | |

| SPH | | Protection Para / Global Prot Para / MStart / Start Control | |
|---|------------|---|-----|
| <ul style="list-style-type: none"> Only available if: SPH Fc = Active 1 | 1 ... 10 | ↪ Table | P.2 |
|  | <i>SPH</i> | | |


| InSq Fc | | Protection Para / Global Prot Para / MStart / Start Control | |
|---|---|---|-----|
| Inactive | Inactive, InSq Start2Run, InSq Stop2Start | ↪ Table | P.2 |
|  | <i>Type of starting point for the Incomplete Sequence timer</i> | | |


| InSq Time | | Protection Para / Global Prot Para / MStart / Start Control | |
|---|---|---|-----|
| <ul style="list-style-type: none"> Only available if: InSq Fc ≠ Inactive 1s | 1s ... 240s | ↪ Table | P.2 |
|  | <i>Report back time (time limit) for the detection of an Incomplete Sequence (of a motor start)</i> | | |


| LAT Fc | | Protection Para / Global Prot Para / MStart / Start Control | |
|---|-------------------------------------|---|-----|
| Inactive | Inactive, Active | ↪ Table | P.2 |
|  | <i>Long Time Acceleration Timer</i> | | |


9 Protection


9.5.1 MStart: Global Parameters

| LAT Timer | | Protection Para / Global Prot Para / MStart / Start Control | |
|---|---|---|-----|
| <ul style="list-style-type: none"> Only available if: LAT Fc = Active | 1s ... 1200s | | P.2 |
| 1200s | | | |
|  | <p><i>Large motors with a high inertia may experience starting currents that exceed the locked rotor current and time. The protective relay has logic and provisions for a zero speed switch input to differentiate between a stall and start condition. If the motor is spinning then the relay will not trip on the normal locked rotor time allowing the motor to start.</i></p> | | |


| ABS Fc | | Protection Para / Global Prot Para / MStart / Start Control | |
|---|---|---|-----|
| Inactive | Inactive, Active | | P.2 |
| | ↪ Table | | |
|  | <p><i>For certain applications, such as pumping a fluid up a pipe, the motor may be driven backward for a period of time after it stops. The protective relay provides an anti-backspin timer to prevent starting the motor while it is spinning in the reverse direction. The timer begins counting from the moment a stop is declared by the relay.</i></p> | | |


| ABS Timer | | Protection Para / Global Prot Para / MStart / Start Control | |
|---|---|---|-----|
| <ul style="list-style-type: none"> Only available if: ABS Fc = Active | 1s ... 3600s | | P.2 |
| 3600s | | | |
|  | <p><i>For certain applications, such as pumping a fluid up a pipe, the motor may be driven backward for a period of time after it stops. The protective relay provides an anti-backspin timer to prevent starting the motor while it is spinning in the reverse direction. The timer begins counting from the moment a stop is declared by the relay.</i></p> | | |


| ZSS | | Protection Para / Global Prot Para / MStart / Start Control | |
|---|-------------------------|---|-----|
| Inactive | Inactive, Active | | P.2 |
| | ↪ Table | | |
|  | Zero Speed Switch | | |


| EmgOvr | | Protection Para / Global Prot Para / MStart / Start Control | |
|---|---|---|-----|
| Inactive | Inactive, DI, HMI, DI or HMI | | P.2 |
| | ↪ Table | | |
|  | <p><i>Emergency override options. Signal has to be active in order to release the thermal capacity of the motor. Please notice that by doing this you run the risk of damaging the motor. "EMGOVR" has to be set to "DI" or "DI or UI" for this input to take effect.</i></p> | | |


| RemStartBlock | | Protection Para / Global Prot Para / MStart / Motor Inputs | |
|---|-----------------------------|--|-----|
| <ul style="list-style-type: none"> Only available if: RemStartBlo Fc = Active | - ... LE80.Out inverted | | P.2 |
| - | ↪ Table | | |
|  | Remote Motor Start Blocking | | |


| EmgOvr | | Protection Para / Global Prot Para / MStart / Motor Inputs | |
|---|---|--|-----|
| Only available if: | - ... LE80.Out inverted | | P.2 |
| <ul style="list-style-type: none"> • EmgOvr = DI • EmgOvr = DI or HMI | ↪ Table | | |
| - | | | |
|  | <i>Emergency Override. Signal has to be active in order to release the thermal capacity of the motor. Please notice that by doing this you run the risk of damaging the motor. "EMGOVR" has to be set to "DI" or "DI or UI" for this input to take effect</i> | | |


| InSq | | Protection Para / Global Prot Para / MStart / Motor Inputs | |
|---|----------------------------|--|-----|
| Only available if: InSq Fc ≠ Inactive | - ... LE80.Out inverted | | P.2 |
| - | ↪ Table | | |
|  | <i>Incomplete Sequence</i> | | |

| ZSS | | Protection Para / Global Prot Para / MStart / Motor Inputs | |
|---|--------------------------|--|-----|
| Only available if: ZSS = Active | - ... LE80.Out inverted | | P.2 |
| - | ↪ Table | | |
|  | <i>Zero Speed Switch</i> | | |

| STPC Blo | | Protection Para / Global Prot Para / MStart / Motor Inputs | |
|---|--|--|-----|
| - | - ... LE80.Out inverted | | P.2 |
| | ↪ Table | | |
|  | <i>With this setting a Digital Input keeps the Motor in the RUN mode, even when the motor current drops below STPC (motor stop current).</i> | | |

| t-Blo-IOC | | Protection Para / Global Prot Para / MStart / Start Delay Timer | |
|---|---|---|-----|
| 0.05s | 0.03s ... 1.00s | | P.2 |
|  | <i>Phase Overcurrent Start Delay. Phase Overcurrent elements are blocked for the time programmed under this parameter, while the motor is starting.</i> | | |


| t-Blo-GOC | | Protection Para / Global Prot Para / MStart / Start Delay Timer | |
|---|--|---|-----|
| 0.08s | 0.03s ... 1.00s | | P.2 |
|  | <i>Ground Overcurrent Start Delay. Ground Overcurrent elements are blocked for the time programmed under this parameter, while the motor is starting</i> | | |


| t-Blo-I< | | Protection Para / Global Prot Para / MStart / Start Delay Timer | |
|---|--|---|-----|
| 60s | 0s ... 1200s | | P.2 |
|  | <i>Underload Start Delay. 37[x] elements are blocked for the time programmed under this parameter, while the motor is starting</i> | | |

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9.5.2 MStart: Setting Group Parameters


| | | |
|---|--|-----|
| t-Blo-I2> | Protection Para / Global Prot Para / MStart / Start Delay Timer | |
| 10.00s | 0.03s ... 1200.00s | P.2 |
|  | <i>Current Unbalance Start Delay. 46[x] elements are blocked for the time programmed under this parameter, while the motor is starting</i> | |

| | | |
|---|---|-----|
| t-Blo-JAM | Protection Para / Global Prot Para / MStart / Start Delay Timer | |
| 60.00s | 0.03s ... 1200.00s | P.2 |
|  | <i>Jam Start Delay. 50J[x] elements are blocked for the time programmed under this parameter, while the motor is starting</i> | |

| | | |
|---|---|-----|
| t-Blo-Generic1 ... t-Blo-Generic5 | Protection Para / Global Prot Para / MStart / Start Delay Timer | |
| 0s | 0s ... 1200s | P.2 |
|  | <i>Generic Start Delay. This value can be used to block any protective element.</i> | |

9.5.2 MStart: Setting Group Parameters

| | | |
|---|--|-----|
| Blo TripCmd | Protection Para / Set 1 / MStart / Start Control Protection Para / Set 2 / MStart / Start Control Protection Para / Set 3 / MStart / Start Control Protection Para / Set 4 / MStart / Start Control | |
| Inactive | Inactive, Active ↳ Table | P.2 |
|  | <i>Permanent blocking of the Trip Command of the module/stage.</i> | |

| | | |
|---|--|-----|
| ExBlo TripCmd Fc | Protection Para / Set 1 / MStart / Start Control Protection Para / Set 2 / MStart / Start Control Protection Para / Set 3 / MStart / Start Control Protection Para / Set 4 / MStart / Start Control | |
| Inactive | Inactive, Active ↳ Table | P.2 |
|  | <i>Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo TripCmd Fc=active".</i> | |

9.5.3 MStart: Direct Controls

| | | |
|---|---|-----|
| EmergOverHMI | Operation / Reset/Acknowledge / EmgOvr | |
| Inactive | Inactive, Active ↳ Table | S.3 |
|  | <i>Emergency override through front display</i> | |

| | | |
|-----------------------|---------------------------------------|-----|
| RstForcedStart | Operation / Reset/Acknowledge / Reset | |
| Inactive | Inactive, Active | 5.3 |
| | ↩ Table | |
| ☉ | Reset Forced Start flag | |

9.5.4 MStart: Input States

| | | |
|------------------------|---|--|
| ExBlo TripCmd-I | Operation / Status Display / MStart / Start Control | |
| | ↩ MStart . ExBlo TripCmd | |
| ↓ | Module input state: External Blocking of the Trip Command | |

| | | |
|------------------------|--|--|
| RemStartBlock-I | Operation / Status Display / MStart / Motor Inputs | |
| ↓ | State of the module input: Remote Motor Start Blocking | |

| | | |
|-----------------|---|--|
| EmgOvr-I | Operation / Status Display / MStart / Motor Inputs | |
| ↓ | State of the module input: Emergency Override. Signal has to be active in order to release the thermal capacity of the motor. Please notice that by doing this you run the risk of damaging the motor. "EMGOVR" has to be set to "DI" or "DI or UI" for this input to take effect | |

| | | |
|---------------|--|--|
| InSq-I | Operation / Status Display / MStart / Motor Inputs | |
| ↓ | State of the module input: Incomplete Sequence | |

| | | |
|--------------|--|--|
| ZSS-I | Operation / Status Display / MStart / Motor Inputs | |
| ↓ | State of the module input: Zero Speed Switch | |

| | | |
|-------------------|--|--|
| STPC Blo-I | Operation / Status Display / MStart / Motor Inputs | |
| | ↩ MStart . STPC Blo | |
| ↓ | State of the module input: With this setting a Digital Input keeps the Motor in the RUN mode, even when the motor current drops below STPC (motor stop current). | |

9.5.5 MStart: Signals (Output States)

| | | |
|---------------|---|--|
| Active | Operation / Status Display / All Actives Operation / Status Display / MStart / Start Control | |
| ↑ | Signal: active | |

| | | |
|--------------------|---|--|
| Blo TripCmd | Operation / Status Display / MStart / Start Control | |
| ↑ | Signal: Trip Command blocked | |

9 Protection













9.5.5 MStart: Signals (Output States)



| | |
|---|--|
| Trip | Operation / Status Display / Trips Operation / Status Display / MStart / Start Control |
|  <i>Signal: Trip</i> | |
| TripCmd | Operation / Status Display / TripCmds Operation / Status Display / MStart / Start Control |
|  <i>Signal: Trip Command</i> | |
| Start | Operation / Status Display / MStart / Start Control |
|  <i>Signal: Motor is in start mode</i> | |
| Run | Operation / Status Display / MStart / Start Control |
|  <i>Signal: Motor is in run mode</i> | |
| Stop | Operation / Status Display / MStart / Start Control |
|  <i>Signal: Motor is in stop mode</i> | |
| Blo | Operation / Status Display / MStart / Start Control |
|  <i>Signal: Motor is blocked for starting or transition to Run mode</i> | |
| NOCSBlocked | Operation / Status Display / MStart / Start Control |
|  <i>Signal: Motor is prohibited to start due to number of cold start limits</i> | |
| SPHBlocked | Operation / Status Display / MStart / Start Control |
|  <i>Signal: Motor is prohibited to start due to starts per hour limits</i> | |
| SPHBlockAlarm | Operation / Status Display / MStart / Start Control |
|  <i>Signal: Motor is prohibited to start due to starts per hour limits, would come active in the next stop</i> | |
| TBSBlocked | Operation / Status Display / MStart / Start Control |
|  <i>Signal: Motor is prohibited to start due to time between starts limits</i> | |
| ThermalBlo | Operation / Status Display / MStart / Start Control |
|  <i>Signal: Thermal block</i> | |
| RemBlockStart | Operation / Status Display / MStart / Start Control |
|  <i>Signal: Motor is prohibited to start due to external blocking through digital input DI</i> | |

| | |
|-----------------------------|--|
| TransitionTrip | Operation / Status Display / MStart / Start Control |
| ↑ | Signal: Start transition fail trip |
| ZSSTrip | Operation / Status Display / MStart / Start Control |
| ↑ | Signal: Zero speed trip (possible locked rotor) |
| InSq Stop2Start Fail | Operation / Status Display / MStart / Start Control |
| ↑ | Signal: Fail to transit from stop to start based on reported back time |
| InSq Start2Run Fail | Operation / Status Display / MStart / Start Control |
| ↑ | Signal: Fail to transit from start to run based on reported back time |
| LATBlock | Operation / Status Display / MStart / Start Control |
| ↑ | Signal: Long acceleration timer enforced |
| ColdStartSeq | Operation / Status Display / MStart / Start Control |
| ↑ | Signal: Motor cold start sequence flag |
| ForcedStart | Operation / Status Display / MStart / Start Control |
| ↑ | Signal: Motor being forced to start |
| TripPhaseReverse | Operation / Status Display / MStart / Start Control |
| ↑ | Signal: Relay tripped because of phase reverse detection |
| EmergOverrideDI | Operation / Status Display / MStart / Start Control |
| ↑ | Signal: Emergency override start blocking through digital input DI |
| EmergOverrideUI | Operation / Status Display / MStart / Start Control |
| ↑ | Signal: Emergency override start blocking through front panel |
| ABSActive | Operation / Status Display / MStart / Start Control |
| ↑ | Signal: Anti-backspin is active. For certain applications, such as pumping a fluid up a pipe, the motor may be driven backward for a period of time after it stops. The anti-backspin timer prevents starting the motor while it is spinning in the reverse direction. |
| Blo-IOCStart | Operation / Status Display / MStart / Start Delay Timer |
| ↑ | Signal: Phase Instantaneous Overcurrent Start Delay. IOC (Instantaneous Overcurrent) elements are blocked for the time programmed under this parameter |


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9.5.5 MStart: Signals (Output States)


| | |
|--|---|
| Blo-GOCStart | Operation / Status Display / MStart / Start Delay Timer |
|  <i>Signal: Ground Instantaneous Overcurrent Start Delay. GOC (Instantaneous Overcurrent) elements are blocked for the time programmed under this parameter</i> | |
| Blo-I<Start | Operation / Status Display / MStart / Start Delay Timer |
|  <i>Signal: Underload Start Delay. Underload(Instantaneous Overcurrent) elements are blocked for the time programmed under this parameter</i> | |
| Blo-I2>Start | Operation / Status Display / MStart / Start Delay Timer |
|  <i>Signal: Motor start block current unbalance signal</i> | |
| Blo-JamStart | Operation / Status Display / MStart / Start Delay Timer |
|  <i>Signal: JAM Start Delay. JAM(Instantaneous Overcurrent) elements are blocked for the time programmed under this parameter</i> | |
| Blo-Generic1 | Operation / Status Display / MStart / Start Delay Timer |
|  <i>Generic Start Delay. This value can be used to block any protective element.1</i> | |
| Blo-Generic2 | Operation / Status Display / MStart / Start Delay Timer |
|  <i>Generic Start Delay. This value can be used to block any protective element.2</i> | |
| Blo-Generic3 | Operation / Status Display / MStart / Start Delay Timer |
|  <i>Generic Start Delay. This value can be used to block any protective element.3</i> | |
| Blo-Generic4 | Operation / Status Display / MStart / Start Delay Timer |
|  <i>Generic Start Delay. This value can be used to block any protective element.4</i> | |
| Blo-Generic5 | Operation / Status Display / MStart / Start Delay Timer |
|  <i>Generic Start Delay. This value can be used to block any protective element.5</i> | |
| I_Transit | Operation / Status Display / MStart / Start Control |
|  <i>Signal: Current transition signal</i> | |
| T_Transit | Operation / Status Display / MStart / Start Control |
|  <i>Signal: Time transition signal</i> | |
| MotorStopBlo | Operation / Status Display / MStart / Start Control |
|  <i>Signal: Motor stop block other protection functions</i> | |


| | |
|---|---|
| Rotating forward | Operation / Status Display / MStart / Start Control |
|  <i>Signal: Rotation Direction forward</i> | |
| Rotating backward | Operation / Status Display / MStart / Start Control |
|  <i>Signal: Rotation Direction reverse</i> | |


9.5.6 MStart: Values, Counters


| | |
|--|-------------------------------------|
| TBS Rem.Block.Time | Operation / Measured Values / Motor |
|  <i>In case that the Motor is blocked by TBS functions, the remaining blocking time is shown.</i> | |


| | |
|--|-------------------------------------|
| NOCS Remaining | Operation / Measured Values / Motor |
|  <i>This counter shows the number of remaining permitted cold starts.</i> | |


| | |
|--|-------------------------------------|
| SPH Remaining | Operation / Measured Values / Motor |
|  <i>SPH Remaining</i> | |


| | |
|--|-------------------------------------|
| SPH Rem.Block.Time | Operation / Measured Values / Motor |
|  <i>In case that the Motor is blocked by an SPH blocking, the remaining blocking time is shown until the next motor start is permitted.</i> | |


| | |
|--|-------------------------------------|
| ABK Rem.Time | Operation / Measured Values / Motor |
|  <i>This is the remaining anti-backspin time.</i> | |



| | |
|--|---|
| IL1 Ib | Operation / Measured Values / Current RMS |
|  <i>Measured value: Phase current as multiple of Ib</i> | |


| | |
|--|---|
| IL2 Ib | Operation / Measured Values / Current RMS |
|  <i>Measured value: Phase current as multiple of Ib</i> | |


| | |
|--|---|
| IL3 Ib | Operation / Measured Values / Current RMS |
|  <i>Measured value: Phase current as multiple of Ib</i> | |

| | |
|---|---|
| I3 P (%Ib) avg | Operation / Measured Values / Current RMS |
|  <i>Average RMS current of all 3 phases as percentages of Ib</i> | |

| | |
|--|---|
| I3 PRMS avg | Operation / Measured Values / Current RMS |
|  <i>Average RMS current of all 3 phases</i> | |

| | |
|---|---|
| OCNT | Operation / History / OperationsCr |
| # | Motor Operation count since last reset. Resettable with »Sys . Res OperationsCr« or »Sys . Res All«. |
| RunTime | Operation / History / OperationsCr |
|  | Motor Operation time since last reset. Resettable with »Sys . Res OperationsCr« or »Sys . Res All«. |
| HighestStartI | Operation / History / OperationsCr |
| # | Highest starting phase current. The time stamp indicates the point in time when the maximum current has occurred. Resettable with »Sys . Res OperationsCr« or »Sys . Res All«. |
| HighestRunI | Operation / History / OperationsCr |
| # | Highest running phase current. The time stamp indicates the point in time when the maximum current has occurred. Resettable with »Sys . Res OperationsCr« or »Sys . Res All«. |
| Highest%I2/I1 | Operation / History / OperationsCr |
|  | Highest %I2/I1 value since last reset. The time stamp indicates the point in time when the maximum unbalanced load has occurred. Resettable with »Sys . Res OperationsCr« or »Sys . Res All«. |
| nEmrgOvr | Operation / History / OperationsCr |
| # | Number of emergency overrides since last reset. Resettable with »Sys . Res OperationsCr« or »Sys . Res All«. |
| nInSqTrips | Operation / History / TripCmdCr |
| # | Number of incomplete sequence trips since last reset. Resettable with »Sys . Res TripCr« or »Sys . Res All«. |
| nSPHBlocks | Operation / History / TripCmdCr |
| # | Number of start per hour blocks since last reset. Resettable with »Sys . Res TripCr« or »Sys . Res All«. |
| nTBSBlocks | Operation / History / TripCmdCr |
| # | Number of time between start blocks since last reset. Resettable with »Sys . Res TripCr« or »Sys . Res All«. |
| nTRNTrips | Operation / History / TripCmdCr |
| # | Number of transition trips since last reset. Resettable with »Sys . Res TripCr« or »Sys . Res All«. |
| nZSWTrips | Operation / History / TripCmdCr |
| # | Number of zero speed switch trips since last reset. Resettable with »Sys . Res TripCr« or »Sys . Res All«. |
| nRevTrips | Operation / History / TripCmdCr |
| # | Number of reverse spinning trips since last reset. Resettable with »Sys . Res TripCr« or »Sys . Res All«. |

| | |
|---|--|
| TRunTime | Operation / History / TotalCr |
|  | <i>Motor Operation (Motor run time) time since last reset. Resettable with »Sys . Res TotalCr« or »Sys . Res All«.</i> |

| | |
|---|--|
| TOCS | Operation / History / TotalCr |
|  | <i>Total Motor Operation count since last reset. Resettable with »Sys . Res TotalCr« or »Sys . Res All«.</i> |

9.5.7 MStart: Statistical Values

| | |
|-------------------------------------|--|
| IL1 max Ib | Operation / Statistics / Max / Current |
| <input checked="" type="checkbox"/> | <i>IL1 maximum value as multiple of Ib</i> |

| | |
|-------------------------------------|--|
| IL1 avg Ib | Operation / Statistics / Demand / Current Demand |
| <input checked="" type="checkbox"/> | <i>IL1 average value as multiple of Ib</i> |

| | |
|-------------------------------------|--|
| IL1 min Ib | Operation / Statistics / Min / Current |
| <input checked="" type="checkbox"/> | <i>IL1 minimum value as multiple of Ib</i> |

| | |
|-------------------------------------|--|
| IL2 max Ib | Operation / Statistics / Max / Current |
| <input checked="" type="checkbox"/> | <i>IL2 maximum value as multiple of Ib</i> |

| | |
|-------------------------------------|--|
| IL2 avg Ib | Operation / Statistics / Demand / Current Demand |
| <input checked="" type="checkbox"/> | <i>IL2 average value as multiple of Ib</i> |

| | |
|-------------------------------------|--|
| IL2 min Ib | Operation / Statistics / Min / Current |
| <input checked="" type="checkbox"/> | <i>IL2 minimum value as multiple of Ib</i> |

| | |
|-------------------------------------|--|
| IL3 max Ib | Operation / Statistics / Max / Current |
| <input checked="" type="checkbox"/> | <i>IL3 maximum value as multiple of Ib</i> |

| | |
|-------------------------------------|--|
| IL3 avg Ib | Operation / Statistics / Demand / Current Demand |
| <input checked="" type="checkbox"/> | <i>IL3 average value as multiple of Ib</i> |


| | |
|-------------------------------------|--|
| IL3 min Ib | Operation / Statistics / Min / Current |
| <input checked="" type="checkbox"/> | <i>IL3 minimum value as multiple of Ib</i> |


| | |
|-------------------------------------|---|
| I3P Fla Demand | Operation / Statistics / Demand / Current Demand |
| <input checked="" type="checkbox"/> | <i>RMS current of all 3 phases calculated in a fixed demand window as percentages of Ib</i> |

9.6 I[1] ... I[6] [50, 51]


Phase Overcurrent Stage


9.6.1 I[1] ... I[6]: Device Planning Parameters


| Mode | Device planning / Projected Elements | |
|--|---|-----|
| Non-directional | -, Non-directional ↪ Table | S.3 |
|  <i>Phase Overcurrent Stage, general operation mode</i> | | |


| Superv. only | Device planning / Definition | |
|---|------------------------------------|-----|
| no | no, yes ↪ Table | S.3 |
|  <i>Phase Overcurrent Stage, if set to "Yes": Restriction of the function to a supervision functionality, i.e. there is no general alarm, no general trip and no trip command.</i> | | |


9.6.2 I[1] ... I[6]: Global Parameters


| ExBlo1 ExBlo2 | Protection Para / Global Prot Para / I-Prot / I[1] | |
|--|--|-----|
| - | - ... Internal test state ↪ Table | P.2 |
|  <i>External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true.</i> | | |


| ExBlo dur. Mot.Strt | Protection Para / Global Prot Para / I-Prot / I[1] | |
|--|--|-----|
| Blo-IOCStart | - ... Blo-FrqStart ↪ Table | P.2 |
|  <i>External blocking of the module, if the state of the assigned signal is true. This way it is possible to block the module during the motor start phase.</i> | | |


| ExBlo TripCmd | Protection Para / Global Prot Para / I-Prot / I[1] | |
|--|--|-----|
| <ul style="list-style-type: none"> Only available if: Superv. only = no - | - ... Internal test state ↪ Table | P.2 |
|  <i>External blocking of the Trip Command of the module/the stage, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true.</i> | | |

| Ex rev Interl | | Protection Para / Global Prot Para / I-Prot / I[1] |
|---|---|--|
| - | - ... Internal test state | P.2 |
| | ↩ Table | |
|  | <i>External blocking of the module by external reverse interlocking, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true.</i> | |


| AdaptSet 1 | | Protection Para / Global Prot Para / I-Prot / I[1] |
|---|--|--|
| - | - ... Maint Mode Inactive | P.2 |
| | ↩ Table | |
|  | <i>Assignment Adaptive Parameter 1</i> | |

| AdaptSet 2 | | Protection Para / Global Prot Para / I-Prot / I[1] |
|---|--|--|
| - | - ... Maint Mode Inactive | P.2 |
| | ↩ Table | |
|  | <i>Assignment Adaptive Parameter 2</i> | |

| AdaptSet 3 | | Protection Para / Global Prot Para / I-Prot / I[1] |
|---|--|--|
| - | - ... Maint Mode Inactive | P.2 |
| | ↩ Table | |
|  | <i>Assignment Adaptive Parameter 3</i> | |


| AdaptSet 4 | | Protection Para / Global Prot Para / I-Prot / I[1] |
|---|--|--|
| - | - ... Maint Mode Inactive | P.2 |
| | ↩ Table | |
|  | <i>Assignment Adaptive Parameter 4</i> | |


9.6.3 I[1] ... I[6]: Setting Group Parameters


| Function | | Protection Para / Set 1 / I-Prot / I[1] Protection Para / Set 2 / I-Prot / I[1] Protection Para / Set 3 / I-Prot / I[1] Protection Para / Set 4 / I-Prot / I[1] |
|---|--|--|
| Active | Inactive, Active | P.2 |
| | ↩ Table | |
|  | <i>Permanent activation or deactivation of module/stage.</i> | |


9 Protection


9.6.3 I[1] ... I[6]: Setting Group Parameters


| | | |
|---|--|-----|
| ExBlo Fc | Protection Para / Set 1 / I-Prot / I[1] Protection Para / Set 2 / I-Prot / I[1] Protection Para / Set 3 / I-Prot / I[1] Protection Para / Set 4 / I-Prot / I[1] | |
| Inactive | Inactive, Active ↪ Table | P.2 |
|  | <i>Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo Fc=active".</i> | |


| | | |
|---|--|-----|
| Ex rev Interl Fc | Protection Para / Set 1 / I-Prot / I[1] Protection Para / Set 2 / I-Prot / I[1] Protection Para / Set 3 / I-Prot / I[1] Protection Para / Set 4 / I-Prot / I[1] | |
| Inactive | Inactive, Active ↪ Table | P.2 |
|  | <i>Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "Ex rev Interl Fc = active".</i> | |


| | | |
|--|--|-----|
| Blo TripCmd | Protection Para / Set 1 / I-Prot / I[1] Protection Para / Set 2 / I-Prot / I[1] Protection Para / Set 3 / I-Prot / I[1] Protection Para / Set 4 / I-Prot / I[1] | |
| <ul style="list-style-type: none"> Only available if: Superv. only = no Inactive | Inactive, Active ↪ Table | P.2 |
|  | <i>Permanent blocking of the Trip Command of the module/stage.</i> | |

| | | |
|--|--|-----|
| ExBlo TripCmd Fc | Protection Para / Set 1 / I-Prot / I[1] Protection Para / Set 2 / I-Prot / I[1] Protection Para / Set 3 / I-Prot / I[1] Protection Para / Set 4 / I-Prot / I[1] | |
| <ul style="list-style-type: none"> Only available if: Superv. only = no Inactive | Inactive, Active ↪ Table | P.2 |
|  | <i>Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo TripCmd Fc=active".</i> | |

| | | |
|---|--|-----|
| Measuring method | Protection Para / Set 1 / I-Prot / I[1] Protection Para / Set 2 / I-Prot / I[1] Protection Para / Set 3 / I-Prot / I[1] Protection Para / Set 4 / I-Prot / I[1] | |
| Fundamental | Fundamental, True RMS, I2 ↪ Table | P.2 |
|  | <i>Measuring method: fundamental or rms or 3rd harmonic (only generator protection relays)</i> | |


| | | |
|---|---|-----|
| I> | Protection Para / Set 1 / I-Prot / I[1] Protection Para / Set 2 / I-Prot / I[1] Protection Para / Set 3 / I-Prot / I[1] Protection Para / Set 4 / I-Prot / I[1] | |
| 2.0In ↻ Adapt. Param. | Adjustable range: <ul style="list-style-type: none">• 0.02In ... 40.00In, If: Char = DEFT• 0.02In ... 4.00In, If: Char ≠ DEFT• 0.10In ... 40.00In, If: VRestraint = Active• 0.02In ... 40.00In, If: VRestraint = Inactive | P.2 |
|  <i>If the pickup value is exceeded, the module/element starts to time out to trip.</i> <i>WARNING: Check the Technical Data and ensure that the actual overcurrent settings for I> and trip delay comply with the technical limits of the phase current inputs! (The device allows for overcurrent settings that are out of the permitted range of current values.)</i> | | |


| | | |
|---|--|-----|
| Char | Protection Para / Set 1 / I-Prot / I[1] Protection Para / Set 2 / I-Prot / I[1] Protection Para / Set 3 / I-Prot / I[1] Protection Para / Set 4 / I-Prot / I[1] | |
| DEFT ↻ Adapt. Param. | DEFT ... I4T ↪ Table | P.2 |
|  <i>Characteristic</i> | | |


| | | |
|---|--|-----|
| t | Protection Para / Set 1 / I-Prot / I[1] Protection Para / Set 2 / I-Prot / I[1] Protection Para / Set 3 / I-Prot / I[1] Protection Para / Set 4 / I-Prot / I[1] | |
| <ul style="list-style-type: none">• Only available if: Char = DEFT 0.5s ↻ Adapt. Param. | 0.00s ... 300.00s | P.2 |
|  <i>Tripping delay</i> | | |


9 Protection

9.6.3 I[1] ... I[6]: Setting Group Parameters


| | | |
|--|--|-----|
| tChar | Protection Para / Set 1 / I-Prot / I[1] Protection Para / Set 2 / I-Prot / I[1] Protection Para / Set 3 / I-Prot / I[1] Protection Para / Set 4 / I-Prot / I[1] | |
| <ul style="list-style-type: none"> • Only available if: Char ≠ DEFT <p>1</p> <p>↻ Adapt. Param.</p> | <p>Adjustable range:</p> <ul style="list-style-type: none"> • 0.02 ... 10.00, If: Char = IEC NINV • 0.02 ... 10.00, If: Char = IEC VINV • 0.02 ... 10.00, If: Char = IEC EINV • 0.02 ... 10.00, If: Char = IEC LINV • 0.02 ... 20.00, If: Char = ANSI MINV • 0.02 ... 20.00, If: Char = ANSI VINV • 0.02 ... 20.00, If: Char = ANSI EINV • 0.02 ... 20.00, If: Char = Therm Flat • 0.02 ... 20.00, If: Char = IT • 0.02 ... 20.00, If: Char = I2T • 0.02 ... 20.00, If: Char = I4T • 0.02 ... 10.00, If: Char = RINV • Else: 0.02 ... 20.00 | P.2 |
| <p> Time multiplier/tripping characteristic factor. The setting range depends on the selected tripping curve.</p> | | |


| | | |
|--|--|-----|
| tMinimum | Protection Para / Set 1 / I-Prot / I[1] Protection Para / Set 2 / I-Prot / I[1] Protection Para / Set 3 / I-Prot / I[1] Protection Para / Set 4 / I-Prot / I[1] | |
| <p>Only available if:</p> <ul style="list-style-type: none"> • Char = IEC NINV • Char = IEC VINV • Char = IEC EINV • Char = IEC LINV • Char = RINV • Char = ANSI MINV • Char = ANSI VINV • Char = ANSI EINV • Char = IT • Char = I2T • Char = I4T <p>0.00s</p> <p>↻ Adapt. Param.</p> | <p>0.00s ... 20.00s</p> | P.2 |
| <p> Minimum trip delay time. Independent of the measured current values, the trip delay time does never fall below the minimum that is set here.</p> | | |


| | | |
|---|---|-----|
| Reset Mode | Protection Para / Set 1 / I-Prot / I[1] Protection Para / Set 2 / I-Prot / I[1] Protection Para / Set 3 / I-Prot / I[1] Protection Para / Set 4 / I-Prot / I[1] | |
| instantaneous ↻ Adapt. Param. | Adjustable range: <ul style="list-style-type: none">instantaneous, definite time, If: Char = DEFTinstantaneous, definite time, inverse time, If: Char ≠ DEFT ↩ Table | P.2 |
|  <i>Reset Mode</i> | | |


| | | |
|--|--|-----|
| tReset | Protection Para / Set 1 / I-Prot / I[1] Protection Para / Set 2 / I-Prot / I[1] Protection Para / Set 3 / I-Prot / I[1] Protection Para / Set 4 / I-Prot / I[1] | |
| <ul style="list-style-type: none">Only available if: Reset Mode = definite time 0s ↻ Adapt. Param. | 0.00s ... 60.00s | P.2 |
|  <i>Reset delay for intermittent phase failures (INV characteristics only)</i> | | |

9.6.4 I[1] ... I[6]: Input States

| | | |
|---|--|--|
| ExBlo1-I ↩ I[1] . ExBlo1 | Operation / Status Display / I-Prot / I[1] | |
|  <i>Module input state: External blocking1</i> | | |

| | | |
|---|--|--|
| ExBlo2-I | Operation / Status Display / I-Prot / I[1] | |
|  <i>Module input state: External blocking2</i> | | |

| | | |
|--|--|--|
| ExBlo TripCmd-I | Operation / Status Display / I-Prot / I[1] | |
|  <ul style="list-style-type: none">Only available if: Superv. only = no <i>Module input state: External Blocking of the Trip Command</i> | | |

| | | |
|--|--|--|
| Ex rev Interl-I ↩ I[1] . Ex rev Interl | Operation / Status Display / I-Prot / I[1] | |
|  <i>Module input state: External reverse interlocking</i> | | |

| | |
|---|--|
| AdaptSet1-I (↪ I[1] . AdaptSet 1) | Operation / Status Display / I-Prot / I[1] |
| ↓ | Module input state: Adaptive Parameter1 |
| AdaptSet2-I (↪ I[1] . AdaptSet 2) | Operation / Status Display / I-Prot / I[1] |
| ↓ | Module input state: Adaptive Parameter2 |
| AdaptSet3-I (↪ I[1] . AdaptSet 3) | Operation / Status Display / I-Prot / I[1] |
| ↓ | Module input state: Adaptive Parameter3 |
| AdaptSet4-I (↪ I[1] . AdaptSet 4) | Operation / Status Display / I-Prot / I[1] |
| ↓ | Module input state: Adaptive Parameter4 |



9.6.5 I[1] ... I[6]: Signals (Output States)

| | |
|----------------------|--|
| Active | Operation / Status Display / All Actives Operation / Status Display / I-Prot / I[1] |
| ↑ | Signal: active |
| ExBlo | Operation / Status Display / I-Prot / I[1] |
| ↑ | Signal: External Blocking |
| Ex rev Interl | Operation / Status Display / I-Prot / I[1] |
| ↑ | Signal: External reverse Interlocking |
| Blo TripCmd | Operation / Status Display / I-Prot / I[1] |
| ↑ | <ul style="list-style-type: none"> Only available if: Superv. only = no Signal: Trip Command blocked |
| ExBlo TripCmd | Operation / Status Display / I-Prot / I[1] |
| ↑ | <ul style="list-style-type: none"> Only available if: Superv. only = no Signal: External Blocking of the Trip Command |



| | |
|-------------------|---|
| Alarm L1 | Operation / Status Display / I-Prot / I[1] |
| ↑ | Signal: Alarm L1 |
| Alarm L2 | Operation / Status Display / I-Prot / I[1] |
| ↑ | Signal: Alarm L2 |
| Alarm L3 | Operation / Status Display / I-Prot / I[1] |
| ↑ | Signal: Alarm L3 |
| Alarm | Operation / Status Display / Alarms Operation / Status Display / I-Prot / I[1] |
| ↑ | Signal: Alarm |
| Trip L1 | Operation / Status Display / I-Prot / I[1] |
| ↑ | Signal: General Trip Phase L1 |
| Trip L2 | Operation / Status Display / I-Prot / I[1] |
| ↑ | Signal: General Trip Phase L2 |
| Trip L3 | Operation / Status Display / I-Prot / I[1] |
| ↑ | Signal: General Trip Phase L3 |
| Trip | Operation / Status Display / Trips Operation / Status Display / I-Prot / I[1] |
| ↑ | Signal: Trip |
| TripCmd | Operation / Status Display / TripCmds Operation / Status Display / I-Prot / I[1] |
| ↑ | <ul style="list-style-type: none"> Only available if: Superv. only = no Signal: Trip Command |
| DefaultSet | Operation / Status Display / I-Prot / I[1] |
| ↑ | Signal: Default Parameter Set |
| AdaptSet 1 | Operation / Status Display / I-Prot / I[1] |
| ↑ | Signal: Adaptive Parameter 1 |
| AdaptSet 2 | Operation / Status Display / I-Prot / I[1] |
| ↑ | Signal: Adaptive Parameter 2 |

9 Protection

9.6.6 I[1] ... I[6]: Counters

| | |
|---|--|
| AdaptSet 3 | Operation / Status Display / I-Prot / I[1] |
|  <i>Signal: Adaptive Parameter 3</i> | |
| AdaptSet 4 | Operation / Status Display / I-Prot / I[1] |
|  <i>Signal: Adaptive Parameter 4</i> | |


9.6.6 I[1] ... I[6]: Counters


| | |
|---|---------------------------------|
| NumberOfAlarms | Operation / History / AlarmCr |
|  <i>Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.</i> | |
| NumberOfTripCmds | Operation / History / TripCmdCr |
|  <i>Number of trip commands since the last reset</i> | |

9.7 IG[1] ... IG[4] [50N, 51N]


Earth current protection stage


9.7.1 IG[1] ... IG[4]: Device Planning Parameters


| Mode | Device planning / Projected Elements | |
|---|--|-----|
| - | -, Non-directional ↪ Table | S.3 |
|  | Earth current protection stage, general operation mode | |


| Superv. only | Device planning / Definition | |
|---|---|-----|
| no | no, yes ↪ Table | S.3 |
|  | Earth current protection stage, if set to "Yes": Restriction of the function to a supervision functionality, i.e. there is no general alarm, no general trip and no trip command. | |


9.7.2 IG[1] ... IG[4]: Global Parameters


| ExBlo1 ExBlo2 | Protection Para / Global Prot Para / I-Prot / IG[1] | |
|---|---|-----|
| - | - ... Internal test state ↪ Table | P.2 |
|  | External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. | |


| ExBlo dur. Mot.Strt | Protection Para / Global Prot Para / I-Prot / IG[1] | |
|---|---|-----|
| - | - ... Blo-FrqStart ↪ Table | P.2 |
|  | External blocking of the module, if the state of the assigned signal is true. This way it is possible to block the module during the motor start phase. | |


| ExBlo TripCmd | Protection Para / Global Prot Para / I-Prot / IG[1] | |
|--|---|-----|
| <ul style="list-style-type: none"> Only available if: Superv. only = no - | - ... Internal test state ↪ Table | P.2 |
|  | External blocking of the Trip Command of the module/the stage, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true. | |

| Ex rev Interl | | Protection Para / Global Prot Para / I-Prot / IG[1] |
|---|--|---|
| - | - ... Internal test state ↪ Table | P.2 |
|  <i>External blocking of the module by external reverse interlocking, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true.</i> | | |


| AdaptSet 1 | | Protection Para / Global Prot Para / I-Prot / IG[1] |
|--|--|---|
| - | - ... Maint Mode Inactive ↪ Table | P.2 |
|  <i>Assignment Adaptive Parameter 1</i> | | |


| AdaptSet 2 | | Protection Para / Global Prot Para / I-Prot / IG[1] |
|--|--|---|
| - | - ... Maint Mode Inactive ↪ Table | P.2 |
|  <i>Assignment Adaptive Parameter 2</i> | | |


| AdaptSet 3 | | Protection Para / Global Prot Para / I-Prot / IG[1] |
|--|--|---|
| - | - ... Maint Mode Inactive ↪ Table | P.2 |
|  <i>Assignment Adaptive Parameter 3</i> | | |


| AdaptSet 4 | | Protection Para / Global Prot Para / I-Prot / IG[1] |
|--|--|---|
| - | - ... Maint Mode Inactive ↪ Table | P.2 |
|  <i>Assignment Adaptive Parameter 4</i> | | |


9.7.3 IG[1] ... IG[4]: Setting Group Parameters


| Function | Protection Para / Set 1 / I-Prot / IG[1] Protection Para / Set 2 / I-Prot / IG[1] Protection Para / Set 3 / I-Prot / IG[1] Protection Para / Set 4 / I-Prot / IG[1] |
|--|--|
| Inactive | Inactive, Active ↪ Table |
|  <i>Permanent activation or deactivation of module/stage.</i> | |

| | | |
|---|--|-----|
| ExBlo Fc | Protection Para / Set 1 / I-Prot / IG[1] Protection Para / Set 2 / I-Prot / IG[1] Protection Para / Set 3 / I-Prot / IG[1] Protection Para / Set 4 / I-Prot / IG[1] | |
| Inactive | Inactive, Active ↳ Table | P.2 |
|  | <i>Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo Fc=active".</i> | |

| | | |
|---|--|-----|
| Ex rev Interl Fc | Protection Para / Set 1 / I-Prot / IG[1] Protection Para / Set 2 / I-Prot / IG[1] Protection Para / Set 3 / I-Prot / IG[1] Protection Para / Set 4 / I-Prot / IG[1] | |
| Inactive | Inactive, Active ↳ Table | P.2 |
|  | <i>Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "Ex rev Interl Fc = active".</i> | |


| | | |
|--|--|-----|
| Blo TripCmd | Protection Para / Set 1 / I-Prot / IG[1] Protection Para / Set 2 / I-Prot / IG[1] Protection Para / Set 3 / I-Prot / IG[1] Protection Para / Set 4 / I-Prot / IG[1] | |
| <ul style="list-style-type: none"> Only available if: Superv. only = no Inactive | Inactive, Active ↳ Table | P.2 |
|  | <i>Permanent blocking of the Trip Command of the module/stage.</i> | |


| | | |
|--|--|-----|
| ExBlo TripCmd Fc | Protection Para / Set 1 / I-Prot / IG[1] Protection Para / Set 2 / I-Prot / IG[1] Protection Para / Set 3 / I-Prot / IG[1] Protection Para / Set 4 / I-Prot / IG[1] | |
| <ul style="list-style-type: none"> Only available if: Superv. only = no Inactive | Inactive, Active ↳ Table | P.2 |
|  | <i>Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo TripCmd Fc=active".</i> | |



| | | |
|---|--|-----|
| IG Source | Protection Para / Set 1 / I-Prot / IG[1] Protection Para / Set 2 / I-Prot / IG[1] Protection Para / Set 3 / I-Prot / IG[1] Protection Para / Set 4 / I-Prot / IG[1] | |
| calculated | sensitive measurement, measured, calculated ↳ Table | P.2 |
|  | <i>Selection if measured or calculated ground current should be used.</i> | |



9 Protection

9.7.3 IG[1] ... IG[4]: Setting Group Parameters

| | | |
|---|--|-----|
| Measuring method | Protection Para / Set 1 / I-Prot / IG[1] Protection Para / Set 2 / I-Prot / IG[1] Protection Para / Set 3 / I-Prot / IG[1] Protection Para / Set 4 / I-Prot / IG[1] | |
| Fundamental | Fundamental, True RMS ↳ Table | P.2 |
|  | <i>Measuring method: fundamental or rms or 3rd harmonic (only generator protection relays)</i> | |

| | | |
|---|---|-----|
| Meas Circuit Superv | Protection Para / Set 1 / I-Prot / IG[1] Protection Para / Set 2 / I-Prot / IG[1] Protection Para / Set 3 / I-Prot / IG[1] Protection Para / Set 4 / I-Prot / IG[1] | |
| Inactive | Inactive ↳ Table | P.2 |
|  | <i>Activates the use of the measuring circuit supervision. In this case the module will be blocked if a measuring circuit supervision module (e.g. LOP, VTS) signals a disturbed measuring circuit (e.g. caused by a fuse failure).</i> | |


| | | |
|--|--|--|
| IG> | Protection Para / Set 1 / I-Prot / IG[1] Protection Para / Set 2 / I-Prot / IG[1] Protection Para / Set 3 / I-Prot / IG[1] Protection Para / Set 4 / I-Prot / IG[1] | |
| Only available if: <ul style="list-style-type: none"> IG Source = measured IG Source = calculated 0.02In  Adapt. Param. | Adjustable range: <ul style="list-style-type: none"> 0.02In ... 20.00In, If: Char = DEFT 0.02In ... 4.00In, If: Char ≠ DEFT P.2 | |
|  | <i>If the pickup value is exceeded, the module/stage will be started.</i> | |


| | | |
|--|---|--|
| IGs> | Protection Para / Set 1 / I-Prot / IG[1] Protection Para / Set 2 / I-Prot / IG[1] Protection Para / Set 3 / I-Prot / IG[1] Protection Para / Set 4 / I-Prot / IG[1] | |
| <ul style="list-style-type: none"> Only available if: IG Source = sensitive measurement 0.02In  | 0.002In ... 2.000In P.2 | |
|  | <i>If the pickup value is exceeded, the module/stage will be started.</i> | |
| | <i>WARNING: Check the Technical Data and ensure that the actual ground overcurrent settings for IGs> and trip delay comply with the technical limits of the ground current inputs! (The device allows for overcurrent settings that are out of the permitted range of current values.)</i> | |


| | | |
|-------------------------|--|-----|
| Char | Protection Para / Set 1 / I-Prot / IG[1] Protection Para / Set 2 / I-Prot / IG[1] Protection Para / Set 3 / I-Prot / IG[1] Protection Para / Set 4 / I-Prot / IG[1] | |
| DEFT ↻ Adapt. Param. | DEFT ... RXIDG ↪ Table | P.2 |
| <i>Characteristic</i> | | |

| | | |
|--|--|-----|
| t | Protection Para / Set 1 / I-Prot / IG[1] Protection Para / Set 2 / I-Prot / IG[1] Protection Para / Set 3 / I-Prot / IG[1] Protection Para / Set 4 / I-Prot / IG[1] | |
| • Only available if: Char = DEFT 0.00s ↻ Adapt. Param. | 0.00s ... 300.00s | P.2 |
| <i>Tripping delay</i> | | |



| | | |
|--|--|-----|
| tChar | Protection Para / Set 1 / I-Prot / IG[1] Protection Para / Set 2 / I-Prot / IG[1] Protection Para / Set 3 / I-Prot / IG[1] Protection Para / Set 4 / I-Prot / IG[1] | |
| • Only available if: Char ≠ DEFT 1 ↻ Adapt. Param. | Adjustable range: <ul style="list-style-type: none"> • 0.02 ... 20.00, If: Char = DEFT • 0.02 ... 10.00, If: Char = IEC NINV • 0.02 ... 10.00, If: Char = IEC VINV • 0.02 ... 10.00, If: Char = IEC EINV • 0.02 ... 10.00, If: Char = IEC LINV • 0.02 ... 20.00, If: Char = ANSI MINV • 0.02 ... 20.00, If: Char = ANSI VINV • 0.02 ... 20.00, If: Char = ANSI EINV • 0.02 ... 20.00, If: Char = Therm Flat • 0.02 ... 20.00, If: Char = IT • 0.02 ... 20.00, If: Char = I2T • 0.02 ... 20.00, If: Char = I4T • 0.02 ... 10.00, If: Char = RINV • 0.05 ... 1.00, If: Char = RXIDG • Else: 0.02 ... 20.00 | P.2 |
| <i>Time multiplier/tripping characteristic factor. The setting range depends on the selected tripping curve.</i> | | |


| | | |
|--|--|-----|
| tMinimum | Protection Para / Set 1 / I-Prot / IG[1] Protection Para / Set 2 / I-Prot / IG[1] Protection Para / Set 3 / I-Prot / IG[1] Protection Para / Set 4 / I-Prot / IG[1] | |
| <p>Only available if:</p> <ul style="list-style-type: none"> • Char = IEC NINV • Char = IEC VINV • Char = IEC EINV • Char = IEC LINV • Char = RINV • Char = ANSI MINV • Char = ANSI VINV • Char = ANSI EINV • Char = IT • Char = I2T • Char = I4T • Char = RXIDG <p>0.00s</p> <p>↻ Adapt. Param.</p> | 0.00s ... 20.00s | P.2 |
| <p> <i>Minimum trip delay time. Independent of the measured current values, the trip delay time does never fall below the minimum that is set here.</i></p> | | |


| | | |
|--|--|-----|
| Reset Mode | Protection Para / Set 1 / I-Prot / IG[1] Protection Para / Set 2 / I-Prot / IG[1] Protection Para / Set 3 / I-Prot / IG[1] Protection Para / Set 4 / I-Prot / IG[1] | |
| <p>instantaneous</p> <p>↻ Adapt. Param.</p> | <p>Adjustable range:</p> <ul style="list-style-type: none"> • instantaneous, definite time, If: Char = DEFT • instantaneous, definite time, inverse time, If: Char = IEC NINV • instantaneous, definite time, inverse time, If: Char = IEC VINV • instantaneous, definite time, inverse time, If: Char = IEC EINV • instantaneous, definite time, inverse time, If: Char = IEC LINV • instantaneous, definite time, inverse time, If: Char = ANSI MINV • instantaneous, definite time, inverse time, If: Char = ANSI VINV • instantaneous, definite time, inverse time, If: Char = ANSI EINV • instantaneous, definite time, inverse time, If: Char = Therm Flat • instantaneous, definite time, inverse time, If: Char = IT • instantaneous, definite time, inverse time, If: Char = I2T • instantaneous, definite time, inverse time, If: Char = I4T • instantaneous, definite time, inverse time, If: Char = RINV • instantaneous, definite time, If: Char = RXIDG • Else: instantaneous, definite time, inverse time <p>↪ Table</p> | P.2 |
| <p> <i>Reset Mode</i></p> | | |



| | | |
|---|--|-----|
| tReset | Protection Para / Set 1 / I-Prot / IG[1] Protection Para / Set 2 / I-Prot / IG[1] Protection Para / Set 3 / I-Prot / IG[1] Protection Para / Set 4 / I-Prot / IG[1] | |
| <ul style="list-style-type: none"> Only available if: Reset Mode = definite time 0.00s ↻ Adapt. Param. | 0.00s ... 60.00s | P.2 |
|  <i>Reset delay for intermittent phase failures (INV characteristics only)</i> | | |



9.7.4 IG[1] ... IG[4]: Input States



| | |
|---|---|
| ExBlo1-I | Operation / Status Display / I-Prot / IG[1] |
| ( IG[1] . ExBlo1) | |
|  <i>Module input state: External blocking1</i> | |

| | |
|---|---|
| ExBlo2-I | Operation / Status Display / I-Prot / IG[1] |
|  <i>Module input state: External blocking2</i> | |

| | |
|--|---|
| ExBlo TripCmd-I | Operation / Status Display / I-Prot / IG[1] |
|  <ul style="list-style-type: none"> Only available if: Superv. only = no <i>Module input state: External Blocking of the Trip Command</i> | |

| | |
|--|---|
| Ex rev Interl-I | Operation / Status Display / I-Prot / IG[1] |
| ( IG[1] . Ex rev Interl) | |
|  <i>Module input state: External reverse interlocking</i> | |

| | |
|--|---|
| AdaptSet1-I | Operation / Status Display / I-Prot / IG[1] |
| ( IG[1] . AdaptSet 1) | |
|  <i>Module input state: Adaptive Parameter1</i> | |

| | |
|--|---|
| AdaptSet2-I | Operation / Status Display / I-Prot / IG[1] |
| ( IG[1] . AdaptSet 2) | |
|  <i>Module input state: Adaptive Parameter2</i> | |

| | |
|--|---|
| AdaptSet3-I (↪ IG[1] . AdaptSet 3) | Operation / Status Display / I-Prot / IG[1] |
| ↓ | Module input state: Adaptive Parameter3 |

| | |
|--|---|
| AdaptSet4-I (↪ IG[1] . AdaptSet 4) | Operation / Status Display / I-Prot / IG[1] |
| ↓ | Module input state: Adaptive Parameter4 |

9.7.5 IG[1] ... IG[4]: Signals (Output States)

| | |
|-------------------|---|
| Active | Operation / Status Display / All Actives Operation / Status Display / I-Prot / IG[1] |
| ↑ | Signal: active |

| | |
|-------------------|---|
| ExBlo | Operation / Status Display / I-Prot / IG[1] |
| ↑ | Signal: External Blocking |

| | |
|----------------------|---|
| Ex rev Interl | Operation / Status Display / I-Prot / IG[1] |
| ↑ | Signal: External reverse Interlocking |

| | |
|--------------------|---|
| Blo TripCmd | Operation / Status Display / I-Prot / IG[1] |
| ↑ | <ul style="list-style-type: none"> Only available if: Superv. only = no Signal: Trip Command blocked |

| | |
|----------------------|--|
| ExBlo TripCmd | Operation / Status Display / I-Prot / IG[1] |
| ↑ | <ul style="list-style-type: none"> Only available if: Superv. only = no Signal: External Blocking of the Trip Command |

| | |
|-------------------|--|
| Alarm | Operation / Status Display / Alarms Operation / Status Display / I-Prot / IG[1] |
| ↑ | Signal: The alarm threshold has been exceeded. |

| | |
|-------------------|---|
| Trip | Operation / Status Display / Trips Operation / Status Display / I-Prot / IG[1] |
| ↑ | Signal: Trip |

| | |
|----------------|--|
| TripCmd | Operation / Status Display / TripCmds Operation / Status Display / I-Prot / IG[1] |
|----------------|--|

| | |
|---|---|
| ↑ | <ul style="list-style-type: none"> • Only available if: Superv. only = no <p>Signal: Trip Command</p> |
|---|---|

| | |
|-------------------|---|
| DefaultSet | Operation / Status Display / I-Prot / IG[1] |
|-------------------|---|

| | |
|---|-------------------------------|
| ↑ | Signal: Default Parameter Set |
|---|-------------------------------|

| | |
|-------------------|---|
| AdaptSet 1 | Operation / Status Display / I-Prot / IG[1] |
|-------------------|---|

| | |
|---|------------------------------|
| ↑ | Signal: Adaptive Parameter 1 |
|---|------------------------------|

| | |
|-------------------|---|
| AdaptSet 2 | Operation / Status Display / I-Prot / IG[1] |
|-------------------|---|

| | |
|---|------------------------------|
| ↑ | Signal: Adaptive Parameter 2 |
|---|------------------------------|

| | |
|-------------------|---|
| AdaptSet 3 | Operation / Status Display / I-Prot / IG[1] |
|-------------------|---|

| | |
|---|------------------------------|
| ↑ | Signal: Adaptive Parameter 3 |
|---|------------------------------|

| | |
|-------------------|---|
| AdaptSet 4 | Operation / Status Display / I-Prot / IG[1] |
|-------------------|---|

| | |
|---|------------------------------|
| ↑ | Signal: Adaptive Parameter 4 |
|---|------------------------------|

9.7.6 IG[1] ... IG[4]: Counters

| | |
|-----------------------|-------------------------------|
| NumberOfAlarms | Operation / History / AlarmCr |
|-----------------------|-------------------------------|

| | |
|---|--|
| # | Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«. |
|---|--|


| | |
|-------------------------|---------------------------------|
| NumberOfTripCmds | Operation / History / TripCmdCr |
|-------------------------|---------------------------------|


| | |
|---|--|
| # | Number of trip commands since the last reset |
|---|--|


9.8 ThR


Thermal replica module

9.8.1 ThR: Global Parameters

| | | |
|---|--|-----|
| ExBlo1 | Protection Para / Global Prot Para / I-Prot / ThR | |
| ExBlo2 | | |
| - | - ... Internal test state ↪ Table | P.2 |
|  | <i>External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true.</i> | |


| | | |
|---|--|-----|
| ExBlo TripCmd | Protection Para / Global Prot Para / I-Prot / ThR | |
| - | - ... Internal test state ↪ Table | P.2 |
|  | <i>External blocking of the Trip Command of the module/the stage, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true.</i> | |


| | | |
|---|---|-----|
| Use RTD values | Protection Para / Global Prot Para / I-Prot / ThR | |
| Inactive | Adjustable range: <ul style="list-style-type: none"> Inactive, Active, If: slot 2 = 4 Digital Inputs 3+1 Output Relays Analog Output IRIG-B Inactive, If: slot 2 ≠ 4 Digital Inputs 3+1 Output Relays Analog Output IRIG-B ↪ Table | P.2 |
|  | <i>Take RTD values into account for the calculation of the Thermal Model.</i> | |


| | | |
|---|---|-----|
| K2 | Protection Para / Global Prot Para / I-Prot / ThR | |
| 6.01 | 0.10 ... 10.00 | P.2 |
|  | <i>This value represents the negative sequence current weighting factor of the motor.</i> | |


| | | |
|---|---|-----|
| τ-cool | Protection Para / Global Prot Para / I-Prot / ThR | |
| 60s | 5s ... 240s | P.2 |
|  | <i>Cooling time constant</i> | |

9.8.2 ThR: Setting Group Parameters

| | | |
|---|--|-----|
| Function | Protection Para / Set 1 / I-Prot / ThR Protection Para / Set 2 / I-Prot / ThR Protection Para / Set 3 / I-Prot / ThR Protection Para / Set 4 / I-Prot / ThR | |
| Active | Inactive, Active ↳ Table | P.2 |
|  | <i>Permanent activation or deactivation of module/stage.</i> | |

| | | |
|---|--|-----|
| ExBlo Fc | Protection Para / Set 1 / I-Prot / ThR Protection Para / Set 2 / I-Prot / ThR Protection Para / Set 3 / I-Prot / ThR Protection Para / Set 4 / I-Prot / ThR | |
| Inactive | Inactive, Active ↳ Table | P.2 |
|  | <i>Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo Fc=active".</i> | |


| | | |
|---|--|-----|
| Blo TripCmd | Protection Para / Set 1 / I-Prot / ThR Protection Para / Set 2 / I-Prot / ThR Protection Para / Set 3 / I-Prot / ThR Protection Para / Set 4 / I-Prot / ThR | |
| Inactive | Inactive, Active ↳ Table | P.2 |
|  | <i>Permanent blocking of the Trip Command of the module/stage.</i> | |

| | | |
|---|--|-----|
| ExBlo TripCmd Fc | Protection Para / Set 1 / I-Prot / ThR Protection Para / Set 2 / I-Prot / ThR Protection Para / Set 3 / I-Prot / ThR Protection Para / Set 4 / I-Prot / ThR | |
| Inactive | Inactive, Active ↳ Table | P.2 |
|  | <i>Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo TripCmd Fc=active".</i> | |


| | | |
|---|--|-----|
| Trip Function | Protection Para / Set 1 / I-Prot / ThR Protection Para / Set 2 / I-Prot / ThR Protection Para / Set 3 / I-Prot / ThR Protection Para / Set 4 / I-Prot / ThR | |
| Active | Inactive, Active ↳ Table | P.2 |
|  | <i>Turn on or off the trip function</i> | |


9 Protection

9.8.2 ThR: Setting Group Parameters

| | | |
|--|--|-----|
| Trip Threshold | Protection Para / Set 1 / I-Prot / ThR Protection Para / Set 2 / I-Prot / ThR Protection Para / Set 3 / I-Prot / ThR Protection Para / Set 4 / I-Prot / ThR | |
| <ul style="list-style-type: none"> Only available if: Trip Function = Active 0.99 | 0.60 ... 0.99 | P.2 |
|  | <i>Trip threshold at which the thermal model will trip, based on percentage of thermal capacity used. This value should typically always be set at 0.99</i> | |

| | | |
|--|--|-----|
| t-Trip Delay | Protection Para / Set 1 / I-Prot / ThR Protection Para / Set 2 / I-Prot / ThR Protection Para / Set 3 / I-Prot / ThR Protection Para / Set 4 / I-Prot / ThR | |
| <ul style="list-style-type: none"> Only available if: Trip Function = Active 0.0s | 0.0s ... 3600.0s | P.2 |
|  | <i>Thermal capacity used trip delay</i> | |

| | | |
|---|--|-----|
| Alarm Function | Protection Para / Set 1 / I-Prot / ThR Protection Para / Set 2 / I-Prot / ThR Protection Para / Set 3 / I-Prot / ThR Protection Para / Set 4 / I-Prot / ThR | |
| Active | Inactive, Active ↪ Table | P.2 |
|  | <i>Turn on or off the alarm function</i> | |


| | | |
|---|--|-----|
| Alarm Threshold | Protection Para / Set 1 / I-Prot / ThR Protection Para / Set 2 / I-Prot / ThR Protection Para / Set 3 / I-Prot / ThR Protection Para / Set 4 / I-Prot / ThR | |
| <ul style="list-style-type: none"> Only available if: Alarm Function = Active 0.70 | 0.60 ... 0.99 | P.2 |
|  | <i>Alarm threshold at which the thermal model will trip, based on percentage of thermal capacity used</i> | |


| | | |
|---|--|-----|
| t-Alarm Delay | Protection Para / Set 1 / I-Prot / ThR Protection Para / Set 2 / I-Prot / ThR Protection Para / Set 3 / I-Prot / ThR Protection Para / Set 4 / I-Prot / ThR | |
| <ul style="list-style-type: none"> Only available if: Alarm Function = Active 1min | 1min ... 360min | P.2 |
|  | <i>Thermal capacity used alarm delay</i> | |

9.8.3 ThR: Direct Controls


| | | |
|---|---|-----|
| Res I2T Used | Operation / Reset/Acknowledge / Reset | |
| Inactive | Inactive, Active ↪ Table | S.3 |
|  | Reset thermal capacity used. | |


9.8.4 ThR: Input States


| | | |
|---|---|--|
| ExBlo1-I | Operation / Status Display / I-Prot / ThR | |
| ExBlo2-I | | |
| ↪ ThR . ExBlo1 | | |
|  | Module input state: External blocking | |


| | | |
|---|---|--|
| ExBlo TripCmd-I | Operation / Status Display / I-Prot / ThR | |
| ↪ ThR . ExBlo TripCmd | | |
|  | Module input state: External Blocking of the Trip Command | |

9.8.5 ThR: Signals (Output States)

| | | |
|---|--|--|
| Alarm Pickup | Operation / Status Display / Alarms Operation / Status Display / I-Prot / ThR | |
|  | Signal: Alarm Pickup | |





| | | |
|---|--|--|
| Alarm Timeout | Operation / Status Display / Alarms Operation / Status Display / I-Prot / ThR | |
|  | Signal: Alarm Timeout | |

| | | |
|---|---|--|
| RTD effective | Operation / Status Display / I-Prot / ThR | |
|  | <p>This state becomes true if the following conditions are all fulfilled:</p> <ul style="list-style-type: none"> - the state "Load above SF" is true, - the Winding Temperature Trip has been activated in the RTD module, - for at least one temperature a valid value above 0°C (32°F) is being displayed. | |





| | | |
|---|---|--|
| Load above SF | Operation / Status Display / I-Prot / ThR | |
|  | <p>"Load above Service Factor": If the current exceeds the set value of "UTC" ("Ultimate trip threshold") then the used thermal capacity counts up and the state "Load above SF" is becoming true. If the current is below the "UTC" value this state is false.</p> | |

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9.8.6 ThR: Counters

| | |
|--|---|
| Active | Operation / Status Display / All Actives Operation / Status Display / I-Prot / ThR |
|  <i>Signal: active</i> | |
| ExBlo | Operation / Status Display / I-Prot / ThR |
|  <i>Signal: External Blocking</i> | |
| Blo TripCmd | Operation / Status Display / I-Prot / ThR |
|  <i>Signal: Trip Command blocked</i> | |
| ExBlo TripCmd | Operation / Status Display / I-Prot / ThR |
|  <i>Signal: External Blocking of the Trip Command</i> | |
| Alarm | Operation / Status Display / Alarms Operation / Status Display / I-Prot / ThR |
|  <i>Signal: Alarm</i> | |
| Trip | Operation / Status Display / Trips Operation / Status Display / I-Prot / ThR |
|  <i>Signal: Trip</i> | |
| TripCmd | Operation / Status Display / TripCmds Operation / Status Display / I-Prot / ThR |
|  <i>Signal: Trip Command</i> | |


9.8.6 ThR: Counters


| | |
|---|-----------------------------------|
| I2T Used | Operation / Measured Values / ThR |
|  <i>Thermal capacity used.</i> | |
| I2T Remained | Operation / Measured Values / ThR |
|  <i>Thermal capacity remained.</i> | |
| NumberOfTripCmds | Operation / History / TripCmdCr |
|  <i>Number of trip commands since the last reset</i> | |
| nAlarms | Operation / History / AlarmCr |
|  <i>Number of alarms since the last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.</i> | |

9.9 Jam[1], Jam[2] [51LR]


Locked Rotor (JAM)


9.9.1 Jam[1], Jam[2]: Device Planning Parameters


| Mode | Device planning / Projected Elements | |
|---|---|-----|
| use | - , use ↪ Table | S.3 |
|  | <i>Locked Rotor (JAM), general operation mode</i> | |

| Superv. only | Device planning / Definition | |
|---|--|-----|
| no | no, yes ↪ Table | S.3 |
|  | <i>Locked Rotor (JAM), if set to "Yes": Restriction of the function to a supervision functionality, i.e. there is no general alarm, no general trip and no trip command.</i> | |


9.9.2 Jam[1], Jam[2]: Global Parameters


| ExBlo1 ExBlo2 | Protection Para / Global Prot Para / JAM-Prot / Jam[1] | |
|---|--|-----|
| - | - ... Internal test state ↪ Table | P.2 |
|  | <i>External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true.</i> | |


| ExBlo dur. Mot.Strt | Protection Para / Global Prot Para / JAM-Prot / Jam[1] | |
|---|--|-----|
| Blo-JamStart | - ... Blo-FrqStart ↪ Table | P.2 |
|  | <i>External blocking of the module, if the state of the assigned signal is true. This way it is possible to block the module during the motor start phase.</i> | |


| ExBlo TripCmd | Protection Para / Global Prot Para / JAM-Prot / Jam[1] | |
|--|--|-----|
| <ul style="list-style-type: none"> Only available if: Superv. only = no - | - ... Internal test state ↪ Table | P.2 |
|  | <i>External blocking of the Trip Command of the module/the stage, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true.</i> | |


9.9.3 Jam[1], Jam[2]: Setting Group Parameters

| | | |
|---|--|-----|
| Function | Protection Para / Set 1 / JAM-Prot / Jam[1] Protection Para / Set 2 / JAM-Prot / Jam[1] Protection Para / Set 3 / JAM-Prot / Jam[1] Protection Para / Set 4 / JAM-Prot / Jam[1] | |
| Inactive | Inactive, Active ↳ Table | P.2 |
|  | <i>Permanent activation or deactivation of module/stage.</i> | |

| | | |
|---|--|-----|
| ExBlo Fc | Protection Para / Set 1 / JAM-Prot / Jam[1] Protection Para / Set 2 / JAM-Prot / Jam[1] Protection Para / Set 3 / JAM-Prot / Jam[1] Protection Para / Set 4 / JAM-Prot / Jam[1] | |
| Inactive | Inactive, Active ↳ Table | P.2 |
|  | <i>Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo Fc=active".</i> | |



| | | |
|--|--|-----|
| Blo TripCmd | Protection Para / Set 1 / JAM-Prot / Jam[1] Protection Para / Set 2 / JAM-Prot / Jam[1] Protection Para / Set 3 / JAM-Prot / Jam[1] Protection Para / Set 4 / JAM-Prot / Jam[1] | |
| <ul style="list-style-type: none"> Only available if: Superv. only = no Inactive | Inactive, Active ↳ Table | P.2 |
|  | <i>Permanent blocking of the Trip Command of the module/stage.</i> | |


| | | |
|--|--|-----|
| ExBlo TripCmd Fc | Protection Para / Set 1 / JAM-Prot / Jam[1] Protection Para / Set 2 / JAM-Prot / Jam[1] Protection Para / Set 3 / JAM-Prot / Jam[1] Protection Para / Set 4 / JAM-Prot / Jam[1] | |
| <ul style="list-style-type: none"> Only available if: Superv. only = no Inactive | Inactive, Active ↳ Table | P.2 |
|  | <i>Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo TripCmd Fc=active".</i> | |

| | | |
|---|--|-----|
| Pickup | Protection Para / Set 1 / JAM-Prot / Jam[1] Protection Para / Set 2 / JAM-Prot / Jam[1] Protection Para / Set 3 / JAM-Prot / Jam[1] Protection Para / Set 4 / JAM-Prot / Jam[1] | |
| 10Ib | 1.00Ib ... 12.00Ib | P.2 |
|  | <i>JAM based on a multiplier of Ib</i> | |

| | |
|---|--|
| t | Protection Para / Set 1 / JAM-Prot / Jam[1] Protection Para / Set 2 / JAM-Prot / Jam[1] Protection Para / Set 3 / JAM-Prot / Jam[1] Protection Para / Set 4 / JAM-Prot / Jam[1] |
| 2.0s | 0.0s ... 1200.0s P.2 |
|  <i>Tripping delay</i> | |


9.9.4 Jam[1], Jam[2]: Input States


| | |
|---|--|
| ExBlo1-I | Operation / Status Display / JAM-Prot / Jam[1] |
|  Jam[1] . ExBlo1 | |
|  <i>Module input state: External blocking1</i> | |


| | |
|---|--|
| ExBlo2-I | Operation / Status Display / JAM-Prot / Jam[1] |
|  <i>Module input state: External blocking2</i> | |


| | |
|---|--|
| ExBlo TripCmd-I | Operation / Status Display / JAM-Prot / Jam[1] |
|  <ul style="list-style-type: none"> • Only available if: Superv. only = no <i>Module input state: External Blocking of the Trip Command</i> | |

9.9.5 Jam[1], Jam[2]: Signals (Output States)

| | |
|---|--|
| Active | Operation / Status Display / All Actives Operation / Status Display / JAM-Prot / Jam[1] |
|  <i>Signal: active</i> | |

| | |
|--|--|
| ExBlo | Operation / Status Display / JAM-Prot / Jam[1] |
|  <i>Signal: External Blocking</i> | |

| | |
|--|--|
| Blo TripCmd | Operation / Status Display / JAM-Prot / Jam[1] |
|  <ul style="list-style-type: none"> • Only available if: Superv. only = no <i>Signal: Trip Command blocked</i> | |

| | |
|---|--|
| ExBlo TripCmd | Operation / Status Display / JAM-Prot / Jam[1] |
|  <ul style="list-style-type: none"> • Only available if: Superv. only = no <i>Signal: External Blocking of the Trip Command</i> | |

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9.9.6 Jam[1], Jam[2]: Counters

| | |
|----------------|---|
| Alarm | Operation / Status Display / Alarms Operation / Status Display / JAM-Prot / Jam[1] |
| ↑ | Signal: Alarm |
| Trip | Operation / Status Display / Trips Operation / Status Display / JAM-Prot / Jam[1] |
| ↑ | Signal: Trip |
| TripCmd | Operation / Status Display / TripCmds Operation / Status Display / JAM-Prot / Jam[1] |
| ↑ | <ul style="list-style-type: none">Only available if: Superv. only = no Signal: Trip Command |


9.9.6 Jam[1], Jam[2]: Counters


| | |
|-------------------------|--|
| NumberOfAlarms | Operation / History / AlarmCr |
| # | Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«. |
| NumberOfTripCmds | Operation / History / TripCmdCr |
| # | Number of trip commands since the last reset |

9.10 I<[1], I<[2], I<[3] [37]


Underload / Undercurrent


9.10.1 I<[1], I<[2], I<[3]: Device Planning Parameters


| Mode | Device planning / Projected Elements | |
|---|---|-----|
| use | -, use ↪ Table | S.3 |
|  | <i>Underload / Undercurrent, general operation mode</i> | |

| Superv. only | Device planning / Definition | |
|---|--|-----|
| no | no, yes ↪ Table | S.3 |
|  | <i>Underload / Undercurrent, if set to "Yes": Restriction of the function to a supervision functionality, i.e. there is no general alarm, no general trip and no trip command.</i> | |


9.10.2 I<[1], I<[2], I<[3]: Global Parameters


| ExBlo1 ExBlo2 | Protection Para / Global Prot Para / Underload-Prot / I<[1] | |
|---|--|-----|
| - | - ... Internal test state ↪ Table | P.2 |
|  | <i>External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true.</i> | |


| ExBlo dur. Mot.Strt | Protection Para / Global Prot Para / Underload-Prot / I<[1] | |
|---|--|-----|
| Blo-I<Start | | P.2 |
|  | <i>External blocking of the module, if the state of the assigned signal is true. This way it is possible to block the module during the motor start phase.</i> | |


| ExBlo TripCmd | Protection Para / Global Prot Para / Underload-Prot / I<[1] | |
|--|--|-----|
| <ul style="list-style-type: none"> Only available if: Superv. only = no - | - ... Internal test state ↪ Table | P.2 |
|  | <i>External blocking of the Trip Command of the module/the stage, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true.</i> | |


9.10.3 I<[1], I<[2], I<[3]: Setting Group Parameters


| | | |
|---|--|-----|
| Function | Protection Para / Set 1 / Underload-Prot / I<[1] Protection Para / Set 2 / Underload-Prot / I<[1] Protection Para / Set 3 / Underload-Prot / I<[1] Protection Para / Set 4 / Underload-Prot / I<[1] | |
| Inactive | Inactive, Active ↪ Table | P.2 |
|  | <i>Permanent activation or deactivation of module/stage.</i> | |

| | | |
|---|--|-----|
| ExBlo Fc | Protection Para / Set 1 / Underload-Prot / I<[1] Protection Para / Set 2 / Underload-Prot / I<[1] Protection Para / Set 3 / Underload-Prot / I<[1] Protection Para / Set 4 / Underload-Prot / I<[1] | |
| Inactive | Inactive, Active ↪ Table | P.2 |
|  | <i>Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo Fc=active".</i> | |


| | | |
|--|--|-----|
| Blo TripCmd | Protection Para / Set 1 / Underload-Prot / I<[1] Protection Para / Set 2 / Underload-Prot / I<[1] Protection Para / Set 3 / Underload-Prot / I<[1] Protection Para / Set 4 / Underload-Prot / I<[1] | |
| <ul style="list-style-type: none"> Only available if: Superv. only = no Inactive | Inactive, Active ↪ Table | P.2 |
|  | <i>Permanent blocking of the Trip Command of the module/stage.</i> | |

| | | |
|--|--|-----|
| ExBlo TripCmd Fc | Protection Para / Set 1 / Underload-Prot / I<[1] Protection Para / Set 2 / Underload-Prot / I<[1] Protection Para / Set 3 / Underload-Prot / I<[1] Protection Para / Set 4 / Underload-Prot / I<[1] | |
| <ul style="list-style-type: none"> Only available if: Superv. only = no Inactive | Inactive, Active ↪ Table | P.2 |
|  | <i>Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo TripCmd Fc=active".</i> | |


| | | |
|---|--|-----|
| Undercurrent | Protection Para / Set 1 / Underload-Prot / I<[1] Protection Para / Set 2 / Underload-Prot / I<[1] Protection Para / Set 3 / Underload-Prot / I<[1] Protection Para / Set 4 / Underload-Prot / I<[1] | |
| 0.50Ib | 0.05Ib ... 0.90Ib | P.2 |
|  | <i>Underload Pickup based on a multiplier of Ib</i> | |


| | | |
|---|--|-----|
| Alarm Mode | Protection Para / Set 1 / Underload-Prot / I<[1] Protection Para / Set 2 / Underload-Prot / I<[1] Protection Para / Set 3 / Underload-Prot / I<[1] Protection Para / Set 4 / Underload-Prot / I<[1] | |
| any one | any one, all ↪ Table | P.2 |
|  | Indicates if one, two of three or all phases are required for operation | |

| | | |
|---|--|-----|
| t | Protection Para / Set 1 / Underload-Prot / I<[1] Protection Para / Set 2 / Underload-Prot / I<[1] Protection Para / Set 3 / Underload-Prot / I<[1] Protection Para / Set 4 / Underload-Prot / I<[1] | |
| 10.0s | 0.4s ... 1200.0s | P.2 |
|  | Tripping delay | |

| | | |
|---|--|-----|
| MeasCircSv Curr | Protection Para / Set 1 / Underload-Prot / I<[1] Protection Para / Set 2 / Underload-Prot / I<[1] Protection Para / Set 3 / Underload-Prot / I<[1] Protection Para / Set 4 / Underload-Prot / I<[1] | |
| Inactive | Inactive, Active ↪ Table | P.2 |
|  | Measuring Circuit Supervision Current | |


9.10.4 I<[1], I<[2], I<[3]: Input States

| | | |
|---|---|--|
| ExBlo1-I ↪ I<[1] . ExBlo1 | Operation / Status Display / Underload-Prot / I<[1] | |
|  | Module input state: External blocking1 | |

| | | |
|---|---|--|
| ExBlo2-I | Operation / Status Display / Underload-Prot / I<[1] | |
|  | Module input state: External blocking2 | |

| | | |
|---|---|--|
| ExBlo TripCmd-I | Operation / Status Display / Underload-Prot / I<[1] | |
|  | <ul style="list-style-type: none"> Only available if: Superv. only = no Module input state: External Blocking of the Trip Command | |

9.10.5 I<[1], I<[2], I<[3]: Signals (Output States)



| | | |
|---|---|--|
| Active | Operation / Status Display / All Actives Operation / Status Display / Underload-Prot / I<[1] | |
|  | Signal: active | |

9 Protection

9.10.6 I<[1], I<[2], I<[3]: Counters

| | |
|---|--|
| ExBlo | Operation / Status Display / Underload-Prot / I<[1] |
|  | <i>Signal: External Blocking</i> |
| Blo TripCmd | Operation / Status Display / Underload-Prot / I<[1] |
|  | <ul style="list-style-type: none">• Only available if: Superv. only = no <i>Signal: Trip Command blocked</i> |
| ExBlo TripCmd | Operation / Status Display / Underload-Prot / I<[1] |
|  | <ul style="list-style-type: none">• Only available if: Superv. only = no <i>Signal: External Blocking of the Trip Command</i> |
| Alarm | Operation / Status Display / Alarms Operation / Status Display / Underload-Prot / I<[1] |
|  | <i>Signal: Alarm</i> |
| Trip | Operation / Status Display / Trips Operation / Status Display / Underload-Prot / I<[1] |
|  | <i>Signal: Trip</i> |
| TripCmd | Operation / Status Display / TripCmds Operation / Status Display / Underload-Prot / I<[1] |
|  | <ul style="list-style-type: none">• Only available if: Superv. only = no <i>Signal: Trip Command</i> |


9.10.6 I<[1], I<[2], I<[3]: Counters

| | |
|---|---|
| NumberOfAlarms | Operation / History / AlarmCr |
|  | <i>Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.</i> |
| NumberOfTripCmds | Operation / History / TripCmdCr |
|  | <i>Number of trip commands since the last reset</i> |


9.11 MLS

Mechanical Load Shedding


9.11.1 MLS: Device Planning Parameters


| Mode | Device planning / Projected Elements | |
|---|---|-----|
| use | -, use ↪ Table | S.3 |
|  | <i>Mechanical Load Shedding, general operation mode</i> | |

9.11.2 MLS: Global Parameters

| ExBlo1 ExBlo2 | Protection Para / Global Prot Para / MLS | |
|---|--|-----|
| - | - ... Internal test state ↪ Table | P.2 |
|  | <i>External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true.</i> | |


9.11.3 MLS: Setting Group Parameters

| Function | Protection Para / Set 1 / MLS Protection Para / Set 2 / MLS Protection Para / Set 3 / MLS Protection Para / Set 4 / MLS | |
|---|--|-----|
| Inactive | Inactive, Active ↪ Table | P.2 |
|  | <i>Permanent activation or deactivation of module/stage.</i> | |


| ExBlo Fc | Protection Para / Set 1 / MLS Protection Para / Set 2 / MLS Protection Para / Set 3 / MLS Protection Para / Set 4 / MLS | |
|---|--|-----|
| Inactive | Inactive, Active ↪ Table | P.2 |
|  | <i>Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo Fc=active".</i> | |


9 Protection

9.11.4 MLS: Input States



| | |
|--|--|
| Pickup Threshold | Protection Para / Set 1 / MLS Protection Para / Set 2 / MLS Protection Para / Set 3 / MLS Protection Para / Set 4 / MLS |
| 0.90Ib | 0.50Ib ... 1.50Ib P.2 |
|  <i>Mechanical load shedding pickup current as multiplier of Ib</i> | |


| | |
|--|--|
| t-Pickup Delay | Protection Para / Set 1 / MLS Protection Para / Set 2 / MLS Protection Para / Set 3 / MLS Protection Para / Set 4 / MLS |
| 1.0s | 0.0s ... 5.0s P.2 |
|  <i>Trip delay time</i> | |

| | |
|---|--|
| Dropout Threshold | Protection Para / Set 1 / MLS Protection Para / Set 2 / MLS Protection Para / Set 3 / MLS Protection Para / Set 4 / MLS |
| 0.50Ib | 0.50Ib ... 1.50Ib P.2 |
|  <i>Mechanical load reclosure current (Dropout of Load shedding) as multiplier of Ib</i> | |


| | |
|---|--|
| t-Drop Delay | Protection Para / Set 1 / MLS Protection Para / Set 2 / MLS Protection Para / Set 3 / MLS Protection Para / Set 4 / MLS |
| 1.0s | 0.0s ... 5.0s P.2 |
|  <i>Dropout delay time</i> | |

9.11.4 MLS: Input States

| | |
|---|----------------------------------|
| ExBlo1-I  <i>MLS . ExBlo1</i> | Operation / Status Display / MLS |
|  <i>Module input state: External blocking1</i> | |

| | |
|---|----------------------------------|
| ExBlo2-I | Operation / Status Display / MLS |
|  <i>Module input state: External blocking2</i> | |

9.11.5 MLS: Signals (Output States)


| | |
|---|--|
| Active | Operation / Status Display / All Actives Operation / Status Display / MLS |
|  <i>Signal: active</i> | |


| | |
|--------------|---|
| ExBlo | Operation / Status Display / MLS |
| ↑ | <i>Signal: External Blocking</i> |
| Alarm | Operation / Status Display / Alarms Operation / Status Display / MLS |
| ↑ | <i>Signal: Alarm</i> |
| Trip | Operation / Status Display / Trips Operation / Status Display / MLS |
| ↑ | <i>Signal: Trip</i> |

9.12 I2>[1], I2>[2] [46]


Unbalanced Load-Stage


9.12.1 I2>[1], I2>[2]: Device Planning Parameters


| Mode | Device planning / Projected Elements | |
|---|--|-----|
| use | - , use ↪ Table | S.3 |
|  | <i>Unbalanced Load-Stage, general operation mode</i> | |

| Superv. only | Device planning / Definition | |
|---|---|-----|
| no | no, yes ↪ Table | S.3 |
|  | <i>Unbalanced Load-Stage, if set to "Yes": Restriction of the function to a supervision functionality, i.e. there is no general alarm, no general trip and no trip command.</i> | |


9.12.2 I2>[1], I2>[2]: Global Parameters


| ExBlo1 ExBlo2 | Protection Para / Global Prot Para / I-Prot / I2>[1] | |
|---|--|-----|
| - | - ... Internal test state ↪ Table | P.2 |
|  | <i>External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true.</i> | |


| ExBlo dur. Mot.Strt | Protection Para / Global Prot Para / I-Prot / I2>[1] | |
|---|--|-----|
| Blo-I2>Start | - ... Blo-FrqStart ↪ Table | P.2 |
|  | <i>External blocking of the module, if the state of the assigned signal is true. This way it is possible to block the module during the motor start phase.</i> | |


| ExBlo TripCmd | Protection Para / Global Prot Para / I-Prot / I2>[1] | |
|---|--|-----|
| <ul style="list-style-type: none"> Only available if: Superv. only = no - | - ... Internal test state ↪ Table | P.2 |
|  | <i>External blocking of the Trip Command of the module/the stage, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true.</i> | |


9.12.3 I2>[1], I2>[2]: Setting Group Parameters

| | | |
|---|--|-----|
| Function | Protection Para / Set 1 / I-Prot / I2>[1] Protection Para / Set 2 / I-Prot / I2>[1] Protection Para / Set 3 / I-Prot / I2>[1] Protection Para / Set 4 / I-Prot / I2>[1] | |
| Inactive | Inactive, Active ↳ Table | P.2 |
|  | Permanent activation or deactivation of module/stage. | |

| | | |
|---|---|-----|
| ExBlo Fc | Protection Para / Set 1 / I-Prot / I2>[1] Protection Para / Set 2 / I-Prot / I2>[1] Protection Para / Set 3 / I-Prot / I2>[1] Protection Para / Set 4 / I-Prot / I2>[1] | |
| Inactive | Inactive, Active ↳ Table | P.2 |
|  | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo Fc=active". | |


| | | |
|--|--|-----|
| Blo TripCmd | Protection Para / Set 1 / I-Prot / I2>[1] Protection Para / Set 2 / I-Prot / I2>[1] Protection Para / Set 3 / I-Prot / I2>[1] Protection Para / Set 4 / I-Prot / I2>[1] | |
| <ul style="list-style-type: none"> Only available if: Superv. only = no Inactive | Inactive, Active ↳ Table | P.2 |
|  | Permanent blocking of the Trip Command of the module/stage. | |


| | | |
|--|---|-----|
| ExBlo TripCmd Fc | Protection Para / Set 1 / I-Prot / I2>[1] Protection Para / Set 2 / I-Prot / I2>[1] Protection Para / Set 3 / I-Prot / I2>[1] Protection Para / Set 4 / I-Prot / I2>[1] | |
| <ul style="list-style-type: none"> Only available if: Superv. only = no Inactive | Inactive, Active ↳ Table | P.2 |
|  | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo TripCmd Fc=active". | |


| | | |
|---|--|-----|
| I2> | Protection Para / Set 1 / I-Prot / I2>[1] Protection Para / Set 2 / I-Prot / I2>[1] Protection Para / Set 3 / I-Prot / I2>[1] Protection Para / Set 4 / I-Prot / I2>[1] | |
| 0.08In | 0.01In ... 4.00In | P.2 |
|  | The Threshold setting defines a minimum operating current magnitude of I2 for the 46 function to operate, which ensures that the relay has a solid basis for initiating a current unbalance trip. This is a supervisory function and not a trip level. | |


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9.12.3 I2>[1], I2>[2]: Setting Group Parameters


| | | |
|---|--|-----|
| %(I2/I1) | Protection Para / Set 1 / I-Prot / I2>[1] Protection Para / Set 2 / I-Prot / I2>[1] Protection Para / Set 3 / I-Prot / I2>[1] Protection Para / Set 4 / I-Prot / I2>[1] | |
| Inactive | Inactive, Active ↪ Table | P.2 |
|  | <i>The %(I2/I1) setting is the unbalance trip pickup setting. It is defined by the ratio of negative sequence current to positive sequence current (% Unbalance=I2/I1). Phase sequence will be taken into account automatically.</i> | |

| | | |
|--|--|-----|
| %(I2/I1) | Protection Para / Set 1 / I-Prot / I2>[1] Protection Para / Set 2 / I-Prot / I2>[1] Protection Para / Set 3 / I-Prot / I2>[1] Protection Para / Set 4 / I-Prot / I2>[1] | |
| <ul style="list-style-type: none"> Only available if: %(I2/I1) = Active 20% | 2% ... 40% | P.2 |
|  | <i>The %(I2/I1) setting is the unbalance trip pickup setting. It is defined by the ratio of negative sequence current to positive sequence current (% Unbalance=I2/I1). Phase sequence will be taken into account automatically.</i> | |



| | | |
|---|--|-----|
| Char | Protection Para / Set 1 / I-Prot / I2>[1] Protection Para / Set 2 / I-Prot / I2>[1] Protection Para / Set 3 / I-Prot / I2>[1] Protection Para / Set 4 / I-Prot / I2>[1] | |
| DEFT | DEFT, INV ↪ Table | P.2 |
|  | <i>Characteristic</i> | |


| | | |
|--|--|-----|
| t | Protection Para / Set 1 / I-Prot / I2>[1] Protection Para / Set 2 / I-Prot / I2>[1] Protection Para / Set 3 / I-Prot / I2>[1] Protection Para / Set 4 / I-Prot / I2>[1] | |
| <ul style="list-style-type: none"> Only available if: Char = DEFT 0.00s | 0.00s ... 300.00s | P.2 |
|  | <i>Tripping delay</i> | |


| | | |
|--|--|-----|
| K | Protection Para / Set 1 / I-Prot / I2>[1] Protection Para / Set 2 / I-Prot / I2>[1] Protection Para / Set 3 / I-Prot / I2>[1] Protection Para / Set 4 / I-Prot / I2>[1] | |
| <ul style="list-style-type: none"> Only available if: Char ≠ DEFT 10.0s | 1.00s ... 200.00s | P.2 |
|  | <i>This setting is the negative sequence capability constant. This value is normally provided by the generator manufacturer.</i> | |

| | | |
|---|---|-----|
| T-cool | Protection Para / Set 1 / I-Prot / I2>[1] Protection Para / Set 2 / I-Prot / I2>[1] Protection Para / Set 3 / I-Prot / I2>[1] Protection Para / Set 4 / I-Prot / I2>[1] | |
| <ul style="list-style-type: none"> Only available if: Char ≠ DEFT 0.0s | 0.0s ... 60000.0s | P.2 |
|  | If the unbalanced load current falls below the pickup value, the cooling-off time is taken into account. If the unbalanced load exceeds the pickup value again, than the saved heat within the electrical equipment will lead to an accelerated trip. | |


9.12.4 I2>[1], I2>[2]: Input States


| | |
|--|--|
| ExBlo1-I | Operation / Status Display / I-Prot / I2>[1] |
|  I2>[1] . ExBlo1) | |
|  | Module input state: External blocking1 |


| | |
|--|--|
| ExBlo2-I | Operation / Status Display / I-Prot / I2>[1] |
|  | Module input state: External blocking2 |

| | |
|---|--|
| ExBlo TripCmd-I | Operation / Status Display / I-Prot / I2>[1] |
|  | <ul style="list-style-type: none"> Only available if: Superv. only = no Module input state: External Blocking of the Trip Command |

9.12.5 I2>[1], I2>[2]: Signals (Output States)

| | |
|---|--|
| Active | Operation / Status Display / All Actives Operation / Status Display / I-Prot / I2>[1] |
|  | Signal: active |

| | |
|---|--|
| ExBlo | Operation / Status Display / I-Prot / I2>[1] |
|  | Signal: External Blocking |



| | |
|---|---|
| Blo TripCmd | Operation / Status Display / I-Prot / I2>[1] |
|  | <ul style="list-style-type: none"> Only available if: Superv. only = no Signal: Trip Command blocked |

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9.12.6 I2>[1], I2>[2]: Counters

| | |
|---|---|
| ExBlo TripCmd | Operation / Status Display / I-Prot / I2>[1] |
|  | <ul style="list-style-type: none">• Only available if: Superv. only = no <p>Signal: External Blocking of the Trip Command</p> |
| Alarm | Operation / Status Display / Alarms Operation / Status Display / I-Prot / I2>[1] |
|  | Signal: Alarm Negative Sequence |
| Trip | Operation / Status Display / Trips Operation / Status Display / I-Prot / I2>[1] |
|  | Signal: Trip |
| TripCmd | Operation / Status Display / TripCmds Operation / Status Display / I-Prot / I2>[1] |
|  | <ul style="list-style-type: none">• Only available if: Superv. only = no <p>Signal: Trip Command</p> |


9.12.6 I2>[1], I2>[2]: Counters


| | |
|---|--|
| NumberOfAlarms | Operation / History / AlarmCr |
|  | Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«. |
| NumberOfTripCmds | Operation / History / TripCmdCr |
|  | Number of trip commands since the last reset |

9.13 ExP[1] ... ExP[4]


External Protection - Module


9.13.1 ExP[1] ... ExP[4]: Device Planning Parameters


| Mode | Device planning / Projected Elements | |
|---|---|-----|
| - | -, use ↪ Table | S.3 |
|  | <i>External Protection - Module, general operation mode</i> | |


| Superv. only | Device planning / Definition | |
|---|--|-----|
| no | no, yes ↪ Table | S.3 |
|  | <i>External Protection - Module, if set to "Yes": Restriction of the function to a supervision functionality, i.e. there is no general alarm, no general trip and no trip command.</i> | |

9.13.2 ExP[1] ... ExP[4]: Global Parameters


| ExBlo1 ExBlo2 | Protection Para / Global Prot Para / Exp / Exp[1] | |
|---|--|-----|
| - | - ... Internal test state ↪ Table | P.2 |
|  | <i>External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true.</i> | |


| ExBlo TripCmd | Protection Para / Global Prot Para / Exp / Exp[1] | |
|---|--|-----|
| <ul style="list-style-type: none"> Only available if: Superv. only = no | - ... Internal test state ↪ Table | P.2 |
|  | <i>External blocking of the Trip Command of the module/the stage, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true.</i> | |


| Alarm | Protection Para / Global Prot Para / Exp / Exp[1] | |
|---|--|-----|
| - | - ... Internal test state ↪ Table | P.2 |
|  | <i>Assignment for External Alarm</i> | |


| | | |
|---|---|-----|
| Trip | Protection Para / Global Prot Para / ExP / ExP[1] | |
| - | - ... Internal test state ↪ Table | P.2 |
|  | <i>External trip of the CB if the state of the assigned signal is true.</i> | |

9.13.3 ExP[1] ... ExP[4]: Setting Group Parameters

| | | |
|---|--|-----|
| Function | Protection Para / Set 1 / ExP / ExP[1] Protection Para / Set 2 / ExP / ExP[1] Protection Para / Set 3 / ExP / ExP[1] Protection Para / Set 4 / ExP / ExP[1] | |
| Inactive | Inactive, Active ↪ Table | P.2 |
|  | <i>Permanent activation or deactivation of module/stage.</i> | |

| | | |
|---|--|-----|
| ExBlo Fc | Protection Para / Set 1 / ExP / ExP[1] Protection Para / Set 2 / ExP / ExP[1] Protection Para / Set 3 / ExP / ExP[1] Protection Para / Set 4 / ExP / ExP[1] | |
| Inactive | Inactive, Active ↪ Table | P.2 |
|  | <i>Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo Fc=active".</i> | |

| | | |
|--|--|-----|
| Blo TripCmd | Protection Para / Set 1 / ExP / ExP[1] Protection Para / Set 2 / ExP / ExP[1] Protection Para / Set 3 / ExP / ExP[1] Protection Para / Set 4 / ExP / ExP[1] | |
| <ul style="list-style-type: none"> Only available if: Superv. only = no Inactive | Inactive, Active ↪ Table | P.2 |
|  | <i>Permanent blocking of the Trip Command of the module/stage.</i> | |

| | | |
|--|--|-----|
| ExBlo TripCmd Fc | Protection Para / Set 1 / ExP / ExP[1] Protection Para / Set 2 / ExP / ExP[1] Protection Para / Set 3 / ExP / ExP[1] Protection Para / Set 4 / ExP / ExP[1] | |
| <ul style="list-style-type: none"> Only available if: Superv. only = no Inactive | Inactive, Active ↪ Table | P.2 |
|  | <i>Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo TripCmd Fc=active".</i> | |


9.13.4 Exp[1] ... Exp[4]: Input States

| | |
|--|--|
| ExBlo1-I (↳ Exp[1] . ExBlo1) | Operation / Status Display / Exp / Exp[1] |
| ↓ | Module input state: External blocking1 |
| ExBlo2-I | Operation / Status Display / Exp / Exp[1] |
| ↓ | Module input state: External blocking2 |
| ExBlo TripCmd-I | Operation / Status Display / Exp / Exp[1] |
| ↓ | <ul style="list-style-type: none"> Only available if: Superv. only = no Module input state: External Blocking of the Trip Command |
| Alarm-I (↳ Exp[1] . Alarm) | Operation / Status Display / Exp / Exp[1] |
| ↓ | Module input state: Alarm |
| Trip-I (↳ Exp[1] . Trip) | Operation / Status Display / Exp / Exp[1] |
| ↓ | Module input state: Trip |


9.13.5 Exp[1] ... Exp[4]: Signals (Output States)

| | |
|--------------------|---|
| Active | Operation / Status Display / All Actives Operation / Status Display / Exp / Exp[1] |
| ↑ | Signal: active |
| ExBlo | Operation / Status Display / Exp / Exp[1] |
| ↑ | Signal: External Blocking |
| Blo TripCmd | Operation / Status Display / Exp / Exp[1] |
| ↑ | <ul style="list-style-type: none"> Only available if: Superv. only = no Signal: Trip Command blocked |


| | |
|----------------------|---|
| ExBlo TripCmd | Operation / Status Display / ExP / ExP[1] |
|----------------------|---|

| |
|--|
|  <ul style="list-style-type: none"> • Only available if: Superv. only = no <p><i>Signal: External Blocking of the Trip Command</i></p> |
|--|


| | |
|--------------|--|
| Alarm | Operation / Status Display / Alarms Operation / Status Display / ExP / ExP[1] |
|--------------|--|

| |
|---|
|  <p><i>Signal: Alarm</i></p> |
|---|

| | |
|-------------|---|
| Trip | Operation / Status Display / Trips Operation / Status Display / ExP / ExP[1] |
|-------------|---|


| |
|--|
|  <p><i>Signal: Trip</i></p> |
|--|

| | |
|----------------|--|
| TripCmd | Operation / Status Display / TripCmds Operation / Status Display / ExP / ExP[1] |
|----------------|--|


| |
|---|
|  <ul style="list-style-type: none"> • Only available if: Superv. only = no <p><i>Signal: Trip Command</i></p> |
|---|

9.13.6 ExP[1] ... ExP[4]: Counters

| | |
|-----------------------|-------------------------------|
| NumberOfAlarms | Operation / History / AlarmCr |
|-----------------------|-------------------------------|

| |
|--|
|  <p><i>Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.</i></p> |
|--|


| | |
|-------------------------|---------------------------------|
| NumberOfTripCmds | Operation / History / TripCmdCr |
|-------------------------|---------------------------------|


| |
|--|
|  <p><i>Number of trip commands since the last reset</i></p> |
|--|


9.14 URTD

Universal Resistance Temperature Detector

9.14.1 URTD: Global Parameters


| Force Mode | | Service / Test - Prot inhib. / URTD |
|---|---|-------------------------------------|
| permanent | permanent, timeout | P.2 |
| | ↪ Table | |
|  | By means of this function the normal Output Relay States can be overwritten (forced) in case that the Relay is not in a disarmed state. The relays can be set from normal operation (relay works according to the assigned signals) to "force energized" or "force de-energized" state. | |

| t-Timeout Force | | Service / Test - Prot inhib. / URTD |
|---|--|-------------------------------------|
| <ul style="list-style-type: none"> Only available if: Force Mode = timeout 0.03s | 0.00s ... 300.00s | P.2 |
|  | The Output State will be set by force for the duration of this time. That means for the duration of this time the Output Relay does not show the state of the signals that are assigned on it. | |

| Temperature Unit | | Device Para / Measurment Display / General Settings |
|---|-------------------------|---|
| Celsius | Celsius, Fahrenheit | P.2 |
| | ↪ Table | |
|  | Temperature Unit | |

9.14.2 URTD: Direct Controls

| Function | | Service / Test - Prot inhib. / URTD |
|---|---|-------------------------------------|
| Inactive | Inactive, Active | P.1 |
| | ↪ Table | |
|  | Permanent activation or deactivation of module/stage. | |

| Force Windg1 | | Service / Test - Prot inhib. / URTD |
|---|--|-------------------------------------|
| 0 | Adjustable range: <ul style="list-style-type: none"> 32 ... 392, If: Temperature Unit = Fahrenheit 0 ... 200, If: Temperature Unit = Celsius | P.1 |
|  | Force Winding 1 | |

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9.14.2 URTD: Direct Controls

| | | | |
|-----------------------|--|-------------------------------------|-----|
| Force Windg2 | | Service / Test - Prot inhib. / URTD | |
| 0 | Adjustable range: | | P.1 |
| | <ul style="list-style-type: none"> • 32 ... 392, If: Temperature Unit = Fahrenheit • 0 ... 200, If: Temperature Unit = Celsius | | |
| ☉ | Force Winding 2 | | |
| Force Windg3 | | Service / Test - Prot inhib. / URTD | |
| 0 | Adjustable range: | | P.1 |
| | <ul style="list-style-type: none"> • 32 ... 392, If: Temperature Unit = Fahrenheit • 0 ... 200, If: Temperature Unit = Celsius | | |
| ☉ | Force Winding 3 | | |
| Force Windg4 | | Service / Test - Prot inhib. / URTD | |
| 0 | Adjustable range: | | P.1 |
| | <ul style="list-style-type: none"> • 32 ... 392, If: Temperature Unit = Fahrenheit • 0 ... 200, If: Temperature Unit = Celsius | | |
| ☉ | Force Winding 4 | | |
| Force Windg5 | | Service / Test - Prot inhib. / URTD | |
| 0 | Adjustable range: | | P.1 |
| | <ul style="list-style-type: none"> • 32 ... 392, If: Temperature Unit = Fahrenheit • 0 ... 200, If: Temperature Unit = Celsius | | |
| ☉ | Force Winding 5 | | |
| Force Windg6 | | Service / Test - Prot inhib. / URTD | |
| 0 | Adjustable range: | | P.1 |
| | <ul style="list-style-type: none"> • 32 ... 392, If: Temperature Unit = Fahrenheit • 0 ... 200, If: Temperature Unit = Celsius | | |
| ☉ | Force Winding 6 | | |
| Force MotBear1 | | Service / Test - Prot inhib. / URTD | |
| 0 | Adjustable range: | | P.1 |
| | <ul style="list-style-type: none"> • 32 ... 392, If: Temperature Unit = Fahrenheit • 0 ... 200, If: Temperature Unit = Celsius | | |
| ☉ | Force Motor Bearing 1 | | |

| Force MotBear2 | | Service / Test - Prot inhib. / URTD |
|-----------------------|--|-------------------------------------|
| 0 | Adjustable range: | P.1 |
| | <ul style="list-style-type: none"> • 32 ... 392, If: Temperature Unit = Fahrenheit • 0 ... 200, If: Temperature Unit = Celsius | |
| ☉ | Force Motor Bearing 2 | |

| Force LoadBear1 | | Service / Test - Prot inhib. / URTD |
|------------------------|--|-------------------------------------|
| 0 | Adjustable range: | P.1 |
| | <ul style="list-style-type: none"> • 32 ... 392, If: Temperature Unit = Fahrenheit • 0 ... 200, If: Temperature Unit = Celsius | |
| ☉ | Force Load Bearing 1 | |

| Force LoadBear2 | | Service / Test - Prot inhib. / URTD |
|------------------------|--|-------------------------------------|
| 0 | Adjustable range: | P.1 |
| | <ul style="list-style-type: none"> • 32 ... 392, If: Temperature Unit = Fahrenheit • 0 ... 200, If: Temperature Unit = Celsius | |
| ☉ | Force Load Bearing 2 | |

| Force Aux1 | | Service / Test - Prot inhib. / URTD |
|-------------------|--|-------------------------------------|
| 0 | Adjustable range: | P.1 |
| | <ul style="list-style-type: none"> • 32 ... 392, If: Temperature Unit = Fahrenheit • 0 ... 200, If: Temperature Unit = Celsius | |
| ☉ | Force Auxiliary1 | |

| Force Aux2 | | Service / Test - Prot inhib. / URTD |
|-------------------|--|-------------------------------------|
| 0 | Adjustable range: | P.1 |
| | <ul style="list-style-type: none"> • 32 ... 392, If: Temperature Unit = Fahrenheit • 0 ... 200, If: Temperature Unit = Celsius | |
| ☉ | Force Auxiliary2 | |

9.14.3 URTD: Signals (Output States)

| Windg1 Superv | | Operation / Status Display / Temp-Prot / URTD |
|----------------------|--|---|
| ↑ | Signal: Windg1, Channel Supervision. The value "1" reports a detected channel failure. (The value "0" means that this RTD channel is healthy.) | |


| Windg2 Superv | | Operation / Status Display / Temp-Prot / URTD |
|----------------------|--|---|
| ↑ | Signal: Windg2, Channel Supervision. The value "1" reports a detected channel failure. (The value "0" means that this RTD channel is healthy.) | |

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9.14.3 URTD: Signals (Output States)

| | |
|-------------------------|---|
| Windg3 Superv | Operation / Status Display / Temp-Prot / URTD |
| ↑ | <i>Signal: Windg3, Channel Supervision. The value "1" reports a detected channel failure. (The value "0" means that this RTD channel is healthy.)</i> |
| Windg4 Superv | Operation / Status Display / Temp-Prot / URTD |
| ↑ | <i>Signal: Windg4, Channel Supervision. The value "1" reports a detected channel failure. (The value "0" means that this RTD channel is healthy.)</i> |
| Windg5 Superv | Operation / Status Display / Temp-Prot / URTD |
| ↑ | <i>Signal: Windg5, Channel Supervision. The value "1" reports a detected channel failure. (The value "0" means that this RTD channel is healthy.)</i> |
| Windg6 Superv | Operation / Status Display / Temp-Prot / URTD |
| ↑ | <i>Signal: Windg6, Channel Supervision. The value "1" reports a detected channel failure. (The value "0" means that this RTD channel is healthy.)</i> |
| MotBear1 Superv | Operation / Status Display / Temp-Prot / URTD |
| ↑ | <i>Signal: MotBear1, Channel Supervision. The value "1" reports a detected channel failure. (The value "0" means that this RTD channel is healthy.)</i> |
| MotBear2 Superv | Operation / Status Display / Temp-Prot / URTD |
| ↑ | <i>Signal: MotBear2, Channel Supervision. The value "1" reports a detected channel failure. (The value "0" means that this RTD channel is healthy.)</i> |
| LoadBear1 Superv | Operation / Status Display / Temp-Prot / URTD |
| ↑ | <i>Signal: LoadBear1, Channel Supervision. The value "1" reports a detected channel failure. (The value "0" means that this RTD channel is healthy.)</i> |
| LoadBear2 Superv | Operation / Status Display / Temp-Prot / URTD |
| ↑ | <i>Signal: LoadBear2, Channel Supervision. The value "1" reports a detected channel failure. (The value "0" means that this RTD channel is healthy.)</i> |
| Aux1 Superv | Operation / Status Display / Temp-Prot / URTD |
| ↑ | <i>Signal: Aux1, Channel Supervision. The value "1" reports a detected channel failure. (The value "0" means that this RTD channel is healthy.)</i> |
| Aux2 Superv | Operation / Status Display / Temp-Prot / URTD |
| ↑ | <i>Signal: Aux2, Channel Supervision. The value "1" reports a detected channel failure. (The value "0" means that this RTD channel is healthy.)</i> |
| Superv | Operation / Status Display / Temp-Prot / URTD |
| ↑ | <i>Signal: URTD Channel Supervision. The value "1" reports a detected channel failure of at least one channel. (The value "0" means that all RTD channels are healthy.)</i> |

| | |
|--------------------------|---|
| Connection active | Operation / Status Display / Temp-Prot / URTD |
|--------------------------|---|


 *Signal: There is an active connection between the Temperature Detector (URTD) and the protective relay.*

| | |
|--------------------|---|
| Outs forced | Operation / Status Display / Temp-Prot / URTD |
|--------------------|---|


 *Signal: The State of at least one Relay Output has been set by force. That means that the state of at least one Relay is forced and hence does not show the state of the assigned signals.*

9.14.4 URTD: Values


| | |
|---------------|------------------------------------|
| Windg1 | Operation / Measured Values / URTD |
|---------------|------------------------------------|

 *Winding 1*


| | |
|---------------|------------------------------------|
| Windg2 | Operation / Measured Values / URTD |
|---------------|------------------------------------|

 *Winding 2*


| | |
|---------------|------------------------------------|
| Windg3 | Operation / Measured Values / URTD |
|---------------|------------------------------------|

 *Winding 3*


| | |
|---------------|------------------------------------|
| Windg4 | Operation / Measured Values / URTD |
|---------------|------------------------------------|

 *Winding 4*


| | |
|---------------|------------------------------------|
| Windg5 | Operation / Measured Values / URTD |
|---------------|------------------------------------|

 *Winding 5*


| | |
|---------------|------------------------------------|
| Windg6 | Operation / Measured Values / URTD |
|---------------|------------------------------------|

 *Winding 6*


| | |
|-----------------|------------------------------------|
| MotBear1 | Operation / Measured Values / URTD |
|-----------------|------------------------------------|

 *Motor Bearing 1*


| | |
|-----------------|------------------------------------|
| MotBear2 | Operation / Measured Values / URTD |
|-----------------|------------------------------------|

 *Motor Bearing 2*

| | |
|------------------|------------------------------------|
| LoadBear1 | Operation / Measured Values / URTD |
|------------------|------------------------------------|




 *Load Bearing 1*

| | |
|------------------|------------------------------------|
| LoadBear2 | Operation / Measured Values / URTD |
|------------------|------------------------------------|

 *Load Bearing 2*

9 Protection

9.14.5 URTD: Statistical Values

| | |
|--|------------------------------------|
| Aux1 | Operation / Measured Values / URTD |
|  Auxiliary1 | |
| Aux2 | Operation / Measured Values / URTD |
|  Auxiliary2 | |
| RTD Max | Operation / Measured Values / URTD |
|  Maximum temperature of all channels. | |

9.14.5 URTD: Statistical Values


| | |
|--|-------------------------------------|
| Windg1 max | Operation / Statistics / Max / URTD |
| <input checked="" type="checkbox"/> Winding1 Maximum Value | |
| Windg2 max | Operation / Statistics / Max / URTD |
| <input checked="" type="checkbox"/> Winding2 Maximum Value | |
| Windg3 max | Operation / Statistics / Max / URTD |
| <input checked="" type="checkbox"/> Winding3 Maximum Value | |
| Windg4 max | Operation / Statistics / Max / URTD |
| <input checked="" type="checkbox"/> Winding4 Maximum Value | |
| Windg5 max | Operation / Statistics / Max / URTD |
| <input checked="" type="checkbox"/> Winding5 Maximum Value | |
| Windg6 max | Operation / Statistics / Max / URTD |
| <input checked="" type="checkbox"/> Winding6 Maximum Value | |
| MotBear1 max | Operation / Statistics / Max / URTD |
| <input checked="" type="checkbox"/> Motor Bearing1 Maximum Value | |
| MotBear2 max | Operation / Statistics / Max / URTD |
| <input checked="" type="checkbox"/> Motor Bearing2 Maximum Value | |
| LoadBear1 max | Operation / Statistics / Max / URTD |
| <input checked="" type="checkbox"/> Load Bearing1 Maximum Value | |


| | |
|-------------------------------------|-------------------------------------|
| LoadBear2 max | Operation / Statistics / Max / URTD |
| <input checked="" type="checkbox"/> | <i>Load Bearing2 Maximum Value</i> |
| Aux1 max | Operation / Statistics / Max / URTD |
| <input checked="" type="checkbox"/> | <i>Auxiliary1 Maximum Value</i> |
| Aux2 max | Operation / Statistics / Max / URTD |
| <input checked="" type="checkbox"/> | <i>Auxiliary2 Maximum Value</i> |

9.15 RTD


Temperature Protection Module


9.15.1 RTD: Device Planning Parameters


| Mode | Device planning / Projected Elements | |
|---|--------------------------------------|-----|
| - | -, use ↪ Table | S.3 |
|  <i>general operation mode</i> | | |

| Superv. only | Device planning / Definition | |
|---|------------------------------------|-----|
| no | no, yes ↪ Table | S.3 |
|  <i>Temperature Protection Module, if set to "Yes": Restriction of the function to a supervision functionality, i.e. there is no general alarm, no general trip and no trip command.</i> | | |


9.15.2 RTD: Global Parameters


| ExBlo1 ExBlo2 | Protection Para / Global Prot Para / Temp-Prot / RTD | |
|--|--|-----|
| - | - ... Internal test state ↪ Table | P.2 |
|  <i>External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true.</i> | | |


| ExBlo TripCmd | Protection Para / Global Prot Para / Temp-Prot / RTD | |
|--|--|-----|
| <ul style="list-style-type: none"> Only available if: Superv. only = no - | - ... Internal test state ↪ Table | P.2 |
|  <i>External blocking of the Trip Command of the module/the stage, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true.</i> | | |


| TripCmd Selection | Protection Para / Global Prot Para / Temp-Prot / RTD | |
|--|--|-----|
| <ul style="list-style-type: none"> Only available if: Superv. only = no Trip | Trip, Voting Trip ↪ Table | P.2 |
|  <i>This parameter determines if the final trip of the RTD module is issued by the default way or by the voting groups.</i> | | |


9.15.3 RTD: Setting Group Parameters

| | | |
|---|--|-----|
| Function | Protection Para / Set 1 / Temp-Prot / RTD / General Settings Protection Para / Set 2 / Temp-Prot / RTD / General Settings Protection Para / Set 3 / Temp-Prot / RTD / General Settings Protection Para / Set 4 / Temp-Prot / RTD / General Settings | |
| Inactive | Inactive, Active ↪ Table | P.2 |
|  | <i>Permanent activation or deactivation of module/stage.</i> | |

| | | |
|---|--|-----|
| ExBlo Fc | Protection Para / Set 1 / Temp-Prot / RTD / General Settings Protection Para / Set 2 / Temp-Prot / RTD / General Settings Protection Para / Set 3 / Temp-Prot / RTD / General Settings Protection Para / Set 4 / Temp-Prot / RTD / General Settings | |
| Inactive | Inactive, Active ↪ Table | P.2 |
|  | <i>Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo Fc=active".</i> | |


| | | |
|--|--|-----|
| Blo TripCmd | Protection Para / Set 1 / Temp-Prot / RTD / General Settings Protection Para / Set 2 / Temp-Prot / RTD / General Settings Protection Para / Set 3 / Temp-Prot / RTD / General Settings Protection Para / Set 4 / Temp-Prot / RTD / General Settings | |
| <ul style="list-style-type: none"> Only available if: Superv. only = no Inactive | Inactive, Active ↪ Table | P.2 |
|  | <i>Permanent blocking of the Trip Command of the module/stage.</i> | |


| | | |
|--|--|-----|
| ExBlo TripCmd Fc | Protection Para / Set 1 / Temp-Prot / RTD / General Settings Protection Para / Set 2 / Temp-Prot / RTD / General Settings Protection Para / Set 3 / Temp-Prot / RTD / General Settings Protection Para / Set 4 / Temp-Prot / RTD / General Settings | |
| <ul style="list-style-type: none"> Only available if: Superv. only = no Inactive | Inactive, Active ↪ Table | P.2 |
|  | <i>Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo TripCmd Fc=active".</i> | |


| | | |
|---|--|-----|
| Windg 1 Alarm Function | Protection Para / Set 1 / Temp-Prot / RTD / Windg 1 Protection Para / Set 2 / Temp-Prot / RTD / Windg 1 Protection Para / Set 3 / Temp-Prot / RTD / Windg 1 Protection Para / Set 4 / Temp-Prot / RTD / Windg 1 | |
| Active | Inactive, Active ↪ Table | P.2 |
|  | <i>Winding 1 Alarm Function</i> | |

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9.15.3 RTD: Setting Group Parameters


| | | |
|--|--|-----|
| Windg 1 Trip Function | Protection Para / Set 1 / Temp-Prot / RTD / Windg 1 Protection Para / Set 2 / Temp-Prot / RTD / Windg 1 Protection Para / Set 3 / Temp-Prot / RTD / Windg 1 Protection Para / Set 4 / Temp-Prot / RTD / Windg 1 | |
| Active | Inactive, Active ↳ Table | P.2 |
|  <i>Winding 1 Trip Function</i> | | |


| | | |
|--|--|-----|
| Windg 1 Alarm | Protection Para / Set 1 / Temp-Prot / RTD / Windg 1 Protection Para / Set 2 / Temp-Prot / RTD / Windg 1 Protection Para / Set 3 / Temp-Prot / RTD / Windg 1 Protection Para / Set 4 / Temp-Prot / RTD / Windg 1 | |
| <ul style="list-style-type: none"> Only available if: Windg 1 Alarm Function = Active 80°C | 0°C ... 200°C | P.2 |
|  <i>Winding 1 Threshold for Temperature Alarm</i> | | |


| | | |
|---|--|-----|
| Windg 1 t-Alarm-Delay | Protection Para / Set 1 / Temp-Prot / RTD / Windg 1 Protection Para / Set 2 / Temp-Prot / RTD / Windg 1 Protection Para / Set 3 / Temp-Prot / RTD / Windg 1 Protection Para / Set 4 / Temp-Prot / RTD / Windg 1 | |
| <ul style="list-style-type: none"> Only available if: Windg 1 Alarm Function = Active 1min | 0min ... 360min | P.2 |
|  <i>Winding 1 After this time has expired a Temperature Alarm is issued.</i> | | |


| | | |
|---|--|-----|
| Windg 1 Trip | Protection Para / Set 1 / Temp-Prot / RTD / Windg 1 Protection Para / Set 2 / Temp-Prot / RTD / Windg 1 Protection Para / Set 3 / Temp-Prot / RTD / Windg 1 Protection Para / Set 4 / Temp-Prot / RTD / Windg 1 | |
| <ul style="list-style-type: none"> Only available if: Windg 1 Trip Function = Active 100°C | 0°C ... 200°C | P.2 |
|  <i>Winding 1 Threshold for Temperature Trip</i> | | |


| | | |
|---|--|-----|
| Windg 2 Alarm Function | Protection Para / Set 1 / Temp-Prot / RTD / Windg 2 Protection Para / Set 2 / Temp-Prot / RTD / Windg 2 Protection Para / Set 3 / Temp-Prot / RTD / Windg 2 Protection Para / Set 4 / Temp-Prot / RTD / Windg 2 | |
| Active | Inactive, Active ↳ Table | P.2 |
|  <i>Winding 2 Alarm Function</i> | | |

| | | |
|--|--|-----|
| Windg 2 Trip Function | Protection Para / Set 1 / Temp-Prot / RTD / Windg 2 Protection Para / Set 2 / Temp-Prot / RTD / Windg 2 Protection Para / Set 3 / Temp-Prot / RTD / Windg 2 Protection Para / Set 4 / Temp-Prot / RTD / Windg 2 | |
| Active | Inactive, Active ↳ Table | P.2 |
|  <i>Winding 2 Trip Function</i> | | |

| | | |
|--|--|-----|
| Windg 2 Alarm | Protection Para / Set 1 / Temp-Prot / RTD / Windg 2 Protection Para / Set 2 / Temp-Prot / RTD / Windg 2 Protection Para / Set 3 / Temp-Prot / RTD / Windg 2 Protection Para / Set 4 / Temp-Prot / RTD / Windg 2 | |
| <ul style="list-style-type: none"> Only available if: Windg 2 Alarm Function = Active 80°C | 0°C ... 200°C | P.2 |
|  <i>Winding 2 Threshold for Temperature Alarm</i> | | |


| | | |
|---|--|-----|
| Windg 2 t-Alarm-Delay | Protection Para / Set 1 / Temp-Prot / RTD / Windg 2 Protection Para / Set 2 / Temp-Prot / RTD / Windg 2 Protection Para / Set 3 / Temp-Prot / RTD / Windg 2 Protection Para / Set 4 / Temp-Prot / RTD / Windg 2 | |
| <ul style="list-style-type: none"> Only available if: Windg 2 Alarm Function = Active 1min | 0min ... 360min | P.2 |
|  <i>Winding 2 After this time has expired a Temperature Alarm is issued.</i> | | |


| | | |
|---|--|-----|
| Windg 2 Trip | Protection Para / Set 1 / Temp-Prot / RTD / Windg 2 Protection Para / Set 2 / Temp-Prot / RTD / Windg 2 Protection Para / Set 3 / Temp-Prot / RTD / Windg 2 Protection Para / Set 4 / Temp-Prot / RTD / Windg 2 | |
| <ul style="list-style-type: none"> Only available if: Windg 2 Trip Function = Active 100°C | 0°C ... 200°C | P.2 |
|  <i>Winding 2 Threshold for Temperature Trip</i> | | |


| | | |
|---|--|-----|
| Windg 3 Alarm Function | Protection Para / Set 1 / Temp-Prot / RTD / Windg 3 Protection Para / Set 2 / Temp-Prot / RTD / Windg 3 Protection Para / Set 3 / Temp-Prot / RTD / Windg 3 Protection Para / Set 4 / Temp-Prot / RTD / Windg 3 | |
| Active | Inactive, Active ↳ Table | P.2 |
|  <i>Winding 3 Alarm Function</i> | | |


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9.15.3 RTD: Setting Group Parameters


| | | |
|--|--|-----|
| Windg 3 Trip Function | Protection Para / Set 1 / Temp-Prot / RTD / Windg 3 Protection Para / Set 2 / Temp-Prot / RTD / Windg 3 Protection Para / Set 3 / Temp-Prot / RTD / Windg 3 Protection Para / Set 4 / Temp-Prot / RTD / Windg 3 | |
| Active | Inactive, Active ↳ Table | P.2 |
|  <i>Winding 3 Trip Function</i> | | |


| | | |
|--|--|-----|
| Windg 3 Alarm | Protection Para / Set 1 / Temp-Prot / RTD / Windg 3 Protection Para / Set 2 / Temp-Prot / RTD / Windg 3 Protection Para / Set 3 / Temp-Prot / RTD / Windg 3 Protection Para / Set 4 / Temp-Prot / RTD / Windg 3 | |
| <ul style="list-style-type: none"> Only available if: Windg 3 Alarm Function = Active 80°C | 0°C ... 200°C | P.2 |
|  <i>Winding 3 Threshold for Temperature Alarm</i> | | |


| | | |
|---|--|-----|
| Windg 3 t-Alarm-Delay | Protection Para / Set 1 / Temp-Prot / RTD / Windg 3 Protection Para / Set 2 / Temp-Prot / RTD / Windg 3 Protection Para / Set 3 / Temp-Prot / RTD / Windg 3 Protection Para / Set 4 / Temp-Prot / RTD / Windg 3 | |
| <ul style="list-style-type: none"> Only available if: Windg 3 Alarm Function = Active 1min | 0min ... 360min | P.2 |
|  <i>Winding 3 After this time has expired a Temperature Alarm is issued.</i> | | |


| | | |
|---|--|-----|
| Windg 3 Trip | Protection Para / Set 1 / Temp-Prot / RTD / Windg 3 Protection Para / Set 2 / Temp-Prot / RTD / Windg 3 Protection Para / Set 3 / Temp-Prot / RTD / Windg 3 Protection Para / Set 4 / Temp-Prot / RTD / Windg 3 | |
| <ul style="list-style-type: none"> Only available if: Windg 3 Trip Function = Active 100°C | 0°C ... 200°C | P.2 |
|  <i>Winding 3 Threshold for Temperature Trip</i> | | |


| | | |
|---|--|-----|
| Windg 4 Alarm Function | Protection Para / Set 1 / Temp-Prot / RTD / Windg 4 Protection Para / Set 2 / Temp-Prot / RTD / Windg 4 Protection Para / Set 3 / Temp-Prot / RTD / Windg 4 Protection Para / Set 4 / Temp-Prot / RTD / Windg 4 | |
| Active | Inactive, Active ↳ Table | P.2 |
|  <i>Winding 4 Alarm Function</i> | | |

| | | |
|--|--|-----|
| Windg 4 Trip Function | Protection Para / Set 1 / Temp-Prot / RTD / Windg 4 Protection Para / Set 2 / Temp-Prot / RTD / Windg 4 Protection Para / Set 3 / Temp-Prot / RTD / Windg 4 Protection Para / Set 4 / Temp-Prot / RTD / Windg 4 | |
| Active | Inactive, Active ↪ Table | P.2 |
|  <i>Winding 4 Trip Function</i> | | |

| | | |
|--|--|-----|
| Windg 4 Alarm | Protection Para / Set 1 / Temp-Prot / RTD / Windg 4 Protection Para / Set 2 / Temp-Prot / RTD / Windg 4 Protection Para / Set 3 / Temp-Prot / RTD / Windg 4 Protection Para / Set 4 / Temp-Prot / RTD / Windg 4 | |
| <ul style="list-style-type: none"> Only available if: Windg 4 Alarm Function = Active 80°C | 0°C ... 200°C | P.2 |
|  <i>Winding 4 Threshold for Temperature Alarm</i> | | |


| | | |
|---|--|-----|
| Windg 4 t-Alarm-Delay | Protection Para / Set 1 / Temp-Prot / RTD / Windg 4 Protection Para / Set 2 / Temp-Prot / RTD / Windg 4 Protection Para / Set 3 / Temp-Prot / RTD / Windg 4 Protection Para / Set 4 / Temp-Prot / RTD / Windg 4 | |
| <ul style="list-style-type: none"> Only available if: Windg 4 Alarm Function = Active 1min | 0min ... 360min | P.2 |
|  <i>Winding 4 After this time has expired a Temperature Alarm is issued.</i> | | |


| | | |
|---|--|-----|
| Windg 4 Trip | Protection Para / Set 1 / Temp-Prot / RTD / Windg 4 Protection Para / Set 2 / Temp-Prot / RTD / Windg 4 Protection Para / Set 3 / Temp-Prot / RTD / Windg 4 Protection Para / Set 4 / Temp-Prot / RTD / Windg 4 | |
| <ul style="list-style-type: none"> Only available if: Windg 4 Trip Function = Active 100°C | 0°C ... 200°C | P.2 |
|  <i>Winding 4 Threshold for Temperature Trip</i> | | |


| | | |
|---|--|-----|
| Windg 5 Alarm Function | Protection Para / Set 1 / Temp-Prot / RTD / Windg 5 Protection Para / Set 2 / Temp-Prot / RTD / Windg 5 Protection Para / Set 3 / Temp-Prot / RTD / Windg 5 Protection Para / Set 4 / Temp-Prot / RTD / Windg 5 | |
| Active | Inactive, Active ↪ Table | P.2 |
|  <i>Winding 5 Alarm Function</i> | | |

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9.15.3 RTD: Setting Group Parameters


| | | |
|--|--|-----|
| Windg 5 Trip Function | Protection Para / Set 1 / Temp-Prot / RTD / Windg 5 Protection Para / Set 2 / Temp-Prot / RTD / Windg 5 Protection Para / Set 3 / Temp-Prot / RTD / Windg 5 Protection Para / Set 4 / Temp-Prot / RTD / Windg 5 | |
| Active | Inactive, Active ↪ Table | P.2 |
|  <i>Winding 5 Trip Function</i> | | |


| | | |
|--|--|-----|
| Windg 5 Alarm | Protection Para / Set 1 / Temp-Prot / RTD / Windg 5 Protection Para / Set 2 / Temp-Prot / RTD / Windg 5 Protection Para / Set 3 / Temp-Prot / RTD / Windg 5 Protection Para / Set 4 / Temp-Prot / RTD / Windg 5 | |
| <ul style="list-style-type: none"> Only available if: Windg 5 Alarm Function = Active 80°C | 0°C ... 200°C | P.2 |
|  <i>Winding 5 Threshold for Temperature Alarm</i> | | |


| | | |
|---|--|-----|
| Windg 5 t-Alarm-Delay | Protection Para / Set 1 / Temp-Prot / RTD / Windg 5 Protection Para / Set 2 / Temp-Prot / RTD / Windg 5 Protection Para / Set 3 / Temp-Prot / RTD / Windg 5 Protection Para / Set 4 / Temp-Prot / RTD / Windg 5 | |
| <ul style="list-style-type: none"> Only available if: Windg 5 Alarm Function = Active 1min | 0min ... 360min | P.2 |
|  <i>Winding 5 After this time has expired a Temperature Alarm is issued.</i> | | |


| | | |
|---|--|-----|
| Windg 5 Trip | Protection Para / Set 1 / Temp-Prot / RTD / Windg 5 Protection Para / Set 2 / Temp-Prot / RTD / Windg 5 Protection Para / Set 3 / Temp-Prot / RTD / Windg 5 Protection Para / Set 4 / Temp-Prot / RTD / Windg 5 | |
| <ul style="list-style-type: none"> Only available if: Windg 5 Trip Function = Active 100°C | 0°C ... 200°C | P.2 |
|  <i>Winding 5 Threshold for Temperature Trip</i> | | |


| | | |
|---|--|-----|
| Windg 6 Alarm Function | Protection Para / Set 1 / Temp-Prot / RTD / Windg 6 Protection Para / Set 2 / Temp-Prot / RTD / Windg 6 Protection Para / Set 3 / Temp-Prot / RTD / Windg 6 Protection Para / Set 4 / Temp-Prot / RTD / Windg 6 | |
| Active | Inactive, Active ↪ Table | P.2 |
|  <i>Winding 6 Alarm Function</i> | | |

| | | |
|--|--|-----|
| Windg 6 Trip Function | Protection Para / Set 1 / Temp-Prot / RTD / Windg 6 Protection Para / Set 2 / Temp-Prot / RTD / Windg 6 Protection Para / Set 3 / Temp-Prot / RTD / Windg 6 Protection Para / Set 4 / Temp-Prot / RTD / Windg 6 | |
| Active | Inactive, Active ↳ Table | P.2 |
|  <i>Winding 6 Trip Function</i> | | |

| | | |
|--|--|-----|
| Windg 6 Alarm | Protection Para / Set 1 / Temp-Prot / RTD / Windg 6 Protection Para / Set 2 / Temp-Prot / RTD / Windg 6 Protection Para / Set 3 / Temp-Prot / RTD / Windg 6 Protection Para / Set 4 / Temp-Prot / RTD / Windg 6 | |
| <ul style="list-style-type: none"> Only available if: Windg 6 Alarm Function = Active 80°C | 0°C ... 200°C | P.2 |
|  <i>Winding 6 Threshold for Temperature Alarm</i> | | |


| | | |
|---|--|-----|
| Windg 6 t-Alarm-Delay | Protection Para / Set 1 / Temp-Prot / RTD / Windg 6 Protection Para / Set 2 / Temp-Prot / RTD / Windg 6 Protection Para / Set 3 / Temp-Prot / RTD / Windg 6 Protection Para / Set 4 / Temp-Prot / RTD / Windg 6 | |
| <ul style="list-style-type: none"> Only available if: Windg 6 Alarm Function = Active 1min | 0min ... 360min | P.2 |
|  <i>Winding 6 After this time has expired a Temperature Alarm is issued.</i> | | |


| | | |
|---|--|-----|
| Windg 6 Trip | Protection Para / Set 1 / Temp-Prot / RTD / Windg 6 Protection Para / Set 2 / Temp-Prot / RTD / Windg 6 Protection Para / Set 3 / Temp-Prot / RTD / Windg 6 Protection Para / Set 4 / Temp-Prot / RTD / Windg 6 | |
| <ul style="list-style-type: none"> Only available if: Windg 6 Trip Function = Active 100°C | 0°C ... 200°C | P.2 |
|  <i>Winding 6 Threshold for Temperature Trip</i> | | |


| | | |
|---|--|-----|
| MotBear 1 Alarm Function | Protection Para / Set 1 / Temp-Prot / RTD / MotBear 1 Protection Para / Set 2 / Temp-Prot / RTD / MotBear 1 Protection Para / Set 3 / Temp-Prot / RTD / MotBear 1 Protection Para / Set 4 / Temp-Prot / RTD / MotBear 1 | |
| Active | Inactive, Active ↳ Table | P.2 |
|  <i>Motor Bearing 1 Alarm Function</i> | | |

9 Protection


9.15.3 RTD: Setting Group Parameters


| | | |
|--|--|-----|
| MotBear 1 Trip Function | Protection Para / Set 1 / Temp-Prot / RTD / MotBear 1 Protection Para / Set 2 / Temp-Prot / RTD / MotBear 1 Protection Para / Set 3 / Temp-Prot / RTD / MotBear 1 Protection Para / Set 4 / Temp-Prot / RTD / MotBear 1 | |
| Active | Inactive, Active ↪ Table | P.2 |
|  <i>Motor Bearing 1 Trip Function</i> | | |


| | | |
|--|--|-----|
| MotBear 1 Alarm | Protection Para / Set 1 / Temp-Prot / RTD / MotBear 1 Protection Para / Set 2 / Temp-Prot / RTD / MotBear 1 Protection Para / Set 3 / Temp-Prot / RTD / MotBear 1 Protection Para / Set 4 / Temp-Prot / RTD / MotBear 1 | |
| <ul style="list-style-type: none"> Only available if: MotBear 1 Alarm Function = Active 80°C | 0°C ... 200°C | P.2 |
|  <i>Motor Bearing 1 Threshold for Temperature Alarm</i> | | |


| | | |
|---|--|-----|
| MotBear 1 t-Alarm-Delay | Protection Para / Set 1 / Temp-Prot / RTD / MotBear 1 Protection Para / Set 2 / Temp-Prot / RTD / MotBear 1 Protection Para / Set 3 / Temp-Prot / RTD / MotBear 1 Protection Para / Set 4 / Temp-Prot / RTD / MotBear 1 | |
| <ul style="list-style-type: none"> Only available if: MotBear 1 Alarm Function = Active 1min | 0min ... 360min | P.2 |
|  <i>Motor Bearing 1 After this time has expired a Temperature Alarm is issued.</i> | | |


| | | |
|---|--|-----|
| MotBear 1 Trip | Protection Para / Set 1 / Temp-Prot / RTD / MotBear 1 Protection Para / Set 2 / Temp-Prot / RTD / MotBear 1 Protection Para / Set 3 / Temp-Prot / RTD / MotBear 1 Protection Para / Set 4 / Temp-Prot / RTD / MotBear 1 | |
| <ul style="list-style-type: none"> Only available if: MotBear 1 Trip Function = Active 100°C | 0°C ... 200°C | P.2 |
|  <i>Motor Bearing 1 Threshold for Temperature Trip</i> | | |


| | | |
|---|--|-----|
| MotBear 2 Alarm Function | Protection Para / Set 1 / Temp-Prot / RTD / MotBear 2 Protection Para / Set 2 / Temp-Prot / RTD / MotBear 2 Protection Para / Set 3 / Temp-Prot / RTD / MotBear 2 Protection Para / Set 4 / Temp-Prot / RTD / MotBear 2 | |
| Active | Inactive, Active ↪ Table | P.2 |
|  <i>Motor Bearing 2 Alarm Function</i> | | |

| | | |
|--|--|-----|
| MotBear 2 Trip Function | Protection Para / Set 1 / Temp-Prot / RTD / MotBear 2 Protection Para / Set 2 / Temp-Prot / RTD / MotBear 2 Protection Para / Set 3 / Temp-Prot / RTD / MotBear 2 Protection Para / Set 4 / Temp-Prot / RTD / MotBear 2 | |
| Active | Inactive, Active ↪ Table | P.2 |
|  <i>Motor Bearing 2 Trip Function</i> | | |

| | | |
|--|--|-----|
| MotBear 2 Alarm | Protection Para / Set 1 / Temp-Prot / RTD / MotBear 2 Protection Para / Set 2 / Temp-Prot / RTD / MotBear 2 Protection Para / Set 3 / Temp-Prot / RTD / MotBear 2 Protection Para / Set 4 / Temp-Prot / RTD / MotBear 2 | |
| <ul style="list-style-type: none"> Only available if: MotBear 2 Alarm Function = Active 80°C | 0°C ... 200°C | P.2 |
|  <i>Motor Bearing 2 Threshold for Temperature Alarm</i> | | |


| | | |
|---|--|-----|
| MotBear 2 t-Alarm-Delay | Protection Para / Set 1 / Temp-Prot / RTD / MotBear 2 Protection Para / Set 2 / Temp-Prot / RTD / MotBear 2 Protection Para / Set 3 / Temp-Prot / RTD / MotBear 2 Protection Para / Set 4 / Temp-Prot / RTD / MotBear 2 | |
| <ul style="list-style-type: none"> Only available if: MotBear 2 Alarm Function = Active 1min | 0min ... 360min | P.2 |
|  <i>Motor Bearing 2 After this time has expired a Temperature Alarm is issued.</i> | | |


| | | |
|---|--|-----|
| MotBear 2 Trip | Protection Para / Set 1 / Temp-Prot / RTD / MotBear 2 Protection Para / Set 2 / Temp-Prot / RTD / MotBear 2 Protection Para / Set 3 / Temp-Prot / RTD / MotBear 2 Protection Para / Set 4 / Temp-Prot / RTD / MotBear 2 | |
| <ul style="list-style-type: none"> Only available if: MotBear 2 Trip Function = Active 100°C | 0°C ... 200°C | P.2 |
|  <i>Motor Bearing 2 Threshold for Temperature Trip</i> | | |


| | | |
|--|--|-----|
| LoadBear 1 Alarm Function | Protection Para / Set 1 / Temp-Prot / RTD / LoadBear 1 Protection Para / Set 2 / Temp-Prot / RTD / LoadBear 1 Protection Para / Set 3 / Temp-Prot / RTD / LoadBear 1 Protection Para / Set 4 / Temp-Prot / RTD / LoadBear 1 | |
| Active | Inactive, Active ↪ Table | P.2 |
|  <i>Load Bearing 1 Alarm Function</i> | | |

9 Protection


9.15.3 RTD: Setting Group Parameters


| | | |
|---|--|-----|
| LoadBear 1 Trip Function | Protection Para / Set 1 / Temp-Prot / RTD / LoadBear 1 Protection Para / Set 2 / Temp-Prot / RTD / LoadBear 1 Protection Para / Set 3 / Temp-Prot / RTD / LoadBear 1 Protection Para / Set 4 / Temp-Prot / RTD / LoadBear 1 | |
| Active | Inactive, Active ↪ Table | P.2 |
|  <i>Load Bearing 1 Trip Function</i> | | |


| | | |
|---|--|-----|
| LoadBear 1 Alarm | Protection Para / Set 1 / Temp-Prot / RTD / LoadBear 1 Protection Para / Set 2 / Temp-Prot / RTD / LoadBear 1 Protection Para / Set 3 / Temp-Prot / RTD / LoadBear 1 Protection Para / Set 4 / Temp-Prot / RTD / LoadBear 1 | |
| <ul style="list-style-type: none"> Only available if: LoadBear 1 Alarm Function = Active 80°C | 0°C ... 200°C | P.2 |
|  <i>Load Bearing 1 Threshold for Temperature Alarm</i> | | |


| | | |
|--|--|-----|
| LoadBear 1 t-Alarm-Delay | Protection Para / Set 1 / Temp-Prot / RTD / LoadBear 1 Protection Para / Set 2 / Temp-Prot / RTD / LoadBear 1 Protection Para / Set 3 / Temp-Prot / RTD / LoadBear 1 Protection Para / Set 4 / Temp-Prot / RTD / LoadBear 1 | |
| <ul style="list-style-type: none"> Only available if: LoadBear 1 Alarm Function = Active 1min | 0min ... 360min | P.2 |
|  <i>Load Bearing 1 After this time has expired a Temperature Alarm is issued.</i> | | |

| | | |
|--|--|-----|
| LoadBear 1 Trip | Protection Para / Set 1 / Temp-Prot / RTD / LoadBear 1 Protection Para / Set 2 / Temp-Prot / RTD / LoadBear 1 Protection Para / Set 3 / Temp-Prot / RTD / LoadBear 1 Protection Para / Set 4 / Temp-Prot / RTD / LoadBear 1 | |
| <ul style="list-style-type: none"> Only available if: LoadBear 1 Trip Function = Active 80°C | 0°C ... 200°C | P.2 |
|  <i>Load Bearing 1 Threshold for Temperature Trip</i> | | |


| | | |
|--|--|-----|
| LoadBear 2 Alarm Function | Protection Para / Set 1 / Temp-Prot / RTD / LoadBear 2 Protection Para / Set 2 / Temp-Prot / RTD / LoadBear 2 Protection Para / Set 3 / Temp-Prot / RTD / LoadBear 2 Protection Para / Set 4 / Temp-Prot / RTD / LoadBear 2 | |
| Active | Inactive, Active ↪ Table | P.2 |
|  <i>Load Bearing 2 Alarm Function</i> | | |

| | | |
|---|--|-----|
| LoadBear 2 Trip Function | Protection Para / Set 1 / Temp-Prot / RTD / LoadBear 2 Protection Para / Set 2 / Temp-Prot / RTD / LoadBear 2 Protection Para / Set 3 / Temp-Prot / RTD / LoadBear 2 Protection Para / Set 4 / Temp-Prot / RTD / LoadBear 2 | |
| Active | Inactive, Active ↪ Table | P.2 |
|  <i>Load Bearing 2 Trip Function</i> | | |

| | | |
|---|--|-----|
| LoadBear 2 Alarm | Protection Para / Set 1 / Temp-Prot / RTD / LoadBear 2 Protection Para / Set 2 / Temp-Prot / RTD / LoadBear 2 Protection Para / Set 3 / Temp-Prot / RTD / LoadBear 2 Protection Para / Set 4 / Temp-Prot / RTD / LoadBear 2 | |
| <ul style="list-style-type: none"> Only available if: LoadBear 2 Alarm Function = Active 80°C | 0°C ... 200°C | P.2 |
|  <i>Load Bearing 2 Threshold for Temperature Alarm</i> | | |


| | | |
|--|--|-----|
| LoadBear 2 t-Alarm-Delay | Protection Para / Set 1 / Temp-Prot / RTD / LoadBear 2 Protection Para / Set 2 / Temp-Prot / RTD / LoadBear 2 Protection Para / Set 3 / Temp-Prot / RTD / LoadBear 2 Protection Para / Set 4 / Temp-Prot / RTD / LoadBear 2 | |
| <ul style="list-style-type: none"> Only available if: LoadBear 2 Alarm Function = Active 1min | 0min ... 360min | P.2 |
|  <i>Load Bearing 2 After this time has expired a Temperature Alarm is issued.</i> | | |

| | | |
|--|--|-----|
| LoadBear 2 Trip | Protection Para / Set 1 / Temp-Prot / RTD / LoadBear 2 Protection Para / Set 2 / Temp-Prot / RTD / LoadBear 2 Protection Para / Set 3 / Temp-Prot / RTD / LoadBear 2 Protection Para / Set 4 / Temp-Prot / RTD / LoadBear 2 | |
| <ul style="list-style-type: none"> Only available if: LoadBear 2 Trip Function = Active 80°C | 0°C ... 200°C | P.2 |
|  <i>Load Bearing 2 Threshold for Temperature Trip</i> | | |


| | | |
|---|--|-----|
| Aux1 Alarm Function | Protection Para / Set 1 / Temp-Prot / RTD / Aux 1 Protection Para / Set 2 / Temp-Prot / RTD / Aux 1 Protection Para / Set 3 / Temp-Prot / RTD / Aux 1 Protection Para / Set 4 / Temp-Prot / RTD / Aux 1 | |
| Active | Inactive, Active ↪ Table | P.2 |
|  <i>Auxiliary 1 Alarm Function</i> | | |


9 Protection


9.15.3 RTD: Setting Group Parameters


| | | |
|--|--|-----|
| Aux1 Trip Function | Protection Para / Set 1 / Temp-Prot / RTD / Aux 1 Protection Para / Set 2 / Temp-Prot / RTD / Aux 1 Protection Para / Set 3 / Temp-Prot / RTD / Aux 1 Protection Para / Set 4 / Temp-Prot / RTD / Aux 1 | |
| Active | Inactive, Active ↪ Table | P.2 |
|  <i>Auxiliary 1 Trip Function</i> | | |


| | | |
|--|--|-----|
| Aux1 Alarm | Protection Para / Set 1 / Temp-Prot / RTD / Aux 1 Protection Para / Set 2 / Temp-Prot / RTD / Aux 1 Protection Para / Set 3 / Temp-Prot / RTD / Aux 1 Protection Para / Set 4 / Temp-Prot / RTD / Aux 1 | |
| <ul style="list-style-type: none"> Only available if: Aux1 Alarm Function = Active 80°C | 0°C ... 200°C | P.2 |
|  <i>Auxiliary 1 Threshold for Temperature Alarm</i> | | |


| | | |
|---|--|-----|
| Aux1 t-Alarm-Delay | Protection Para / Set 1 / Temp-Prot / RTD / Aux 1 Protection Para / Set 2 / Temp-Prot / RTD / Aux 1 Protection Para / Set 3 / Temp-Prot / RTD / Aux 1 Protection Para / Set 4 / Temp-Prot / RTD / Aux 1 | |
| <ul style="list-style-type: none"> Only available if: Aux1 Alarm Function = Active 1min | 0min ... 360min | P.2 |
|  <i>Auxiliary 1 After this time has expired a Temperature Alarm is issued.</i> | | |

| | | |
|---|--|-----|
| Aux1 Trip | Protection Para / Set 1 / Temp-Prot / RTD / Aux 1 Protection Para / Set 2 / Temp-Prot / RTD / Aux 1 Protection Para / Set 3 / Temp-Prot / RTD / Aux 1 Protection Para / Set 4 / Temp-Prot / RTD / Aux 1 | |
| <ul style="list-style-type: none"> Only available if: Aux1 Trip Function = Active 100°C | 0°C ... 200°C | P.2 |
|  <i>Auxiliary 1 Threshold for Temperature Trip</i> | | |


| | | |
|---|--|-----|
| Aux2 Alarm Function | Protection Para / Set 1 / Temp-Prot / RTD / Aux 2 Protection Para / Set 2 / Temp-Prot / RTD / Aux 2 Protection Para / Set 3 / Temp-Prot / RTD / Aux 2 Protection Para / Set 4 / Temp-Prot / RTD / Aux 2 | |
| Active | Inactive, Active ↪ Table | P.2 |
|  <i>Auxiliary 2 Alarm Function</i> | | |

| | | |
|--|--|-----|
| Aux2 Trip Function | Protection Para / Set 1 / Temp-Prot / RTD / Aux 2 Protection Para / Set 2 / Temp-Prot / RTD / Aux 2 Protection Para / Set 3 / Temp-Prot / RTD / Aux 2 Protection Para / Set 4 / Temp-Prot / RTD / Aux 2 | |
| Active | Inactive, Active ↪ Table | P.2 |
|  <i>Auxiliary 2 Trip Function</i> | | |

| | | |
|--|--|-----|
| Aux2 Alarm | Protection Para / Set 1 / Temp-Prot / RTD / Aux 2 Protection Para / Set 2 / Temp-Prot / RTD / Aux 2 Protection Para / Set 3 / Temp-Prot / RTD / Aux 2 Protection Para / Set 4 / Temp-Prot / RTD / Aux 2 | |
| <ul style="list-style-type: none"> Only available if: Aux2 Alarm Function = Active 80°C | 0°C ... 200°C | P.2 |
|  <i>Auxiliary 2 Threshold for Temperature Alarm</i> | | |


| | | |
|---|--|-----|
| Aux2 t-Alarm-Delay | Protection Para / Set 1 / Temp-Prot / RTD / Aux 2 Protection Para / Set 2 / Temp-Prot / RTD / Aux 2 Protection Para / Set 3 / Temp-Prot / RTD / Aux 2 Protection Para / Set 4 / Temp-Prot / RTD / Aux 2 | |
| <ul style="list-style-type: none"> Only available if: Aux2 Alarm Function = Active 1min | 0min ... 360min | P.2 |
|  <i>Auxiliary 2 After this time has expired a Temperature Alarm is issued.</i> | | |

| | | |
|---|--|-----|
| Aux2 Trip | Protection Para / Set 1 / Temp-Prot / RTD / Aux 2 Protection Para / Set 2 / Temp-Prot / RTD / Aux 2 Protection Para / Set 3 / Temp-Prot / RTD / Aux 2 Protection Para / Set 4 / Temp-Prot / RTD / Aux 2 | |
| <ul style="list-style-type: none"> Only available if: Aux2 Trip Function = Active 100°C | 0°C ... 200°C | P.2 |
|  <i>Auxiliary 2 Threshold for Temperature Trip</i> | | |


| | | |
|---|--|-----|
| Windg Alarm Function | Protection Para / Set 1 / Temp-Prot / RTD / Windg Group Protection Para / Set 2 / Temp-Prot / RTD / Windg Group Protection Para / Set 3 / Temp-Prot / RTD / Windg Group Protection Para / Set 4 / Temp-Prot / RTD / Windg Group | |
| Inactive | Inactive, Active ↪ Table | P.2 |
|  <i>Winding Alarm Function</i> | | |


9 Protection


9.15.3 RTD: Setting Group Parameters


| | | |
|--|--|-----|
| Windg Trip Function | Protection Para / Set 1 / Temp-Prot / RTD / Windg Group Protection Para / Set 2 / Temp-Prot / RTD / Windg Group Protection Para / Set 3 / Temp-Prot / RTD / Windg Group Protection Para / Set 4 / Temp-Prot / RTD / Windg Group | |
| Inactive | Inactive, Active ↪ Table | P.2 |
|  <i>Winding Trip Function</i> | | |

| | | |
|--|--|-----|
| Windg Alarm | Protection Para / Set 1 / Temp-Prot / RTD / Windg Group Protection Para / Set 2 / Temp-Prot / RTD / Windg Group Protection Para / Set 3 / Temp-Prot / RTD / Windg Group Protection Para / Set 4 / Temp-Prot / RTD / Windg Group | |
| <ul style="list-style-type: none"> Only available if: Windg Alarm Function = Active 80°C | 0°C ... 200°C | P.2 |
|  <i>Winding Threshold for Temperature Alarm</i> | | |


| | | |
|---|--|-----|
| Windg t-Alarm-Delay | Protection Para / Set 1 / Temp-Prot / RTD / Windg Group Protection Para / Set 2 / Temp-Prot / RTD / Windg Group Protection Para / Set 3 / Temp-Prot / RTD / Windg Group Protection Para / Set 4 / Temp-Prot / RTD / Windg Group | |
| <ul style="list-style-type: none"> Only available if: Windg Alarm Function = Active 1min | 0min ... 360min | P.2 |
|  <i>Winding After this time has expired a Temperature Alarm is issued.</i> | | |

| | | |
|---|--|-----|
| Windg Trip | Protection Para / Set 1 / Temp-Prot / RTD / Windg Group Protection Para / Set 2 / Temp-Prot / RTD / Windg Group Protection Para / Set 3 / Temp-Prot / RTD / Windg Group Protection Para / Set 4 / Temp-Prot / RTD / Windg Group | |
| <ul style="list-style-type: none"> Only available if: Windg Trip Function = Active 100°C | 0°C ... 200°C | P.2 |
|  <i>Winding Threshold for Temperature Trip</i> | | |


| | | |
|---|--|-----|
| MotBear Alarm Function | Protection Para / Set 1 / Temp-Prot / RTD / MotBear Group Protection Para / Set 2 / Temp-Prot / RTD / MotBear Group Protection Para / Set 3 / Temp-Prot / RTD / MotBear Group Protection Para / Set 4 / Temp-Prot / RTD / MotBear Group | |
| Inactive | Inactive, Active ↪ Table | P.2 |
|  <i>Motor Bearing Alarm Function</i> | | |

| | | |
|--|--|-----|
| MotBear Trip Function | Protection Para / Set 1 / Temp-Prot / RTD / MotBear Group Protection Para / Set 2 / Temp-Prot / RTD / MotBear Group Protection Para / Set 3 / Temp-Prot / RTD / MotBear Group Protection Para / Set 4 / Temp-Prot / RTD / MotBear Group | |
| Inactive | Inactive, Active ↪ Table | P.2 |
|  <i>Motor Bearing Trip Function</i> | | |

| | | |
|--|--|-----|
| MotBear Alarm | Protection Para / Set 1 / Temp-Prot / RTD / MotBear Group Protection Para / Set 2 / Temp-Prot / RTD / MotBear Group Protection Para / Set 3 / Temp-Prot / RTD / MotBear Group Protection Para / Set 4 / Temp-Prot / RTD / MotBear Group | |
| <ul style="list-style-type: none"> Only available if: MotBear Alarm Function = Active 80°C | 0°C ... 200°C | P.2 |
|  <i>Motor Bearing Threshold for Temperature Alarm</i> | | |


| | | |
|---|--|-----|
| MotBear t-Alarm-Delay | Protection Para / Set 1 / Temp-Prot / RTD / MotBear Group Protection Para / Set 2 / Temp-Prot / RTD / MotBear Group Protection Para / Set 3 / Temp-Prot / RTD / MotBear Group Protection Para / Set 4 / Temp-Prot / RTD / MotBear Group | |
| <ul style="list-style-type: none"> Only available if: MotBear Alarm Function = Active 1min | 0min ... 360min | P.2 |
|  <i>Motor Bearing After this time has expired a Temperature Alarm is issued.</i> | | |


| | | |
|---|--|-----|
| MotBear Trip | Protection Para / Set 1 / Temp-Prot / RTD / MotBear Group Protection Para / Set 2 / Temp-Prot / RTD / MotBear Group Protection Para / Set 3 / Temp-Prot / RTD / MotBear Group Protection Para / Set 4 / Temp-Prot / RTD / MotBear Group | |
| <ul style="list-style-type: none"> Only available if: MotBear Trip Function = Active 100°C | 0°C ... 200°C | P.2 |
|  <i>Motor Bearing Threshold for Temperature Trip</i> | | |


| | | |
|--|--|-----|
| LoadBear Alarm Function | Protection Para / Set 1 / Temp-Prot / RTD / LoadBear Group Protection Para / Set 2 / Temp-Prot / RTD / LoadBear Group Protection Para / Set 3 / Temp-Prot / RTD / LoadBear Group Protection Para / Set 4 / Temp-Prot / RTD / LoadBear Group | |
| Inactive | Inactive, Active ↪ Table | P.2 |
|  <i>Load Bearing Alarm Function</i> | | |

9 Protection


9.15.3 RTD: Setting Group Parameters


| | | |
|---|--|-----|
| LoadBear Trip Function | Protection Para / Set 1 / Temp-Prot / RTD / LoadBear Group Protection Para / Set 2 / Temp-Prot / RTD / LoadBear Group Protection Para / Set 3 / Temp-Prot / RTD / LoadBear Group Protection Para / Set 4 / Temp-Prot / RTD / LoadBear Group | |
| Inactive | Inactive, Active ↪ Table | P.2 |
|  <i>Load Bearing Trip Function</i> | | |

| | | |
|---|--|-----|
| LoadBear Alarm | Protection Para / Set 1 / Temp-Prot / RTD / LoadBear Group Protection Para / Set 2 / Temp-Prot / RTD / LoadBear Group Protection Para / Set 3 / Temp-Prot / RTD / LoadBear Group Protection Para / Set 4 / Temp-Prot / RTD / LoadBear Group | |
| <ul style="list-style-type: none"> Only available if: LoadBear Alarm Function = Active 80°C | 0°C ... 200°C | P.2 |
|  <i>Load Bearing Threshold for Temperature Alarm</i> | | |


| | | |
|--|--|-----|
| LoadBear t-Alarm-Delay | Protection Para / Set 1 / Temp-Prot / RTD / LoadBear Group Protection Para / Set 2 / Temp-Prot / RTD / LoadBear Group Protection Para / Set 3 / Temp-Prot / RTD / LoadBear Group Protection Para / Set 4 / Temp-Prot / RTD / LoadBear Group | |
| <ul style="list-style-type: none"> Only available if: LoadBear Alarm Function = Active 1min | 0min ... 360min | P.2 |
|  <i>Load Bearing After this time has expired a Temperature Alarm is issued.</i> | | |


| | | |
|--|--|-----|
| LoadBear Trip | Protection Para / Set 1 / Temp-Prot / RTD / LoadBear Group Protection Para / Set 2 / Temp-Prot / RTD / LoadBear Group Protection Para / Set 3 / Temp-Prot / RTD / LoadBear Group Protection Para / Set 4 / Temp-Prot / RTD / LoadBear Group | |
| <ul style="list-style-type: none"> Only available if: LoadBear Trip Function = Active 100°C | 0°C ... 200°C | P.2 |
|  <i>Load Bearing Threshold for Temperature Trip</i> | | |


| | | |
|---|--|-----|
| Aux Alarm Function | Protection Para / Set 1 / Temp-Prot / RTD / Aux Group Protection Para / Set 2 / Temp-Prot / RTD / Aux Group Protection Para / Set 3 / Temp-Prot / RTD / Aux Group Protection Para / Set 4 / Temp-Prot / RTD / Aux Group | |
| Inactive | Inactive, Active ↪ Table | P.2 |
|  <i>Auxiliary Alarm Function</i> | | |

| | | |
|---|--|-----|
| Aux Trip Function | Protection Para / Set 1 / Temp-Prot / RTD / Aux Group Protection Para / Set 2 / Temp-Prot / RTD / Aux Group Protection Para / Set 3 / Temp-Prot / RTD / Aux Group Protection Para / Set 4 / Temp-Prot / RTD / Aux Group | |
| Inactive | Inactive, Active ↪ Table | P.2 |
|  Auxiliary Trip Function | | |

| | | |
|---|--|-----|
| Aux Alarm | Protection Para / Set 1 / Temp-Prot / RTD / Aux Group Protection Para / Set 2 / Temp-Prot / RTD / Aux Group Protection Para / Set 3 / Temp-Prot / RTD / Aux Group Protection Para / Set 4 / Temp-Prot / RTD / Aux Group | |
| <ul style="list-style-type: none"> Only available if: Aux Alarm Function = Active 80°C | 0°C ... 200°C | P.2 |
|  Auxiliary Threshold for Temperature Alarm | | |


| | | |
|--|--|-----|
| Aux t-Alarm-Delay | Protection Para / Set 1 / Temp-Prot / RTD / Aux Group Protection Para / Set 2 / Temp-Prot / RTD / Aux Group Protection Para / Set 3 / Temp-Prot / RTD / Aux Group Protection Para / Set 4 / Temp-Prot / RTD / Aux Group | |
| <ul style="list-style-type: none"> Only available if: Aux Alarm Function = Active 1min | 0min ... 360min | P.2 |
|  Auxiliary After this time has expired a Temperature Alarm is issued. | | |


| | | |
|--|--|-----|
| Aux Trip | Protection Para / Set 1 / Temp-Prot / RTD / Aux Group Protection Para / Set 2 / Temp-Prot / RTD / Aux Group Protection Para / Set 3 / Temp-Prot / RTD / Aux Group Protection Para / Set 4 / Temp-Prot / RTD / Aux Group | |
| <ul style="list-style-type: none"> Only available if: Aux Trip Function = Active 100°C | 0°C ... 200°C | P.2 |
|  Auxiliary Threshold for Temperature Trip | | |


| | | |
|---|--|-----|
| Function | Protection Para / Set 1 / Temp-Prot / RTD / Voting1 Protection Para / Set 2 / Temp-Prot / RTD / Voting1 Protection Para / Set 3 / Temp-Prot / RTD / Voting1 Protection Para / Set 4 / Temp-Prot / RTD / Voting1 | |
| Inactive | Inactive, Active ↪ Table | P.2 |
|  Permanent activation or deactivation of module/stage. | | |


9 Protection


9.15.3 RTD: Setting Group Parameters


| | | |
|---|--|--|
| Voting 1 | | Protection Para / Set 1 / Temp-Prot / RTD / Voting1 Protection Para / Set 2 / Temp-Prot / RTD / Voting1 Protection Para / Set 3 / Temp-Prot / RTD / Voting1 Protection Para / Set 4 / Temp-Prot / RTD / Voting1 |
| 1 | 1 ... 12 | P.2 |
|  | <i>Voting: This parameter defines how many of the selected channels must be over its threshold level for getting a voting trip</i> | |


| | | |
|---|------------------------------------|--|
| Windg 1 | | Protection Para / Set 1 / Temp-Prot / RTD / Voting1 Protection Para / Set 2 / Temp-Prot / RTD / Voting1 Protection Para / Set 3 / Temp-Prot / RTD / Voting1 Protection Para / Set 4 / Temp-Prot / RTD / Voting1 |
| no | no, yes ↳ Table | P.2 |
|  | <i>Winding 1</i> | |


| | | |
|---|------------------------------------|--|
| Windg 2 | | Protection Para / Set 1 / Temp-Prot / RTD / Voting1 Protection Para / Set 2 / Temp-Prot / RTD / Voting1 Protection Para / Set 3 / Temp-Prot / RTD / Voting1 Protection Para / Set 4 / Temp-Prot / RTD / Voting1 |
| no | no, yes ↳ Table | P.2 |
|  | <i>Winding 2</i> | |


| | | |
|---|------------------------------------|--|
| Windg 3 | | Protection Para / Set 1 / Temp-Prot / RTD / Voting1 Protection Para / Set 2 / Temp-Prot / RTD / Voting1 Protection Para / Set 3 / Temp-Prot / RTD / Voting1 Protection Para / Set 4 / Temp-Prot / RTD / Voting1 |
| no | no, yes ↳ Table | P.2 |
|  | <i>Winding 3</i> | |


| | | |
|---|------------------------------------|--|
| Windg 4 | | Protection Para / Set 1 / Temp-Prot / RTD / Voting1 Protection Para / Set 2 / Temp-Prot / RTD / Voting1 Protection Para / Set 3 / Temp-Prot / RTD / Voting1 Protection Para / Set 4 / Temp-Prot / RTD / Voting1 |
| no | no, yes ↳ Table | P.2 |
|  | <i>Winding 4</i> | |

| | | |
|---|-----------|--|
| Windg 5 | | Protection Para / Set 1 / Temp-Prot / RTD / Voting1 Protection Para / Set 2 / Temp-Prot / RTD / Voting1 Protection Para / Set 3 / Temp-Prot / RTD / Voting1 Protection Para / Set 4 / Temp-Prot / RTD / Voting1 |
| no | no, yes | P.2 |
| | | ↪ Table |
|  | Winding 5 | |

| | | |
|---|-----------|--|
| Windg 6 | | Protection Para / Set 1 / Temp-Prot / RTD / Voting1 Protection Para / Set 2 / Temp-Prot / RTD / Voting1 Protection Para / Set 3 / Temp-Prot / RTD / Voting1 Protection Para / Set 4 / Temp-Prot / RTD / Voting1 |
| no | no, yes | P.2 |
| | | ↪ Table |
|  | Winding 6 | |






| | | |
|---|-----------------|--|
| MotBear 1 | | Protection Para / Set 1 / Temp-Prot / RTD / Voting1 Protection Para / Set 2 / Temp-Prot / RTD / Voting1 Protection Para / Set 3 / Temp-Prot / RTD / Voting1 Protection Para / Set 4 / Temp-Prot / RTD / Voting1 |
| no | no, yes | P.2 |
| | | ↪ Table |
|  | Motor Bearing 1 | |


| | | |
|---|-----------------|--|
| MotBear 2 | | Protection Para / Set 1 / Temp-Prot / RTD / Voting1 Protection Para / Set 2 / Temp-Prot / RTD / Voting1 Protection Para / Set 3 / Temp-Prot / RTD / Voting1 Protection Para / Set 4 / Temp-Prot / RTD / Voting1 |
| no | no, yes | P.2 |
| | | ↪ Table |
|  | Motor Bearing 2 | |


| | | |
|---|----------------|--|
| LoadBear 1 | | Protection Para / Set 1 / Temp-Prot / RTD / Voting1 Protection Para / Set 2 / Temp-Prot / RTD / Voting1 Protection Para / Set 3 / Temp-Prot / RTD / Voting1 Protection Para / Set 4 / Temp-Prot / RTD / Voting1 |
| no | no, yes | P.2 |
| | | ↪ Table |
|  | Load Bearing 1 | |


9 Protection


9.15.3 RTD: Setting Group Parameters


| | | |
|--|--|-----|
| LoadBear 2 | Protection Para / Set 1 / Temp-Prot / RTD / Voting1 Protection Para / Set 2 / Temp-Prot / RTD / Voting1 Protection Para / Set 3 / Temp-Prot / RTD / Voting1 Protection Para / Set 4 / Temp-Prot / RTD / Voting1 | |
| no | no, yes ↳ Table | P.2 |
|  <i>Load Bearing 2</i> | | |
| Aux1 | Protection Para / Set 1 / Temp-Prot / RTD / Voting1 Protection Para / Set 2 / Temp-Prot / RTD / Voting1 Protection Para / Set 3 / Temp-Prot / RTD / Voting1 Protection Para / Set 4 / Temp-Prot / RTD / Voting1 | |
| no | no, yes ↳ Table | P.2 |
|  <i>Auxiliary1</i> | | |
| Aux2 | Protection Para / Set 1 / Temp-Prot / RTD / Voting1 Protection Para / Set 2 / Temp-Prot / RTD / Voting1 Protection Para / Set 3 / Temp-Prot / RTD / Voting1 Protection Para / Set 4 / Temp-Prot / RTD / Voting1 | |
| no | no, yes ↳ Table | P.2 |
|  <i>Auxiliary2</i> | | |
| Function | Protection Para / Set 1 / Temp-Prot / RTD / Voting2 Protection Para / Set 2 / Temp-Prot / RTD / Voting2 Protection Para / Set 3 / Temp-Prot / RTD / Voting2 Protection Para / Set 4 / Temp-Prot / RTD / Voting2 | |
| Inactive | Inactive, Active ↳ Table | P.2 |
|  <i>Permanent activation or deactivation of module/stage.</i> | | |
| Voting 2 | Protection Para / Set 1 / Temp-Prot / RTD / Voting2 Protection Para / Set 2 / Temp-Prot / RTD / Voting2 Protection Para / Set 3 / Temp-Prot / RTD / Voting2 Protection Para / Set 4 / Temp-Prot / RTD / Voting2 | |
| 1 | 1 ... 12 | P.2 |
|  <i>Voting: This parameter defines how many of the selected channels must be over its threshold level for getting a voting trip</i> | | |

| | | |
|---|-----------|--|
| Windg 1 | | Protection Para / Set 1 / Temp-Prot / RTD / Voting2 Protection Para / Set 2 / Temp-Prot / RTD / Voting2 Protection Para / Set 3 / Temp-Prot / RTD / Voting2 Protection Para / Set 4 / Temp-Prot / RTD / Voting2 |
| no | no, yes | P.2 |
| | | ↪ Table |
|  | Winding 1 | |

| | | |
|---|-----------|--|
| Windg 2 | | Protection Para / Set 1 / Temp-Prot / RTD / Voting2 Protection Para / Set 2 / Temp-Prot / RTD / Voting2 Protection Para / Set 3 / Temp-Prot / RTD / Voting2 Protection Para / Set 4 / Temp-Prot / RTD / Voting2 |
| no | no, yes | P.2 |
| | | ↪ Table |
|  | Winding 2 | |


| | | |
|---|-----------|--|
| Windg 3 | | Protection Para / Set 1 / Temp-Prot / RTD / Voting2 Protection Para / Set 2 / Temp-Prot / RTD / Voting2 Protection Para / Set 3 / Temp-Prot / RTD / Voting2 Protection Para / Set 4 / Temp-Prot / RTD / Voting2 |
| no | no, yes | P.2 |
| | | ↪ Table |
|  | Winding 3 | |


| | | |
|---|-----------|--|
| Windg 4 | | Protection Para / Set 1 / Temp-Prot / RTD / Voting2 Protection Para / Set 2 / Temp-Prot / RTD / Voting2 Protection Para / Set 3 / Temp-Prot / RTD / Voting2 Protection Para / Set 4 / Temp-Prot / RTD / Voting2 |
| no | no, yes | P.2 |
| | | ↪ Table |
|  | Winding 4 | |


| | | |
|---|-----------|--|
| Windg 5 | | Protection Para / Set 1 / Temp-Prot / RTD / Voting2 Protection Para / Set 2 / Temp-Prot / RTD / Voting2 Protection Para / Set 3 / Temp-Prot / RTD / Voting2 Protection Para / Set 4 / Temp-Prot / RTD / Voting2 |
| no | no, yes | P.2 |
| | | ↪ Table |
|  | Winding 5 | |


9 Protection


9.15.3 RTD: Setting Group Parameters

| | | |
|---|-----------|--|
| Windg 6 | | Protection Para / Set 1 / Temp-Prot / RTD / Voting2 Protection Para / Set 2 / Temp-Prot / RTD / Voting2 Protection Para / Set 3 / Temp-Prot / RTD / Voting2 Protection Para / Set 4 / Temp-Prot / RTD / Voting2 |
| no | no, yes | P.2 |
| | | ↪ Table |
|  | Winding 6 | |

| | | |
|---|-----------------|--|
| MotBear 1 | | Protection Para / Set 1 / Temp-Prot / RTD / Voting2 Protection Para / Set 2 / Temp-Prot / RTD / Voting2 Protection Para / Set 3 / Temp-Prot / RTD / Voting2 Protection Para / Set 4 / Temp-Prot / RTD / Voting2 |
| no | no, yes | P.2 |
| | | ↪ Table |
|  | Motor Bearing 1 | |

| | | |
|---|-----------------|--|
| MotBear 2 | | Protection Para / Set 1 / Temp-Prot / RTD / Voting2 Protection Para / Set 2 / Temp-Prot / RTD / Voting2 Protection Para / Set 3 / Temp-Prot / RTD / Voting2 Protection Para / Set 4 / Temp-Prot / RTD / Voting2 |
| no | no, yes | P.2 |
| | | ↪ Table |
|  | Motor Bearing 2 | |

| | | |
|---|----------------|--|
| LoadBear 1 | | Protection Para / Set 1 / Temp-Prot / RTD / Voting2 Protection Para / Set 2 / Temp-Prot / RTD / Voting2 Protection Para / Set 3 / Temp-Prot / RTD / Voting2 Protection Para / Set 4 / Temp-Prot / RTD / Voting2 |
| no | no, yes | P.2 |
| | | ↪ Table |
|  | Load Bearing 1 | |

| | | |
|---|----------------|--|
| LoadBear 2 | | Protection Para / Set 1 / Temp-Prot / RTD / Voting2 Protection Para / Set 2 / Temp-Prot / RTD / Voting2 Protection Para / Set 3 / Temp-Prot / RTD / Voting2 Protection Para / Set 4 / Temp-Prot / RTD / Voting2 |
| no | no, yes | P.2 |
| | | ↪ Table |
|  | Load Bearing 2 | |

| | | |
|-------------|--|-----|
| Aux1 | Protection Para / Set 1 / Temp-Prot / RTD / Voting2 Protection Para / Set 2 / Temp-Prot / RTD / Voting2 Protection Para / Set 3 / Temp-Prot / RTD / Voting2 Protection Para / Set 4 / Temp-Prot / RTD / Voting2 | |
| no | no, yes Table | P.2 |
| Auxiliary1 | | |

| | | |
|-------------|--|-----|
| Aux2 | Protection Para / Set 1 / Temp-Prot / RTD / Voting2 Protection Para / Set 2 / Temp-Prot / RTD / Voting2 Protection Para / Set 3 / Temp-Prot / RTD / Voting2 Protection Para / Set 4 / Temp-Prot / RTD / Voting2 | |
| no | no, yes Table | P.2 |
| Auxiliary2 | | |

9.15.4 RTD: Input States

| | |
|--|--|
| ExBlo1-I | Operation / Status Display / Temp-Prot / RTD / General |
| (RTD . ExBlo1) | |
| Module input state: External blocking1 | |

| | |
|--|--|
| ExBlo2-I | Operation / Status Display / Temp-Prot / RTD / General |
| Module input state: External blocking2 | |

| | |
|---|--|
| ExBlo TripCmd-I | Operation / Status Display / Temp-Prot / RTD / General |
| <ul style="list-style-type: none"> Only available if: Superv. only = no Module input state: External Blocking of the Trip Command | |











9.15.5 RTD: Signals (Output States)

| | |
|----------------|--|
| Active | Operation / Status Display / All Actives Operation / Status Display / Temp-Prot / RTD / General |
| Signal: active | |

| | |
|---------------------------|--|
| ExBlo | Operation / Status Display / Temp-Prot / RTD / General |
| Signal: External Blocking | |

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9.15.5 RTD: Signals (Output States)

| | |
|--|---|
| Blo TripCmd | Operation / Status Display / Temp-Prot / RTD / General |
|  • Only available if: Superv. only = no <i>Signal: Trip Command blocked</i> | |
| ExBlo TripCmd | Operation / Status Display / Temp-Prot / RTD / General |
|  • Only available if: Superv. only = no <i>Signal: External Blocking of the Trip Command</i> | |
| Alarm | Operation / Status Display / Alarms Operation / Status Display / Temp-Prot / RTD / General |
|  <i>Alarm RTD Temperature Protection</i> | |
| Trip | Operation / Status Display / Trips Operation / Status Display / Temp-Prot / RTD / General |
|  <i>Signal: Trip</i> | |
| TripCmd | Operation / Status Display / TripCmds Operation / Status Display / Temp-Prot / RTD / General |
|  • Only available if: Superv. only = no <i>Signal: Trip Command</i> | |
| Windg 1 Trip | Operation / Status Display / Temp-Prot / RTD / Windg 1 |
|  <i>Winding 1 Signal: Trip</i> | |
| Windg 1 Alarm | Operation / Status Display / Alarms Operation / Status Display / Temp-Prot / RTD / Windg 1 |
|  <i>Winding 1 Alarm RTD Temperature Protection</i> | |
| Windg 1 Timeout Alarm | Operation / Status Display / Alarms Operation / Status Display / Temp-Prot / RTD / Windg 1 |
|  <i>Winding 1 Timeout Alarm</i> | |
| Windg 1 Invalid | Operation / Status Display / Temp-Prot / RTD / Windg 1 |
|  <i>Winding 1 Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement)</i> | |
| Windg 2 Trip | Operation / Status Display / Temp-Prot / RTD / Windg 2 |
|  <i>Winding 2 Signal: Trip</i> | |

| | |
|--|---|
| Windg 2 Alarm | Operation / Status Display / Alarms Operation / Status Display / Temp-Prot / RTD / Windg 2 |
|  <i>Winding 2 Alarm RTD Temperature Protection</i> | |
| Windg 2 Timeout Alarm | Operation / Status Display / Alarms Operation / Status Display / Temp-Prot / RTD / Windg 2 |
|  <i>Winding 2 Timeout Alarm</i> | |
| Windg 2 Invalid | Operation / Status Display / Temp-Prot / RTD / Windg 2 |
|  <i>Winding 2 Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement)</i> | |
| Windg 3 Trip | Operation / Status Display / Temp-Prot / RTD / Windg 3 |
|  <i>Winding 3 Signal: Trip</i> | |
| Windg 3 Alarm | Operation / Status Display / Alarms Operation / Status Display / Temp-Prot / RTD / Windg 3 |
|  <i>Winding 3 Alarm RTD Temperature Protection</i> | |
| Windg 3 Timeout Alarm | Operation / Status Display / Alarms Operation / Status Display / Temp-Prot / RTD / Windg 3 |
|  <i>Winding 3 Timeout Alarm</i> | |
| Windg 3 Invalid | Operation / Status Display / Temp-Prot / RTD / Windg 3 |
|  <i>Winding 3 Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement)</i> | |
| Windg 4 Trip | Operation / Status Display / Temp-Prot / RTD / Windg 4 |
|  <i>Winding 4 Signal: Trip</i> | |
| Windg 4 Alarm | Operation / Status Display / Alarms Operation / Status Display / Temp-Prot / RTD / Windg 4 |
|  <i>Winding 4 Alarm RTD Temperature Protection</i> | |
| Windg 4 Timeout Alarm | Operation / Status Display / Alarms Operation / Status Display / Temp-Prot / RTD / Windg 4 |
|  <i>Winding 4 Timeout Alarm</i> | |
| Windg 4 Invalid | Operation / Status Display / Temp-Prot / RTD / Windg 4 |
|  <i>Winding 4 Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement)</i> | |

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9.15.5 RTD: Signals (Output States)












| | |
|--|---|
| Windg 5 Trip | Operation / Status Display / Temp-Prot / RTD / Windg 5 |
|  <i>Winding 5 Signal: Trip</i> | |
| Windg 5 Alarm | Operation / Status Display / Alarms Operation / Status Display / Temp-Prot / RTD / Windg 5 |
|  <i>Winding 5 Alarm RTD Temperature Protection</i> | |
| Windg 5 Timeout Alarm | Operation / Status Display / Alarms Operation / Status Display / Temp-Prot / RTD / Windg 5 |
|  <i>Winding 5 Timeout Alarm</i> | |
| Windg 5 Invalid | Operation / Status Display / Temp-Prot / RTD / Windg 5 |
|  <i>Winding 5 Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement)</i> | |
| Windg 6 Trip | Operation / Status Display / Temp-Prot / RTD / Windg 6 |
|  <i>Winding 6 Signal: Trip</i> | |
| Windg 6 Alarm | Operation / Status Display / Alarms Operation / Status Display / Temp-Prot / RTD / Windg 6 |
|  <i>Winding 6 Alarm RTD Temperature Protection</i> | |
| Windg 6 Timeout Alarm | Operation / Status Display / Alarms Operation / Status Display / Temp-Prot / RTD / Windg 6 |
|  <i>Winding 6 Timeout Alarm</i> | |
| Windg 6 Invalid | Operation / Status Display / Temp-Prot / RTD / Windg 6 |
|  <i>Winding 6 Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement)</i> | |
| MotBear 1 Trip | Operation / Status Display / Temp-Prot / RTD / MotBear 1 |
|  <i>Motor Bearing 1 Signal: Trip</i> | |
| MotBear 1 Alarm | Operation / Status Display / Alarms Operation / Status Display / Temp-Prot / RTD / MotBear 1 |
|  <i>Motor Bearing 1 Alarm RTD Temperature Protection</i> | |
| MotBear 1 Timeout Alarm | Operation / Status Display / Alarms Operation / Status Display / Temp-Prot / RTD / MotBear 1 |
|  <i>Motor Bearing 1 Timeout Alarm</i> | |

| | |
|---|--|
| MotBear 1 Invalid | Operation / Status Display / Temp-Prot / RTD / MotBear 1 |
|  <i>Motor Bearing 1 Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement)</i> | |
| MotBear 2 Trip | Operation / Status Display / Temp-Prot / RTD / MotBear 2 |
|  <i>Motor Bearing 2 Signal: Trip</i> | |
| MotBear 2 Alarm | Operation / Status Display / Alarms Operation / Status Display / Temp-Prot / RTD / MotBear 2 |
|  <i>Motor Bearing 2 Alarm RTD Temperature Protection</i> | |
| MotBear 2 Timeout Alarm | Operation / Status Display / Alarms Operation / Status Display / Temp-Prot / RTD / MotBear 2 |
|  <i>Motor Bearing 2 Timeout Alarm</i> | |
| MotBear 2 Invalid | Operation / Status Display / Temp-Prot / RTD / MotBear 2 |
|  <i>Motor Bearing 2 Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement)</i> | |
| LoadBear 1 Trip | Operation / Status Display / Temp-Prot / RTD / LoadBear 1 |
|  <i>Load Bearing 1 Signal: Trip</i> | |
| LoadBear 1 Alarm | Operation / Status Display / Alarms Operation / Status Display / Temp-Prot / RTD / LoadBear 1 |
|  <i>Load Bearing 1 Alarm RTD Temperature Protection</i> | |
| LoadBear 1 Timeout Alarm | Operation / Status Display / Alarms Operation / Status Display / Temp-Prot / RTD / LoadBear 1 |
|  <i>Load Bearing 1 Timeout Alarm</i> | |
| LoadBear 1 Invalid | Operation / Status Display / Temp-Prot / RTD / LoadBear 1 |
|  <i>Load Bearing 1 Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement)</i> | |
| LoadBear 2 Trip | Operation / Status Display / Temp-Prot / RTD / LoadBear 2 |
|  <i>Load Bearing 2 Signal: Trip</i> | |
| LoadBear 2 Alarm | Operation / Status Display / Alarms Operation / Status Display / Temp-Prot / RTD / LoadBear 2 |
|  <i>Load Bearing 2 Alarm RTD Temperature Protection</i> | |

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9.15.5 RTD: Signals (Output States)

| | |
|---|--|
| LoadBear 2 Timeout Alarm | Operation / Status Display / Alarms Operation / Status Display / Temp-Prot / RTD / LoadBear 2 |
|  <i>Load Bearing 2 Timeout Alarm</i> | |
| LoadBear 2 Invalid | Operation / Status Display / Temp-Prot / RTD / LoadBear 2 |
|  <i>Load Bearing 2 Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement)</i> | |
| Aux1 Trip | Operation / Status Display / Temp-Prot / RTD / Aux1 |
|  <i>Auxiliary 1 Signal: Trip</i> | |
| Aux1 Alarm | Operation / Status Display / Alarms Operation / Status Display / Temp-Prot / RTD / Aux1 |
|  <i>Auxiliary 1 Alarm RTD Temperature Protection</i> | |
| Aux1 Timeout Alarm | Operation / Status Display / Alarms Operation / Status Display / Temp-Prot / RTD / Aux1 |
|  <i>Auxiliary 1 Timeout Alarm</i> | |
| Aux1 Invalid | Operation / Status Display / Temp-Prot / RTD / Aux1 |
|  <i>Auxiliary 1 Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement)</i> | |
| Aux2 Trip | Operation / Status Display / Temp-Prot / RTD / Aux2 |
|  <i>Auxiliary 2 Signal: Trip</i> | |
| Aux2 Alarm | Operation / Status Display / Alarms Operation / Status Display / Temp-Prot / RTD / Aux2 |
|  <i>Auxiliary 2 Alarm RTD Temperature Protection</i> | |
| Aux2 Timeout Alarm | Operation / Status Display / Alarms Operation / Status Display / Temp-Prot / RTD / Aux2 |
|  <i>Auxiliary 2 Timeout Alarm</i> | |
| Aux2 Invalid | Operation / Status Display / Temp-Prot / RTD / Aux2 |
|  <i>Auxiliary 2 Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement)</i> | |
| Trip WD Group | Operation / Status Display / Temp-Prot / RTD / Windg Group |
|  <i>Trip all Windings</i> | |



| | |
|---|--|
| Alarm WD Group | Operation / Status Display / Alarms Operation / Status Display / Temp-Prot / RTD / Windg Group |
|  Alarm all Windings | |
| TimeoutAlmWDGrp | Operation / Status Display / Alarms Operation / Status Display / Temp-Prot / RTD / Windg Group |
|  Timeout Alarm all Windings | |
| Windg Group Invalid | Operation / Status Display / Temp-Prot / RTD / Windg Group |
|  Winding Group Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement) | |
| Trip MB Group | Operation / Status Display / Temp-Prot / RTD / MotBear Group |
|  Trip all Motor Bearings | |
| Alarm MB Group | Operation / Status Display / Alarms Operation / Status Display / Temp-Prot / RTD / MotBear Group |
|  Alarm all Motor Bearings | |
| TimeoutAlmMBGrp | Operation / Status Display / Alarms Operation / Status Display / Temp-Prot / RTD / MotBear Group |
|  Timeout Alarm all Motor Bearings | |
| MotBear Group Invalid | Operation / Status Display / Temp-Prot / RTD / MotBear Group |
|  Motor Bearing Group Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement) | |
| Trip LB Group | Operation / Status Display / Temp-Prot / RTD / LoadBear Group |
|  Trip all Load Bearings | |
| Alarm LB Group | Operation / Status Display / Alarms Operation / Status Display / Temp-Prot / RTD / LoadBear Group |
|  Alarm all Load Bearings | |
| TimeoutAlmLBGrp | Operation / Status Display / Alarms Operation / Status Display / Temp-Prot / RTD / LoadBear Group |
|  Timeout Alarm all Load Bearings | |
| LoadBear Group Invalid | Operation / Status Display / Temp-Prot / RTD / LoadBear Group |
|  Load Bearing Group Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement) | |

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9.15.6 RTD: Counters

| | |
|--|---|
| Trip Any Group | Operation / Status Display / Temp-Prot / RTD / Any Group |
|  <i>Trip Any Group</i> | |
| Alarm Any Group | Operation / Status Display / Temp-Prot / RTD / Any Group |
|  <i>Alarm Any Group</i> | |
| TimeoutAlmAnyGrp | Operation / Status Display / Temp-Prot / RTD / Any Group |
|  <i>Timeout Alarm Any Group</i> | |
| Trip Group 1 | Operation / Status Display / Temp-Prot / RTD / Voting |
|  <i>Trip Group 1</i> | |
| Trip Group 2 | Operation / Status Display / Temp-Prot / RTD / Voting |
|  <i>Trip Group 2</i> | |
| Timeout Alarm | Operation / Status Display / Temp-Prot / RTD / General |
|  <i>Alarm timeout expired</i> | |
| Trip Aux Group | Operation / Status Display / Temp-Prot / RTD / Aux Group |
|  <i>Trip Auxiliary Group</i> | |
| Alarm Aux Group | Operation / Status Display / Alarms Operation / Status Display / Temp-Prot / RTD / Aux Group |
|  <i>Alarm Auxiliary Group</i> | |
| TimeoutAlmAuxGrp | Operation / Status Display / Alarms Operation / Status Display / Temp-Prot / RTD / Aux Group |
|  <i>Timeout Alarm Auxiliary Group</i> | |
| AuxGrpInvalid | Operation / Status Display / Temp-Prot / RTD / Aux Group |
|  <i>Invalid Auxiliary Group</i> | |

9.15.6 RTD: Counters

| | |
|--|------------------------------------|
| HottestWindingTemp | Operation / Measured Values / URTD |
|  <i>The actual value for the hottest winding temperature.</i> | |
| Hottest MotBearTemp | Operation / Measured Values / URTD |
|  <i>The actual value for the hottest motor bearing temperature.</i> | |

| | |
|-----------------------------|--|
| Hottest LoadBearTemp | Operation / Measured Values / URTD |
| # | <i>The actual value for the hottest load bearing temperature.</i> |
| Hottest Aux Temp | Operation / Measured Values / URTD |
| # | <i>The actual value for the hottest Auxiliary temperature.</i> |
| HighestWdTemp | Operation / History / OperationsCr |
| # | <i>Highest motor winding temperature since the last reset. Resettable via »Sys . Res OperationsCr« oder »Sys . Res All«.</i> |
| HighestMbTemp | Operation / History / OperationsCr |
| # | <i>Highest motor bearing temperature since the last reset. Resettable via »Sys . Res OperationsCr« oder »Sys . Res All«.</i> |
| HighestLbTemp | Operation / History / OperationsCr |
| # | <i>Highest load bearing temperature since the last reset. Resettable via »Sys . Res OperationsCr« oder »Sys . Res All«.</i> |
| HighestAuxTemp | Operation / History / OperationsCr |
| # | <i>Highest Auxiliary temperature since the last reset. Resettable via »Sys . Res OperationsCr« oder »Sys . Res All«.</i> |
| nWdAlarms | Operation / History / AlarmCr |
| # | <i>Number of winding temperature alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.</i> |
| nMbAlarms | Operation / History / AlarmCr |
| # | <i>Number of motor bearing temperature alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.</i> |
| nLbAlarms | Operation / History / AlarmCr |
| # | <i>Number of load bearing temperature alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.</i> |
| nAuxAlarms | Operation / History / AlarmCr |
| # | <i>Number of auxiliary temperature alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.</i> |
| nWdTrips | Operation / History / TripCmdCr |
| # | <i>Number of winding temperature trips since last reset. Resettable with »Sys . Res TripCr« or »Sys . Res All«.</i> |
| nMbTrips | Operation / History / TripCmdCr |
| # | <i>Number of motor bearing temperature trips since last reset. Resettable with »Sys . Res TripCr« or »Sys . Res All«.</i> |

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9.15.6 RTD: Counters

| | |
|----------------------|--|
| nLbTrips | Operation / History / TripCmdCr |
| # | <i>Number of load bearing temperature trips since last reset. Resettable with »Sys . Res TripCr« or »Sys . Res All«.</i> |
| nAuxTrips | Operation / History / TripCmdCr |
| # | <i>Number of auxiliary temperature trips since last reset. Resettable with »Sys . Res TripCr« or »Sys . Res All«.</i> |
| nChannelFails | Operation / History / AlarmCr |
| # | <i>Number of RTD channel failures. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.</i> |


9.16 CBF [50BF, 62BF]


Circuit breaker failure protection module


9.16.1 CBF: Device Planning Parameters

| Mode | Device planning / Projected Elements | |
|---|--|-----|
| - | - , use ↪ Table | S.3 |
|  | <i>Module Circuit Breaker Failure protection, general operation mode</i> | |

9.16.2 CBF: Global Parameters


| Scheme | Protection Para / Global Prot Para / Supervision / CBF | |
|---|--|-----|
| 50BF | Adjustable range: <ul style="list-style-type: none"> • 50BF, If: CB = - • 50BF, CB Pos, 50BF and CB Pos, If: CB = ↪ Table | P.2 |
|  | <i>Scheme</i> | |


| ExBlo1 ExBlo2 | Protection Para / Global Prot Para / Supervision / CBF | |
|---|--|-----|
| - | - ... Internal test state ↪ Table | P.2 |
|  | <i>External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true.</i> | |


| Trigger | Protection Para / Global Prot Para / Supervision / CBF | |
|---|---|-----|
| All TripCmds | - . -, All TripCmds, External TripCmds, Current TripCmds ↪ Table | P.2 |
|  | <i>Determining the trigger mode for the Breaker Failure.</i> | |


| | | |
|---|--|-----|
| Trigger1 | Protection Para / Global Prot Para / Supervision / CBF | |
| Trigger2 | | |
| Trigger3 | | |
| - | - ... LE80.Out inverted | P.2 |
| | Table | |
|  | <i>Trigger that will start the CBF</i> | |

9.16.3 CBF: Setting Group Parameters

| | | |
|--|--|-----|
| Function | Protection Para / Set 1 / Supervision / CBF Protection Para / Set 2 / Supervision / CBF Protection Para / Set 3 / Supervision / CBF Protection Para / Set 4 / Supervision / CBF | |
| Inactive | Inactive, Active | P.2 |
| | Table | |
|  | <i>Permanent activation or deactivation of module/stage.</i> | |

| | | |
|---|--|-----|
| ExBlo Fc | Protection Para / Set 1 / Supervision / CBF Protection Para / Set 2 / Supervision / CBF Protection Para / Set 3 / Supervision / CBF Protection Para / Set 4 / Supervision / CBF | |
| Inactive | Inactive, Active | P.2 |
| | Table | |
|  | <i>Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo Fc=active".</i> | |


| | | |
|--|--|-----|
| I-CBF > | Protection Para / Set 1 / Supervision / CBF Protection Para / Set 2 / Supervision / CBF Protection Para / Set 3 / Supervision / CBF Protection Para / Set 4 / Supervision / CBF | |
| <ul style="list-style-type: none"> Only available if: Scheme ≠ CB Pos 0.02In | 0.02In ... 4.00In | P.2 |
|  | <i>Breaker Failure Alarm will be initiated if this threshold is still exceeded after the timer has expired (50 BF).</i> | |


| | |
|---|--|
| t-CBF | Protection Para / Set 1 / Supervision / CBF Protection Para / Set 2 / Supervision / CBF Protection Para / Set 3 / Supervision / CBF Protection Para / Set 4 / Supervision / CBF |
| 0.20s | 0.00s ... 10.00s P.2 |
|  | <i>If the delay time is expired, a CBF alarm is issued.</i> |


9.16.4 CBF: Direct Controls

| | |
|----------------------------------|--|
| Res Lockout | Operation / Reset/Acknowledge / Reset |
| Inactive | Inactive, Active P.1 ↳ Table |
| <input checked="" type="radio"/> | Reset Lockout |


9.16.5 CBF: Input States


| | |
|---|--|
| ExBlo1-I ↳ CBF . ExBlo1 | Operation / Status Display / Supervision / CBF |
|  | Module input state: External blocking1 |

| | |
|---|--|
| ExBlo2-I | Operation / Status Display / Supervision / CBF |
|  | Module input state: External blocking2 |

| | |
|---|--|
| Trigger1-I Trigger2-I , | Operation / Status Display / Supervision / CBF |
| Trigger3-I ↳ CBF . Trigger1 | |
|  | Module Input: Trigger that will start the CBF |


9.16.6 CBF: Signals (Output States)

| | |
|---|--|
| Active | Operation / Status Display / All Actives Operation / Status Display / Supervision / CBF |
|  | Signal: active |

| | |
|---|--|
| ExBlo | Operation / Status Display / Supervision / CBF |
|  | Signal: External Blocking |

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9.16.6 CBF: Signals (Output States)


| | |
|--|--|
| Waiting for Trigger | Operation / Status Display / Supervision / CBF |
|  <i>Waiting for Trigger</i> | |
| running | Operation / Status Display / Supervision / CBF |
|  <i>Signal: CBF-Module started</i> | |
| Alarm | Operation / Status Display / Trips Operation / Status Display / Supervision / CBF |
|  <i>Signal: Circuit Breaker Failure</i> | |
| Lockout | Operation / Status Display / Supervision / CBF |
|  <i>Signal: Lockout</i> | |
| Res Lockout | Operation / Status Display / Supervision / CBF |
|  <i>Signal: Reset Lockout</i> | |

9.17 Supervision


9.17.1 TCS [74TC]


Trip Circuit Supervision


9.17.1.1 TCS: Device Planning Parameters


| Mode | Device planning / Projected Elements | |
|---|---|-----|
| - | -, use Table | S.3 |
|  | <i>Trip Circuit Supervision, general operation mode</i> | |

9.17.1.2 TCS: Global Parameters


| Mode | Protection Para / Global Prot Para / Supervision / TCS | |
|---|--|-----|
| Closed | Closed, Either Table | P.2 |
|  | <i>Select if trip circuit is going to be monitored when the breaker is closed or when the breaker is either open or close.</i> | |


| Input 1 | Protection Para / Global Prot Para / Supervision / TCS | |
|---|---|-----|
| - | - ... DI 4 Table | P.2 |
|  | <i>Select the input configured to monitor the trip coil when the breaker is closed.</i> | |


| Input 2 | Protection Para / Global Prot Para / Supervision / TCS | |
|---|---|-----|
| <ul style="list-style-type: none"> Only available if: Mode = Either - | - ... DI 4 Table | P.2 |
|  | <i>Select the input configured to monitor the trip coil when the breaker is open. Only available if Mode set to "Either".</i> | |

| ExBlo1 ExBlo2 | Protection Para / Global Prot Para / Supervision / TCS | |
|---|--|-----|
| - | - ... Internal test state Table | P.2 |
|  | <i>External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true.</i> | |


9.17.1.3 TCS: Setting Group Parameters


| | | |
|---|--|-----|
| Function | Protection Para / Set 1 / Supervision / TCS Protection Para / Set 2 / Supervision / TCS Protection Para / Set 3 / Supervision / TCS Protection Para / Set 4 / Supervision / TCS | |
| Inactive | Inactive, Active ↪ Table | P.2 |
|  | Permanent activation or deactivation of module/stage. | |


| | | |
|---|---|-----|
| ExBlo Fc | Protection Para / Set 1 / Supervision / TCS Protection Para / Set 2 / Supervision / TCS Protection Para / Set 3 / Supervision / TCS Protection Para / Set 4 / Supervision / TCS | |
| Inactive | Inactive, Active ↪ Table | P.2 |
|  | Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo Fc=active". | |

| | | |
|---|--|-----|
| t-TCS | Protection Para / Set 1 / Supervision / TCS Protection Para / Set 2 / Supervision / TCS Protection Para / Set 3 / Supervision / TCS Protection Para / Set 4 / Supervision / TCS | |
| 0.2s | 0.10s ... 10.00s | P.2 |
|  | Delay time of the Trip Circuit Supervision | |

9.17.1.4 TCS: Input States

| | | |
|---|--|--|
| Aux ON-I ↪ TCS . Input 1 | Operation / Status Display / Supervision / TCS | |
|  | Module Input State: Position indicator/check-back signal of the CB (52a) | |

| | | |
|---|--|--|
| Aux OFF-I | Operation / Status Display / Supervision / TCS | |
|  | Module input state: Position indicator/check-back signal of the CB (52b) | |

| | | |
|---|--|--|
| ExBlo1-I ↪ TCS . ExBlo1 | Operation / Status Display / Supervision / TCS | |
|  | Module input state: External blocking1 | |

| | |
|-----------------|--|
| ExBlo2-I | Operation / Status Display / Supervision / TCS |
| ↓ | <i>Module input state: External blocking2</i> |

9.17.1.5 TCS: Signals (Output States)

| | |
|---------------|--|
| Active | Operation / Status Display / All Actives Operation / Status Display / Supervision / TCS |
| ↑ | <i>Signal: active</i> |

| | |
|--------------|--|
| ExBlo | Operation / Status Display / Supervision / TCS |
| ↑ | <i>Signal: External Blocking</i> |


| | |
|--------------|---|
| Alarm | Operation / Status Display / Alarms Operation / Status Display / Supervision / TCS |
| ↑ | <i>Signal: Alarm Trip Circuit Supervision</i> |

| | |
|---------------------|---|
| Not Possible | Operation / Status Display / Supervision / TCS |
| ↑ | <i>Not possible because no state indicator assigned to the breaker.</i> |


9.17.2 CTS [60L]

CT Supervision


9.17.2.1 CTS: Device Planning Parameters


| | | |
|---|---|-----|
| Mode | Device planning / Projected Elements | |
| - | -, use ↳ Table | S.3 |
|  | <i>CT Supervision, general operation mode</i> | |


9.17.2.2 CTS: Global Parameters

| | | |
|---|--|-----|
| ExBlo1 ExBlo2 | Protection Para / Global Prot Para / Supervision / CTS | |
| - | - ... Internal test state ↳ Table | P.2 |
|  | <i>External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true.</i> | |


9.17.2.3 CTS: Setting Group Parameters

| | | |
|---|--|-----|
| Function | Protection Para / Set 1 / Supervision / CTS Protection Para / Set 2 / Supervision / CTS Protection Para / Set 3 / Supervision / CTS Protection Para / Set 4 / Supervision / CTS | |
| Inactive | Inactive, Active ↳ Table | P.2 |
|  | <i>Permanent activation or deactivation of module/stage.</i> | |



| | | |
|---|--|-----|
| ExBlo Fc | Protection Para / Set 1 / Supervision / CTS Protection Para / Set 2 / Supervision / CTS Protection Para / Set 3 / Supervision / CTS Protection Para / Set 4 / Supervision / CTS | |
| Inactive | Inactive, Active ↳ Table | P.2 |
|  | <i>Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo Fc=active".</i> | |


| | |
|---|--|
| AI | Protection Para / Set 1 / Supervision / CTS Protection Para / Set 2 / Supervision / CTS Protection Para / Set 3 / Supervision / CTS Protection Para / Set 4 / Supervision / CTS |
| 0.50In | 0.10In ... 1.00In P.2 |
|  | <i>In order to prevent faulty tripping of phase selective protection functions that use the current as tripping criterion. If the difference of the measured earth current and the calculated value I0 is higher than the pick up value ΔI, an alarm event is generated after expiring of the excitation time. In such a case, a fuse failure, a broken wire or a faulty measuring circuit can be assumed.</i> |

| | |
|---|--|
| Alarm delay | Protection Para / Set 1 / Supervision / CTS Protection Para / Set 2 / Supervision / CTS Protection Para / Set 3 / Supervision / CTS Protection Para / Set 4 / Supervision / CTS |
| 1.0s | 0.0s ... 9999.0s P.2 |
|  | Alarm delay |


| | |
|---|--|
| Kd | Protection Para / Set 1 / Supervision / CTS Protection Para / Set 2 / Supervision / CTS Protection Para / Set 3 / Supervision / CTS Protection Para / Set 4 / Supervision / CTS |
| 0.00 | 0.00 ... 0.99 P.2 |
|  | <i>Dynamic correction factor for the evaluation of the difference between calculated and measured earth current. This correction factor allows transformer faults, caused by higher currents, to be compensated.</i> |


9.17.2.4 CTS: Input States

| | |
|--|--|
| ExBlo1-I | Operation / Status Display / Supervision / CTS |
|  CTS . ExBlo1 | |
|  | Module input state: External blocking1 |

| | |
|---|--|
| ExBlo2-I | Operation / Status Display / Supervision / CTS |
|  | Module input state: External blocking2 |


9.17.2.5 CTS: Signals (Output States)

| | |
|---|--|
| Active | Operation / Status Display / All Actives Operation / Status Display / Supervision / CTS |
|  | Signal: active |

| | |
|---|--|
| ExBlo | Operation / Status Display / Supervision / CTS |
|  | Signal: External Blocking |

9 Protection

9.17.2.5 CTS: Signals (Output States)


| | |
|---|---|
| Alarm | Operation / Status Display / Alarms Operation / Status Display / Supervision / CTS |
|  | <i>Signal: Alarm Current Transformer Measuring Circuit Supervision</i> |


10 Control


Control

| Control Page | |
|---|--|
|  | Control Page This item represents a special dialog. (See the Technical Manual for details.) |


10.1 Ctrl: Global Parameters

| Res NonIL | Control / General Settings |
|---|---|
| single Operation | single Operation, timeout, permanent ↩ Table |
|  | Resetmode Non-Interlocking |

| Timeout NonIL | Control / General Settings |
|--|----------------------------|
| <ul style="list-style-type: none"> Only available if: Res NonIL ≠ permanent 60s | 2s ... 3600s C.2 |
|  | Timeout Non-Interlocking |

| NonIL Assign | Control / General Settings |
|---|--|
| - | - ... Internal test state ↩ Table |
|  | Assignment Non-Interlocking |

10.2 Ctrl: Direct Controls

| Switching Authority | Control / General Settings |
|---|--|
| Local | None, Local, Remote, Local and Remote ↩ Table |
|  | Switching Authority |

| NonInterl | Control / General Settings |
|---|---|
| Inactive | Inactive, Active ↩ Table |
|  | DC for Non-Interlocking |

| | | |
|-------------------------|--|-----|
| Reset max values | Operation / Reset/Acknowledge / Reset | |
| False | False, True ↩ Table | C.1 |
| ☉ | <i>Direct Command to reset the maximum values of: switching comands per second, and percentage of rejected commands.</i> | |

10.3 Ctrl: Input States

| | | |
|---------------------------------------|--|--|
| NonInterl-I | Operation / Status Display / Control / General Control | |
| ↩ Ctrl . NonIL Assign | | |
| ↓ | <i>Non-Interlocking</i> | |

10.4 Ctrl: Signals (Output States)

| | | |
|-------------------|--|--|
| Local | Operation / Status Display / Control / General Control | |
| ↑ | <i>Switching Authority: Local</i> | |

| | | |
|-------------------|--|--|
| Remote | Operation / Status Display / Control / General Control | |
| ↑ | <i>Switching Authority: Remote</i> | |

| | | |
|-------------------|--|--|
| NonInterl | Operation / Status Display / Control / General Control | |
| ↑ | <i>Non-Interlocking is active</i> | |






| | | |
|--------------------|---|--|
| SG Indeterm | Operation / Status Display / Control / General Control | |
| ↑ | <i>(At least one) Switchgear is moving (Position cannot be determined).</i> | |

| | | |
|-------------------|--|--|
| SG Disturb | Operation / Status Display / Control / General Control | |
| ↑ | <i>(At least one) Switchgear is disturbed.</i> | |

| | | |
|-----------------------|---|--|
| CES SAuthority | Operation / Status Display / Control / General Control | |
| ↑ | <i>Command Execution Supervision: Number of rejected Commands because of missing switching authority.</i> | |

| | | |
|----------------------------|--|--|
| CES DoubleOperating | Operation / Status Display / Control / General Control | |
| ↑ | <i>Command Execution Supervision: Number of rejected Commands because a second switch command is in conflict with a pending one.</i> | |


10.5 Ctrl: Values


| | |
|---|--|
| Switching Authority | Operation / Security / Security States |
|  Switching Authority | |
| Switch.Cmds per s | Operation / Count and RevData / Control / Ctrl |
|  The number of switching commands per second. (This is mainly an internal diagnosis value.) | |
| Rej. Switch.Cmds | Operation / Count and RevData / Control / Ctrl |
|  The percentage of rejected switching commands per second. (This is mainly an internal diagnosis value.) | |
| Switch.Cmds max | Operation / Count and RevData / Control / Ctrl |
|  The maximum number of switching commands per second. (This is mainly an internal diagnosis value.) | |
| Rej.Switch.Cmds max | Operation / Count and RevData / Control / Ctrl |
|  The maximum percentage of rejected switching commands per second. (This is mainly an internal diagnosis value.) | |


10.6 SG[1]

Switchgear


10.6.1 SG[1]: Global Parameters


| Aux ON | Control / SG / SG[1] / Pos Indicatr Wiring | |
|--|--|-----|
| Default: <ul style="list-style-type: none"> DI 1, If: slot 1 = Power supply / 6 DIs 2 DIs DI 1, If: slot 1 = Power supply / 6 DIs 2 DIs Else: - | - ... LE80.Out inverted Table | C.2 |
|  The CB is in ON-position if the state of the assigned signal is true (52a). | | |


| Aux OFF | Control / SG / SG[1] / Pos Indicatr Wiring | |
|--|--|-----|
| Default: <ul style="list-style-type: none"> DI 2, If: slot 1 = Power supply / 6 DIs 2 DIs DI 2, If: slot 1 = Power supply / 6 DIs 2 DIs Else: - | - ... LE80.Out inverted Table | C.2 |
|  The CB is in OFF-position if the state of the assigned signal is true (52b). | | |


| Ready | Control / SG / SG[1] / Pos Indicatr Wiring | |
|--|--|-----|
| Only available if: - | - ... LE80.Out inverted Table | C.2 |
|  Circuit breaker is ready for operation if the state of the assigned signal is true. This digital input can be used by some protective elements (if they are available within the device) like Auto Reclosure (AR), e.g. as a trigger signal. | | |


| Removed | Control / SG / SG[1] / Pos Indicatr Wiring | |
|---|--|-----|
| Only available if: - | - ... LE80.Out inverted Table | C.2 |
|  The withdrawable circuit breaker is Removed | | |


| Interl ON1 Interl ON3 | Control / SG / SG[1] / Interlockings | |
|--|--|-----|
| Only available if: - | - ... Internal test state Table | C.2 |
|  Interlocking of the ON command | | |

| | | |
|---|--|-----|
| Interl ON2 | Control / SG / SG[1] / Interlockings | |
| Only available if: Blo | - ... Internal test state ↪ Table | C.2 |
|  <i>Interlocking of the ON command</i> | | |


| | | |
|--|--|-----|
| Interl OFF1 Interl OFF2 , | Control / SG / SG[1] / Interlockings | |
| Interl OFF3 | | |
| Only available if: - | - ... Internal test state ↪ Table | C.2 |
|  <i>Interlocking of the OFF command</i> | | |


| | | |
|---|--|-----|
| SCmd ON | Control / SG / SG[1] / Ex ON/OFF Cmd | |
| Only available if: - | - ... LE80.Out inverted ↪ Table | C.2 |
|  <i>Switching ON Command, e.g. the state of the Logics or the state of the digital input</i> | | |


| | | |
|--|--|-----|
| SCmd OFF | Control / SG / SG[1] / Ex ON/OFF Cmd | |
| Only available if: - | - ... LE80.Out inverted ↪ Table | C.2 |
|  <i>Switching OFF Command, e.g. the state of the Logics or the state of the digital input</i> | | |


| | | |
|--|-------------------------------------|-----|
| t-TripCmd | Control / SG / SG[1] / Trip Manager | |
| Only available if: 0.2s | 0s ... 300.00s | P.2 |
|  <i>Minimum hold time of the OFF-command (circuit breaker, load break switch)</i> | | |


| | | |
|---|---|-----|
| Latched | Control / SG / SG[1] / Trip Manager | |
| Only available if: Inactive | Inactive, Active ↪ Table | P.2 |
|  <i>Defines whether the Trip Command is latched.</i> | | |


| | | |
|---|-------------------------------------|-----|
| Ack TripCmd | Control / SG / SG[1] / Trip Manager | |
| Only available if: | - ... Internal test state | P.2 |
| - | ↪ Table | |
|  Ack TripCmd | | |


| | | |
|--|-------------------------------------|-----|
| Off Cmd1 | Control / SG / SG[1] / Trip Manager | |
| Only available if: | - ... TripCmd | P.2 |
| TripCmd | ↪ Table | |
|  Off Command to the Circuit Breaker if the state of the assigned signal becomes true. | | |


| | | |
|--|-------------------------------------|-----|
| Off Cmd2 | Control / SG / SG[1] / Trip Manager | |
| Only available if: | - ... TripCmd | P.2 |
| TripCmd | ↪ Table | |
|  Off Command to the Circuit Breaker if the state of the assigned signal becomes true. | | |


| | | |
|--|-------------------------------------|-----|
| Off Cmd3 | Control / SG / SG[1] / Trip Manager | |
| Only available if: | - ... TripCmd | P.2 |
| TripCmd | ↪ Table | |
|  Off Command to the Circuit Breaker if the state of the assigned signal becomes true. | | |


| | | |
|--|-------------------------------------|-----|
| Off Cmd4 | Control / SG / SG[1] / Trip Manager | |
| Only available if: | - ... TripCmd | P.2 |
| TripCmd | ↪ Table | |
|  Off Command to the Circuit Breaker if the state of the assigned signal becomes true. | | |


| | | |
|--|-------------------------------------|-----|
| Off Cmd5 | Control / SG / SG[1] / Trip Manager | |
| Only available if: | - ... TripCmd | P.2 |
| TripCmd | ↪ Table | |
|  Off Command to the Circuit Breaker if the state of the assigned signal becomes true. | | |


| | | |
|--|-------------------------------------|-----|
| Off Cmd6 | Control / SG / SG[1] / Trip Manager | |
| Only available if: | - ... TripCmd | P.2 |
| TripCmd | ↪ Table | |
|  Off Command to the Circuit Breaker if the state of the assigned signal becomes true. | | |


| | | |
|---|--|-----|
| Off Cmd7 | Control / SG / SG[1] / Trip Manager | |
| Only available if: TripCmd | - ... TripCmd Table | P.2 |
|  <i>Off Command to the Circuit Breaker if the state of the assigned signal becomes true.</i> | | |

| | | |
|---|--|-----|
| Off Cmd8 ... Off Cmd30 | Control / SG / SG[1] / Trip Manager | |
| Only available if: - | - ... TripCmd Table | P.2 |
|  <i>Off Command to the Circuit Breaker if the state of the assigned signal becomes true.</i> | | |


| | | |
|---|---|-----|
| OFF incl TripCmd | Control / SG / SG[1] / General Settings | |
| Active | Inactive, Active Table | C.2 |
|  <i>The OFF Command includes the OFF Command issued by the Protection module.</i> | | |

| | | |
|--|---|-----|
| t-Move ON | Control / SG / SG[1] / General Settings | |
| 0.1s | 0.01s ... 100.00s | C.2 |
|  <i>Time to move to the ON Position</i> | | |

| | | |
|---|---|-----|
| t-Move OFF | Control / SG / SG[1] / General Settings | |
| 0.1s | 0.01s ... 100.00s | C.2 |
|  <i>Time to move to the OFF Position</i> | | |






| | | |
|---|---|-----|
| t-Dwell | Control / SG / SG[1] / General Settings | |
| Only available if: 0s | 0s ... 100.00s | C.2 |
|  <i>Dwell time</i> | | |

10.6.2 SG[1]: Direct Controls

| | | |
|--|--|-----|
| Manipulate Position | Control / SG / SG[1] / General Settings | |
| Inactive | Inactive, Pos OFF, Pos ON Table | C.2 |
|  <i>WARNING! Fake Position - Manual Position Manipulation</i> | | |

| | | |
|---|---|-----|
| Res SGwear SI SG | Operation / Reset/Acknowledge / Reset | |
| Inactive | Inactive, Active ↪ Table | P.1 |
|  <i>Resetting the slow Switchgear Alarm</i> | | |
| Ack TripCmd | Operation / Reset/Acknowledge / Acknowledge | |
| Only available if: Inactive | Inactive, Active ↪ Table | P.1 |
|  <i>Acknowledge Trip Command</i> | | |
| Force Trip Cmd | Service / Test - Prot inhib. / Force SG | |
| Only available if: Inactive | Inactive, Active ↪ Table | P.1 |
|  <i>Direct Command to force the device to issue a trip command (for testing purposes).</i> | | |

10.6.3 SG[1]: Input States

| | | |
|---|--|--|
| Aux ON-I ↪ SG[1] . Aux ON | Operation / Status Display / Control / SG[1] | |
|  <i>Module Input State: Position indicator/check-back signal of the CB (52a)</i> | | |
| Aux OFF-I ↪ SG[1] . Aux OFF | Operation / Status Display / Control / SG[1] | |
|  <i>Module input state: Position indicator/check-back signal of the CB (52b)</i> | | |
| Ready-I | Operation / Status Display / Control / SG[1] | |
|  Only available if: <i>Module input state: CB ready</i> | | |
| Removed-I | Operation / Status Display / Control / SG[1] | |
|  Only available if: <i>State of the module input: The withdrawable circuit breaker is Removed</i> | | |
| Ack TripCmd-I | Operation / Status Display / Control / SG[1] | |
|  Only available if: <i>State of the module input: Acknowledgement Signal (for the Trip Command) Module input signal</i> | | |

| | |
|---------------------|--|
| Interl ON1-I | Operation / Status Display / Control / SG[1] |
| Interl ON2-I | |
| Interl ON3-I | |
| ↓ | Only available if: <i>State of the module input: Interlocking of the ON command</i> |

| | |
|----------------------|---|
| Interl OFF1-I | Operation / Status Display / Control / SG[1] |
| Interl OFF2-I | |
| Interl OFF3-I | |
| ↓ | Only available if: <i>State of the module input: Interlocking of the OFF command</i> |

| | |
|------------------|--|
| SCmd ON-I | Operation / Status Display / Control / SG[1] |
| ↓ | Only available if: <i>State of the module input: Switching ON Command, e.g. the state of the Logics or the state of the digital input</i> |

| | |
|-------------------|---|
| SCmd OFF-I | Operation / Status Display / Control / SG[1] |
| ↓ | Only available if: <i>State of the module input: Switching OFF Command, e.g. the state of the Logics or the state of the digital input</i> |

10.6.4 SG[1]: Signals (Output States)










| | |
|----------------------------|--|
| SI SingleContactInd | Operation / Status Display / Control / SG[1] |
| ↓ | <i>Signal: The Position of the Switchgear is detected by one auxiliary contact (pole) only. Thus indeterminate and disturbed Positions cannot be detected.</i> |

| | |
|-------------------|--|
| Pos not ON | Operation / Status Display / Control / SG[1] |
| ↓ | <i>Signal: Pos not ON</i> |

| | |
|---------------|--|
| Pos ON | Operation / Status Display / Control / SG[1] |
| ↓ | <i>Signal: Circuit Breaker is in ON-Position</i> |


| | |
|----------------|---|
| Pos OFF | Operation / Status Display / Control / SG[1] |
| ↓ | <i>Signal: Circuit Breaker is in OFF-Position</i> |

| | |
|----------------------|--|
| Pos Indeterm | Operation / Status Display / Control / SG[1] |
| ↑ | Signal: Circuit Breaker is in Indeterminate Position |
| Pos Disturb | Operation / Status Display / Control / SG[1] |
| ↑ | Signal: Circuit Breaker Disturbed - Undefined Breaker Position. The Position Indicators contradict themselves. After expiring of a supervision timer this signal becomes true. |
| Pos | Operation / Status Display / Control / SG[1] |
| ↑ | Signal: Circuit Breaker Position (0 = Indeterminate, 1 = OFF, 2 = ON, 3 = Disturbed) |
| Ready | Operation / Status Display / Control / SG[1] |
| ↑ | Only available if: Signal: Circuit breaker is ready for operation. |
| t-Dwell | Operation / Status Display / Control / SG[1] |
| ↑ | Only available if: Signal: Dwell time |
| Removed | Operation / Status Display / Control / SG[1] |
| ↑ | Only available if: Signal: The withdrawable circuit breaker is Removed |
| Interl ON | Operation / Status Display / Control / SG[1] |
| ↑ | Only available if: Signal: One or more IL_On inputs are active. |
| Interl OFF | Operation / Status Display / Control / SG[1] |
| ↑ | Only available if: Signal: One or more IL_Off inputs are active. |
| CES succesf | Operation / Status Display / Control / SG[1] |
| ↑ | Only available if: Signal: Command Execution Supervision: Switching command executed successfully. |
| CES Disturbed | Operation / Status Display / Control / SG[1] |
| ↑ | Only available if: Signal: Command Execution Supervision: Switching Command unsuccessful. Switchgear in disturbed position. |

| | |
|---|--|
| CES Fail TripCmd | Operation / Status Display / Control / SG[1] |
|  | <i>Signal: Command Execution Supervision: Command execution failed because trip command is pending.</i> |
| CES SwitchDir | Operation / Status Display / Control / SG[1] |
|  | Only available if: <i>Signal: Command Execution Supervision respectively Switching Direction Control: This signal becomes true, if a switch command is issued even though the switchgear is already in the requested position. Example: A switchgear that is already OFF should be switched OFF again (doubly). The same applies to CLOSE commands.</i> |
| CES ON d OFF | Operation / Status Display / Control / SG[1] |
|  | Only available if: <i>Signal: Command Execution Supervision: On Command during a pending OFF Command.</i> |
| CES SG not ready | Operation / Status Display / Control / SG[1] |
|  | <i>Signal: Command Execution Supervision: Switchgear not ready</i> |
| CES Fiel Interl | Operation / Status Display / Control / SG[1] |
|  | Only available if: <i>Signal: Command Execution Supervision: Switching Command not executed because of field interlocking.</i> |
| CES SG removed | Operation / Status Display / Control / SG[1] |
|  | <i>Signal: Command Execution Supervision: Switching Command unsuccessful, Switchgear removed.</i> |
| TripCmd | Operation / Status Display / TripCmds Operation / Status Display / Control / SG[1] |
|  | Only available if: <i>Signal: Trip Command</i> |
| Ack TripCmd | Operation / Status Display / Control / SG[1] |
|  | Only available if: <i>Signal: Acknowledge Trip Command</i> |
| OFF incl TripCmd | Operation / Status Display / Control / SG[1] |
|  | <i>Signal: The OFF Command includes the OFF Command issued by the Protection module.</i> |
| Position Ind manipul | Operation / Status Display / Control / SG[1] |
|  | <i>Signal: Position Indicators faked</i> |

10 Control


10.6.4 SG[1]: Signals (Output States)


| | |
|--|--|
| SGwear Slow SG | Operation / Status Display / Control / SG[1] |
|  <i>Signal: Alarm, the circuit breaker (load-break switch) becomes slower</i> | |
| Res SGwear SI SG | Operation / Status Display / Control / SG[1] |
|  <i>Signal: Resetting the slow Switchgear Alarm</i> | |
| ON Cmd | Operation / Status Display / Control / SG[1] |
|  Only available if: <i>Signal: ON Command issued to the switchgear. Depending on the setting the signal may include the ON command of the Prot module.</i> | |
| OFF Cmd | Operation / Status Display / Control / SG[1] |
|  Only available if: <i>Signal: OFF Command issued to the switchgear. Depending on the setting the signal may include the OFF command of the Prot module.</i> | |
| ON Cmd manual | Operation / Status Display / Control / SG[1] |
|  <i>Signal: ON Cmd manual</i> | |
| OFF Cmd manual | Operation / Status Display / Control / SG[1] |
|  <i>Signal: OFF Cmd manual</i> | |
| Test Trip Cmd | Operation / Status Display / Control / SG[1] |
|  Only available if: <i>A trip command has been triggered manually (for testing purposes).</i> | |


10.6.5 SG[1]


Switchgear


10.6.5.1 SG[1]: Global Parameters


| Operations Alarm | | Control / SG / SG[1] / SG Wear |
|---|---|--------------------------------|
| 9999 | 1 ... 100000 | C.2 |
|  | <i>Maximum number of operations. If the operations counter »TripCmd Cr« exceeds this limit then the signal »Operations Alarm« is set.</i> | |

| Isum Intr Alarm | | Control / SG / SG[1] / SG Wear |
|---|---|--------------------------------|
| 100.00kA | 0.00kA ... 2000.00kA | C.2 |
|  | <i>Alarm, the Sum (Limit) of interrupting currents has been exceeded.</i> | |

| Isum Intr ph Alm | | Control / SG / SG[1] / SG Wear |
|---|--|--------------------------------|
| 100.00kA | 0.00kA ... 2000.00kA | C.2 |
|  | <i>Alarm, the per hour Sum (Limit) of interrupting currents has been exceeded.</i> | |


| SGwear Curve Fc | | Control / SG / SG[1] / SG Wear |
|---|--|--------------------------------|
| Inactive | Inactive, Active ↳ Table | C.2 |
|  | <i>The Circuit Breaker (load-break switch) Wear Curve defines the maximum allowed CLOSE/OPEN cycles depending on the brake currents. If the circuit breaker maintenance curve is exceeded, an alarm will be issued. The breaker maintenance curve is to be taken from the technical data sheet of the breaker manufacturer. By means of the available points this curve is to be replicated.</i> | |


| WearLevel Alarm | | Control / SG / SG[1] / SG Wear |
|--|--------------------------------|--------------------------------|
| <ul style="list-style-type: none"> Only available if: SGwear Curve Fc = Active 80.00% | 0.00% ... 100.00% | C.2 |
|  | <i>Threshold for the Alarm</i> | |


| WearLevel Lockout | | Control / SG / SG[1] / SG Wear |
|--|--|--------------------------------|
| <ul style="list-style-type: none"> Only available if: SGwear Curve Fc = Active 95.00% | 0.00% ... 100.00% | C.2 |
|  | <i>Threshold for the Lockout Level</i> | |


10 Control


10.6.5.1 SG[1]: Global Parameters


| Current1 | Control / SG / SG[1] / SG Wear | |
|---|--------------------------------|-----|
| <ul style="list-style-type: none"> Only available if: SGwear Curve Fc = Active 0.00kA | 0.00kA ... 2000.00kA | C.2 |
|  <i>Interrupted Current Level #1</i> | | |

| Count1 | Control / SG / SG[1] / SG Wear | |
|---|--------------------------------|-----|
| <ul style="list-style-type: none"> Only available if: SGwear Curve Fc = Active 10000 | 1 ... 32000 | C.2 |
|  <i>Open Counts Allowed #1</i> | | |


| Current2 | Control / SG / SG[1] / SG Wear | |
|---|--------------------------------|-----|
| <ul style="list-style-type: none"> Only available if: SGwear Curve Fc = Active 1.20kA | 0.00kA ... 2000.00kA | C.2 |
|  <i>Interrupted Current Level #2</i> | | |


| Count2 | Control / SG / SG[1] / SG Wear | |
|---|--------------------------------|-----|
| <ul style="list-style-type: none"> Only available if: SGwear Curve Fc = Active 10000 | 1 ... 32000 | C.2 |
|  <i>Open Counts Allowed #2</i> | | |


| Current3 | Control / SG / SG[1] / SG Wear | |
|---|--------------------------------|-----|
| <ul style="list-style-type: none"> Only available if: SGwear Curve Fc = Active 8.00kA | 0.00kA ... 2000.00kA | C.2 |
|  <i>Interrupted Current Level #3</i> | | |


| Count3 | Control / SG / SG[1] / SG Wear | |
|---|--------------------------------|-----|
| <ul style="list-style-type: none"> Only available if: SGwear Curve Fc = Active 150 | 1 ... 32000 | C.2 |
|  <i>Open Counts Allowed #3</i> | | |

| Current4 | | Control / SG / SG[1] / SG Wear |
|---|----------------------|--------------------------------|
| <ul style="list-style-type: none"> Only available if: SGwear Curve Fc = Active 20.00kA | 0.00kA ... 2000.00kA | C.2 |
|  <i>Interrupted Current Level #4</i> | | |

| Count4 | | Control / SG / SG[1] / SG Wear |
|---|-------------|--------------------------------|
| <ul style="list-style-type: none"> Only available if: SGwear Curve Fc = Active 12 | 1 ... 32000 | C.2 |
|  <i>Open Counts Allowed #4</i> | | |

| Current5 | | Control / SG / SG[1] / SG Wear |
|---|----------------------|--------------------------------|
| <ul style="list-style-type: none"> Only available if: SGwear Curve Fc = Active 20.00kA | 0.00kA ... 2000.00kA | C.2 |
|  <i>Interrupted Current Level #5</i> | | |


| Count5 | | Control / SG / SG[1] / SG Wear |
|---|-------------|--------------------------------|
| <ul style="list-style-type: none"> Only available if: SGwear Curve Fc = Active 1 | 1 ... 32000 | C.2 |
|  <i>Open Counts Allowed #5</i> | | |


| Current6 | | Control / SG / SG[1] / SG Wear |
|---|----------------------|--------------------------------|
| <ul style="list-style-type: none"> Only available if: SGwear Curve Fc = Active 20.00kA | 0.00kA ... 2000.00kA | C.2 |
|  <i>Interrupted Current Level #6</i> | | |


| Count6 | | Control / SG / SG[1] / SG Wear |
|---|-------------|--------------------------------|
| <ul style="list-style-type: none"> Only available if: SGwear Curve Fc = Active 1 | 1 ... 32000 | C.2 |
|  <i>Open Counts Allowed #6</i> | | |


10 Control


10.6.5.1 SG[1]: Global Parameters


| Current7 | | Control / SG / SG[1] / SG Wear | |
|---|----------------------|--------------------------------|-----|
| <ul style="list-style-type: none"> Only available if: SGwear Curve Fc = Active <p>20.00kA</p> | 0.00kA ... 2000.00kA | | C.2 |
|  <i>Interrupted Current Level #7</i> | | | |


| Count7 | | Control / SG / SG[1] / SG Wear | |
|---|-------------|--------------------------------|-----|
| <ul style="list-style-type: none"> Only available if: SGwear Curve Fc = Active <p>1</p> | 1 ... 32000 | | C.2 |
|  <i>Open Counts Allowed #7</i> | | | |


| Current8 | | Control / SG / SG[1] / SG Wear | |
|---|----------------------|--------------------------------|-----|
| <ul style="list-style-type: none"> Only available if: SGwear Curve Fc = Active <p>20.00kA</p> | 0.00kA ... 2000.00kA | | C.2 |
|  <i>Interrupted Current Level #8</i> | | | |

| Count8 | | Control / SG / SG[1] / SG Wear | |
|---|-------------|--------------------------------|-----|
| <ul style="list-style-type: none"> Only available if: SGwear Curve Fc = Active <p>1</p> | 1 ... 32000 | | C.2 |
|  <i>Open Counts Allowed #8</i> | | | |

| Current9 | | Control / SG / SG[1] / SG Wear | |
|---|----------------------|--------------------------------|-----|
| <ul style="list-style-type: none"> Only available if: SGwear Curve Fc = Active <p>20.00kA</p> | 0.00kA ... 2000.00kA | | C.2 |
|  <i>Interrupted Current Level #9</i> | | | |

| Count9 | | Control / SG / SG[1] / SG Wear | |
|---|-------------|--------------------------------|-----|
| <ul style="list-style-type: none"> Only available if: SGwear Curve Fc = Active <p>1</p> | 1 ... 32000 | | C.2 |
|  <i>Open Counts Allowed #9</i> | | | |

| Current10 | | Control / SG / SG[1] / SG Wear |
|--|----------------------|--------------------------------|
| <ul style="list-style-type: none"> Only available if: SGwear Curve Fc = Active 20.00kA | 0.00kA ... 2000.00kA | C.2 |
|  <i>Interrupted Current Level #10</i> | | |

| Count10 | | Control / SG / SG[1] / SG Wear |
|--|-------------|--------------------------------|
| <ul style="list-style-type: none"> Only available if: SGwear Curve Fc = Active 1 | 1 ... 32000 | C.2 |
|  <i>Open Counts Allowed #10</i> | | |

10.6.5.2 SG[1]: Direct Controls

| Res TripCmd Cr | | Operation / Reset/Acknowledge / Reset |
|---|---|---------------------------------------|
| Inactive | Inactive, Active ↪ Table | P.1 |
| <input checked="" type="radio"/> <i>Resetting of the Counter: Total number of trips of the switchgear</i> | | |

| Res Sum trip | | Operation / Reset/Acknowledge / Reset |
|--|---|---------------------------------------|
| Inactive | Inactive, Active ↪ Table | P.1 |
| <input checked="" type="radio"/> <i>Reset summation of the tripping currents</i> | | |

| Res Isum Intr per hour | | Operation / Reset/Acknowledge / Reset |
|---|---|---------------------------------------|
| Inactive | Inactive, Active ↪ Table | P.1 |
| <input checked="" type="radio"/> <i>Reset of the Sum per hour of interrupting currents.</i> | | |

| Res CB OPEN capacity | | Operation / Reset/Acknowledge / Reset |
|---|---|---------------------------------------|
| Inactive | Inactive, Active ↪ Table | P.1 |
| <input checked="" type="radio"/> <i>Reset the CB OPEN capacity. (Remark: A »CB OPEN capacity« value of 100% means that the circuit breaker has to be maintained.)</i> | | |

10.6.5.3 SG[1]: Signals (Output States)

| | |
|-----------------------------|---|
| Operations Alarm | Operation / Status Display / Control / SG[1] |
| ↑ | <i>Signal: Too many Operations. (The operations counter »TripCmd Cr« has exceeded the limit set at »Operations Alarm«.)</i> |
| Isum Intr trip: IL1 | Operation / Status Display / Control / SG[1] |
| ↑ | <i>Signal: Maximum permissible Summation of the interrupting (tripping) currents exceeded: IL1</i> |
| Isum Intr trip: IL2 | Operation / Status Display / Control / SG[1] |
| ↑ | <i>Signal: Maximum permissible Summation of the interrupting (tripping) currents exceeded: IL2</i> |
| Isum Intr trip: IL3 | Operation / Status Display / Control / SG[1] |
| ↑ | <i>Signal: Maximum permissible Summation of the interrupting (tripping) currents exceeded: IL3</i> |
| Isum Intr trip | Operation / Status Display / Control / SG[1] |
| ↑ | <i>Signal: Maximum permissible Summation of the interrupting (tripping) currents exceeded in at least one phase.</i> |
| Res TripCmd Cr | Operation / Status Display / Control / SG[1] |
| ↑ | <i>Signal: Resetting of the Counter: Total number of trips of the switchgear</i> |
| Res Sum trip | Operation / Status Display / Control / SG[1] |
| ↑ | <i>Signal: Reset summation of the tripping currents</i> |
| WearLevel Alarm | Operation / Status Display / Control / SG[1] |
| ↑ | <i>Signal: Threshold for the Alarm</i> |
| WearLevel Lockout | Operation / Status Display / Control / SG[1] |
| ↑ | <i>Signal: Threshold for the Lockout Level</i> |
| Res CB OPEN capacity | Operation / Status Display / Control / SG[1] |
| ↑ | <i>Signal: Reset of the wear maintenance curve (i. e. of the counter for the Circuit Breaker OPEN capacity).</i> |
| Isum Intr ph Alm | Operation / Status Display / Control / SG[1] |
| ↑ | <i>Signal: Alarm, the per hour Sum (Limit) of interrupting currents has been exceeded.</i> |
| Res Isum Intr ph Alm | Operation / Status Display / Control / SG[1] |
| ↑ | <i>Signal: Reset of the Alarm, "the per hour Sum (Limit) of interrupting currents has been exceeded".</i> |


10.6.5.4 SG[1]: Values, Counters

| | |
|---|---|
| TripCmd Cr | Operation / History / TotalCr Operation / Count and RevData / Control / SG[1] |
| # | <i>Counter: Total number of trips of the switchgear.</i> |
| Sum trip IL1 Sum trip IL2 , | Operation / History / TotalCr Operation / Count and RevData / Control / SG[1] |
| Sum trip IL3 | |
| | <i>Summation of the tripping currents phase</i> |
| Isum Intr per hour | Operation / Count and RevData / Control / SG[1] |
| | <i>Sum per hour of interrupting currents.</i> |
| Bkr Wear Level | Operation / Count and RevData / Control / SG[1] |
| | <i>Wear level of the circuit breaker. (100% means that the circuit breaker has to be maintained.)</i> |


11 System Alarms


System Alarms

11.1 SysA: Device Planning Parameters


| Mode | Device planning / Projected Elements | |
|---|--------------------------------------|-----|
| - | -, use ↳ Table | S.3 |
|  <i>general operation mode</i> | | |


11.2 SysA: Global Parameters


| Function | SysA / General Settings | |
|---|---|-----|
| Inactive | Inactive, Active ↳ Table | P.2 |
|  <i>Permanent activation or deactivation of module/stage.</i> | | |


| ExBlo Fc | SysA / General Settings | |
|--|--|-----|
| - | - ... Internal test state ↳ Table | P.2 |
|  <i>Activate (allow) or inactivate (disallow) blocking of the module/stage. This parameter is only effective if a signal is assigned to the corresponding global protection parameter. If the signal becomes true, those modules/stages are blocked that are parameterized "ExBlo Fc=active".</i> | | |


| Alarm | SysA / Demand / Current Demand | |
|--|---|-----|
| Inactive | Inactive, Active ↳ Table | P.2 |
|  <i>Alarm</i> | | |

| Threshold | SysA / Demand / Current Demand | |
|---|--------------------------------|-----|
| 500A | 10A ... 500000A | P.2 |
|  <i>Threshold (to be entered as primary value)</i> | | |


| t-Delay | SysA / Demand / Current Demand | |
|---|--------------------------------|-----|
| 0min | 0min ... 60min | P.2 |
|  <i>Tripping Delay</i> | | |

| | | |
|---|---|-----|
| Alarm | SysA / THD / I THD | |
| Inactive | Inactive, Active ↪ Table | P.2 |
|  Alarm | | |


| | | |
|--|--------------------|-----|
| Threshold | SysA / THD / I THD | |
| 500A | 1A ... 500000A | P.2 |
|  Threshold (to be entered as primary value) | | |


| | | |
|--|--------------------|-----|
| t-Delay | SysA / THD / I THD | |
| 0s | 0s ... 3600s | P.2 |
|  Tripping Delay | | |


11.3 SysA: Input States


| | | |
|---|-----------------------------------|--|
| ExBlo-I ↪ SysA . ExBlo Fc | Operation / Status Display / SysA | |
|  Module input state: External blocking | | |


11.4 SysA: Signals (Output States)

| | | |
|--|---|--|
| Active | Operation / Status Display / All Actives Operation / Status Display / SysA | |
|  Signal: active | | |

| | | |
|---|-----------------------------------|--|
| ExBlo | Operation / Status Display / SysA | |
|  Signal: External Blocking | | |


| | | |
|---|-----------------------------------|--|
| Alm Current avg (Demd) | Operation / Status Display / SysA | |
|  Signal: Alarm: Averaged demand current exceeded | | |

| | | |
|---|-----------------------------------|--|
| Alarm I THD | Operation / Status Display / SysA | |
|  Signal: Alarm Total Harmonic Distortion Current | | |

| | | |
|--|-----------------------------------|--|
| Trip Current avg (Demd) | Operation / Status Display / SysA | |
|  Signal: Trip: Averaged demand current exceeded | | |

11 System Alarms


11.4 SysA: Signals (Output States)

| | |
|---|-----------------------------------|
| Trip I THD | Operation / Status Display / SysA |
|  <i>Signal: Trip Total Harmonic Distortion Current</i> | |

12 Recorders

12.1 Event rec


The event recorder logs all events like switching operations, change of parameters, alarms, trips, operating mode selections, blockings and state transitions of inputs and outputs.

| Event rec | |
|---|---|
|  | <i>The event recorder logs all events like switching operations, change of parameters, alarms, trips, operating mode selections, blockings and state transitions of inputs and outputs.</i> |
| | This item represents a special dialog. (See the Technical Manual for details.) |

12.1.1 Event rec: Direct Controls


| Res all rec | Operation / Reset/Acknowledge / Reset | |
|---|---------------------------------------|-----|
| Inactive | Inactive, Active | P.1 |
| | ↩️ Table | |
|  | Reset all records | |

12.1.2 Event rec: Signals (Output States)


| Res all records | Operation / Status Display / Recorders / Event rec | |
|---|--|--|
|  | Signal: All records are being deleted. (Remark: Immediately afterwards, this signal becomes inactive again.) | |


12.2 Disturb rec


After a trigger event has become true, the disturbance recorder writes analogue and digital tracks


| Disturb rec | |
|---|--|
|  | After a trigger event has become true, the disturbance recorder writes analogue and digital tracks This item represents a special dialog. (See the Technical Manual for details.) |


12.2.1 Disturb rec: Global Parameters


| Start: 1 | Device Para / Recorders / Disturb rec | |
|---|--|-----|
| Trip | - ... Internal test state Table | S.3 |
|  | Start recording if the assigned signal is true. | |

| Start: 2 | Device Para / Recorders / Disturb rec | |
|---|--|-----|
| ... | | |
| Start: 8 | Device Para / Recorders / Disturb rec | |
| - | - ... Internal test state Table | S.3 |
|  | Start recording if the assigned signal is true. | |

| Auto overwriting | Device Para / Recorders / Disturb rec | |
|---|---|-----|
| Active | Inactive, Active Table | S.3 |
|  | If there is no more free memory capacity left, the oldest file will be overwritten. | |

| Pre-trigger time | Device Para / Recorders / Disturb rec | |
|---|---|-----|
| 20% | 0% ... 99% | S.3 |
|  | The pre trigger time is set in percent of the »Max file size« value. It corresponds to the part of recording before the onset of the trigger event. | |

| Post-trigger time | Device Para / Recorders / Disturb rec | |
|---|--|-----|
| 20% | 0% ... 99% | S.3 |
|  | The post trigger time is set in percent of the »Max file size« value. It is the remaining time of the »Max file size«, depending on the »Pre-trigger time« setting and the duration of the trigger event, but at maximum the »Post-trigger time« set here. | |


| | | |
|---|---|-----|
| Max file size | Device Para / Recorders / Disturb rec | |
| 2s | 0.1s ... 15.0s | S.3 |
|  | <i>The maximum storage capacity per record, including pre-trigger and post-trigger time. The amount of records depends on the size of each record, on the max. file size (set here), and on the total storage capacity.</i> | |

12.2.2 Disturb rec: Direct Controls




| | | |
|----------------------------------|--|-----|
| Man Trigger | Operation / Recorders / Man Trigger | |
| False | False, True ↳ Table | P.1 |
| <input checked="" type="radio"/> | <i>Manual Trigger</i> | |




| | | |
|----------------------------------|---|-----|
| Res all rec | Operation / Reset/Acknowledge / Reset | |
| Inactive | Inactive, Active ↳ Table | P.1 |
| <input checked="" type="radio"/> | <i>Reset all records</i> | |

12.2.3 Disturb rec: Input States



| | | |
|---|--|--|
| Start1-I ... Start8-I (↳ Disturb rec . Start: 1) | Operation / Status Display / Recorders / Disturb rec | |
|  | <i>State of the module input:: Trigger event / start recording</i> | |

12.2.4 Disturb rec: Signals (Output States)

| | | |
|---|--|--|
| recording | Operation / Status Display / Recorders / Disturb rec | |
|  | <i>Signal: Recording</i> | |
| memory full | Operation / Status Display / Recorders / Disturb rec | |
|  | <i>Signal: Memory full</i> | |
| Clear fail | Operation / Status Display / Recorders / Disturb rec | |
|  | <i>Signal: Clear failure in memory</i> | |


| | |
|---|--|
| Res all records | Operation / Status Display / Recorders / Disturb rec |
|  <i>Signal: All records are being deleted. (Remark: Immediately afterwards, this signal becomes inactive again.)</i> | |
| Res record | Operation / Status Display / Recorders / Disturb rec |
|  <i>Signal: Delete record</i> | |
| Man Trigger | Operation / Status Display / Recorders / Disturb rec |
|  <i>Signal: Manual Trigger</i> | |

12.2.5 Disturb rec: Values

| | |
|--|--|
| Rec state | Operation / Status Display / Recorders / Disturb rec |
|  <i>Recording state</i> | |
| Error code | Operation / Status Display / Recorders / Disturb rec |
|  <i>Error code</i> | |

12.3 Fault rec

The values measured at the time of tripping are saved by the Fault Recorder.

| Fault rec | |
|---|--|
|  | The values measured at the time of tripping are saved by the Fault Recorder. This item represents a special dialog. (See the Technical Manual for details.) |

12.3.1 Fault rec: Global Parameters


| Record-Mode | | Device Para / Recorders / Fault rec |
|---|---|-------------------------------------|
| Trips only | Alarms and Trips, Trips only | S.3 |
| | | Table |
|  | Recorder Mode (Set the behaviour of the recorder) | |

| t-meas-delay | | Device Para / Recorders / Fault rec |
|---|--|-------------------------------------|
| 0ms | 0ms ... 60ms | S.3 |
|  | After the Trip, the measurement will be delayed for this time. | |

12.3.2 Fault rec: Direct Controls


| Res all rec | | Operation / Reset/Acknowledge / Reset |
|---|-------------------|---------------------------------------|
| Inactive | Inactive, Active | P.1 |
| | | Table |
|  | Reset all records | |

12.3.3 Fault rec: Signals (Output States)

| Res record | | Operation / Status Display / Recorders / Fault rec |
|---|-----------------------|--|
|  | Signal: Delete record | |

12.4 Trend rec


Trend Recorder

| Trend rec | |
|---|---|
|  | <i>Trend Recorder</i> This item represents a special dialog. (See the Technical Manual for details.) |

12.4.1 Trend rec: Global Parameters

| Resolution | Device Para / Recorders / Trend rec |
|---|---|
| 15 min | 60 min, 30 min, 15 min, 10 min, 5 min, 1 min Table |
|  | <i>Resolution (recording frequency)</i> |

| Trend1 | Device Para / Recorders / Trend rec |
|---|---|
| IL1 RMS | - ... Hottest Aux Temp Table |
|  | <i>Observed Value1</i> |

| Trend2 | Device Para / Recorders / Trend rec |
|---|---|
| IL2 RMS | - ... Hottest Aux Temp Table |
|  | <i>Observed Value2</i> |

| Trend3 | Device Para / Recorders / Trend rec |
|---|---|
| IL3 RMS | - ... Hottest Aux Temp Table |
|  | <i>Observed Value3</i> |

| Trend4 | Device Para / Recorders / Trend rec |
|---|---|
| IG meas RMS | - ... Hottest Aux Temp Table |
|  | <i>Observed Value4</i> |

| Trend5 | | Device Para / Recorders / Trend rec | |
|---|------------------------|-------------------------------------|-----|
| - | - ... Hottest Aux Temp | Table | S.3 |
|  | Observed Value5 | | |

| Trend6 | | Device Para / Recorders / Trend rec | |
|---|------------------------|-------------------------------------|-----|
| - | - ... Hottest Aux Temp | Table | S.3 |
|  | Observed Value6 | | |

| Trend7 | | Device Para / Recorders / Trend rec | |
|---|------------------------|-------------------------------------|-----|
| - | - ... Hottest Aux Temp | Table | S.3 |
|  | Observed Value7 | | |

| Trend8 | | Device Para / Recorders / Trend rec | |
|---|------------------------|-------------------------------------|-----|
| - | - ... Hottest Aux Temp | Table | S.3 |
|  | Observed Value8 | | |


| Trend9 | | Device Para / Recorders / Trend rec | |
|---|------------------------|-------------------------------------|-----|
| - | - ... Hottest Aux Temp | Table | S.3 |
|  | Observed Value9 | | |

| Trend10 | | Device Para / Recorders / Trend rec | |
|---|------------------------|-------------------------------------|-----|
| - | - ... Hottest Aux Temp | Table | S.3 |
|  | Observed Value10 | | |


12.4.2 Trend rec: Direct Controls

| | | |
|--|---|-----|
| Res all rec | Operation / Reset/Acknowledge / Reset | |
| Inactive | Inactive, Active ↩ Table | P.1 |
|  <i>Reset all records</i> | | |

12.4.3 Trend rec: Signals (Output States)


| | | |
|---|--|--|
| Res all records | Operation / Status Display / Recorders / Trend rec | |
|  <i>Signal: All records are being deleted. (Remark: Immediately afterwards, this signal becomes inactive again.)</i> | | |


12.4.4 Trend rec: Counters

| | | |
|--|---|--|
| Max avail Entries | Operation / Count and RevData / Trend rec | |
|  <i>Maximum available entries in the current configuration</i> | | |

12.5 Start rec

Startrecorder

| Start rec | |
|---|--|
|  | <i>Startrecorder</i> This item represents a special dialog. (See the Technical Manual for details.) |

| Statistic rec | |
|---|---|
|  | <i>Statistic recorder</i> This item represents a special dialog. (See the Technical Manual for details.) |

12.5.1 Start rec: Global Parameters


| Resolution | Device Para / Recorders / Start rec | |
|---|--|-----|
| 50ms | 50ms, 100ms, 1s ↪ Table | S.3 |
|  | <i>Resolution (recording frequency)</i> | |

12.5.2 Start rec: Direct Controls

| ClearStartRec | Operation / Reset/Acknowledge / Reset | |
|----------------------------------|---|-----|
| Inactive | Inactive, Active ↪ Table | S.3 |
| <input checked="" type="radio"/> | <i>Delete all start recorder records</i> | |

| ClearStatisticRec | Operation / Reset/Acknowledge / Reset | |
|----------------------------------|---|-----|
| Inactive | Inactive, Active ↪ Table | S.3 |
| <input checked="" type="radio"/> | <i>Delete all statistic recorder records (start trending)</i> | |

12.5.3 Start rec: Signals (Output States)


| Storing | Operation / Status Display / Recorders / Start rec | |
|---|--|--|
|  | <i>Signal: Data are saved</i> | |

13 Logic

13.1 Logics

Logic


13.1.1 Logics: Device Planning Parameters


| No of Equations: | Device planning / Projected Elements | |
|---|---|-----|
| 20 | 0, 5, 10, 20, 40, 80 ↩> Table | S.3 |
|  Number of required Logic Equations: | | |

13.1.2 Logics ... Logics


Logic


13.1.2.1 Logics ... Logics: Global Parameters


| | | |
|---|---|-----|
| LE1.Gate | Logics / LE 1 | |
| AND | AND, OR, NAND, NOR ↳ Table | S.3 |
|  <i>Logic gate</i> | | |


| | | |
|---|--|-----|
| LE1.Input1 ... LE1.Input4 | Logics / LE 1 | |
| - | - ... Internal test state ↳ Table | S.3 |
|  <i>Assignment of the Input Signal</i> | | |

| | | |
|---|---|-----|
| LE1.Inverting1 ... LE1.Inverting4 | Logics / LE 1 | |
| Inactive | Inactive, Active ↳ Table | S.3 |
|  <i>Inverting the input signals.</i> | | |

| | | |
|--|---------------------|-----|
| LE1.t-On Delay | Logics / LE 1 | |
| 0.00s | 0.00s ... 36000.00s | S.3 |
|  <i>Switch On Delay</i> | | |


| | | |
|---|---------------------|-----|
| LE1.t-Off Delay | Logics / LE 1 | |
| 0.00s | 0.00s ... 36000.00s | S.3 |
|  <i>Switch Off Delay</i> | | |


| | | |
|--|--|-----|
| LE1.Reset Latched | Logics / LE 1 | |
| - | - ... Internal test state ↳ Table | S.3 |
|  <i>Reset Signal for the Latching</i> | | |

| | | |
|---|--|-----|
| LE1.Inverting Reset | Logics / LE 1 | |
| Inactive | Inactive, Active ↩ Table | S.3 |
|  | <i>Inverting Reset Signal for the Latching</i> | |


| | | |
|---|--|-----|
| LE1.Inverting Set | Logics / LE 1 | |
| Inactive | Inactive, Active ↩ Table | S.3 |
|  | <i>Inverting the Setting Signal for the Latching</i> | |


13.1.2.2 Logics ... Logics: Input States


| | | |
|--|--|--|
| LE1.Gate In1-I ... LE1.Gate In4-I ↩ Logics . LE1.Input1 | Operation / Status Display / Logics | |
|  | <i>State of the module input: Assignment of the Input Signal</i> | |

| | | |
|---|---|--|
| LE1.Reset Latch-I ↩ Logics . LE1.Reset Latched | Operation / Status Display / Logics | |
|  | <i>State of the module input: Reset Signal for the Latching</i> | |

13.1.2.3 Logics ... Logics: Signals (Output States)

| | | |
|---|---|--|
| LE1.Gate Out | Operation / Status Display / Logics | |
|  | <i>Signal: Output of the logic gate</i> | |

| | | |
|---|-------------------------------------|--|
| LE1.Timer Out | Operation / Status Display / Logics | |
|  | <i>Signal: Timer Output</i> | |

| | | |
|---|-------------------------------------|--|
| LE1.Out | Operation / Status Display / Logics | |
|  | <i>Signal: Latched Output (Q)</i> | |

LE1.Out inverted

Operation / Status Display / Logics

 *Signal: Negated Latched Output (Q NOT)*

14 SelfSupervision

SelfSupervision


14.1 SSV: Direct Controls

| | | |
|---|---|-----|
| Ack System LED | Operation / Reset/Acknowledge / Acknowledge | |
| False | False, True Table | P.1 |
|  Acknowledge System LED (red/green flashing LED) | | |
| Force SC | Service / Test - Prot inhib. / Force SC | |
| Inactive | Inactive, Active Table | P.1 |
|  Direct Command to force the device to drop SelfSuperVision Contact (SC) for 5 seconds (for testing purposes). | | |

14.2 SSV: Signals (Output States)

| | | |
|--|---|--|
| System Error | Operation / Self-Supervision / System State | |
|  Signal: Device Failure | | |
| SelfSuperVision Contact | Operation / Self-Supervision / System State | |
|  Signal: SelfSuperVision Contact | | |
| New error | Operation / Self-Supervision / System State | |
|  Signal: A new error message has been issued. | | |
| New warning | Operation / Self-Supervision / System State | |
|  Signal: A new warning message has been issued. | | |
| Test SC | Operation / Self-Supervision / System State | |
|  A drop of SelfSuperVision Contact (SC) has been triggered manually (for testing purposes). | | |

14.3 SSV: Counters


| | | |
|--|---|--|
| Cr No of free sockets | Operation / Self-Supervision / System State | |
|  Counter for network diagnosis. Number of free sockets. | | |

15 Service


15.1 Sgen


Sine wave generator


15.1.1 Sgen: Device Planning Parameters


| Mode | Device planning / Projected Elements | |
|--|--------------------------------------|-----|
| use | -, use ↪ Table | S.3 |
|  <i>Sine wave generator, general operation mode</i> | | |


15.1.2 Sgen: Global Parameters


| PreFault | Service / Test - Prot inhib. / Sgen / Configuration / Times | |
|---|---|-----|
| 0.0s | 0.00s ... 300.00s | S.3 |
|  <i>Pre Fault Duration</i> | | |


| FaultSimulation | Service / Test - Prot inhib. / Sgen / Configuration / Times | |
|---|---|-----|
| 0.0s | 0.00s ... 10800.00s | S.3 |
|  <i>Duration of Fault Simulation</i> | | |


| PostFault | Service / Test - Prot inhib. / Sgen / Configuration / Times | |
|--|---|-----|
| 0.0s | 0.00s ... 300.00s | S.3 |
|  <i>Post Fault Duration</i> | | |

| TripCmd Mode | Service / Test - Prot inhib. / Sgen / Process | |
|---|---|-----|
| No TripCmd | No TripCmd, With TripCmd ↪ Table | S.3 |
|  <i>Trip Command Mode: Select between two operating modes for the Fault Simulator: "cold simulation" (without tripping the circuit breaker), or "hot simulation" (i.e. the simulation is authorized to trip the circuit breaker)</i> | | |


| Ex Start Simulation | Service / Test - Prot inhib. / Sgen / Process | |
|---|--|-----|
| - | - ... Internal test state ↪ Table | S.3 |
|  <i>External Start of Fault Simulation (Using the test parameters)</i> | | |


| | | |
|---|---|-----|
| ExBlo1 | Service / Test - Prot inhib. / Sgen / Process | |
| Pos ON | - ... Internal test state Table | S.3 |
|  | <i>External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true.1</i> | |

| | | |
|---|---|-----|
| ExBlo2 | Service / Test - Prot inhib. / Sgen / Process | |
| - | - ... Internal test state Table | S.3 |
|  | <i>External blocking of the module, if blocking is activated (allowed) within a parameter set and if the state of the assigned signal is true.2</i> | |


| | | |
|---|--|-----|
| Ex ForcePost | Service / Test - Prot inhib. / Sgen / Process | |
| - | - ... Internal test state Table | S.3 |
|  | <i>Force Post state. Abort simulation.</i> | |




15.1.3 Sgen: Direct Controls

| | | |
|---|---|-----|
| Start Simulation | Service / Test - Prot inhib. / Sgen / Process | |
| Inactive | Inactive, Active Table | S.3 |
|  | <i>Start Fault Simulation (Using the test parameters)</i> | |

| | | |
|---|---|-----|
| Stop Simulation | Service / Test - Prot inhib. / Sgen / Process | |
| Inactive | Inactive, Active Table | S.3 |
|  | <i>Stopp Fault Simulation (Using the test parameters)</i> | |

15.1.4 Sgen: Input States


| | | |
|---|---|--|
| Ex Start Simulation-I Sgen . Ex Start Simulation | Operation / Status Display / Sgen | |
|  | <i>State of the module input:External Start of Fault Simulation (Using the test parameters)</i> | |

| | |
|--|--|
| ExBlo1-I (↪ Sgen . ExBlo1) | Operation / Status Display / Sgen Service / Test - Prot inhib. / Sgen / State |
|  <i>Module input state: External blocking1</i> | |
| ExBlo2-I (↪ Sgen . ExBlo2) | Operation / Status Display / Sgen Service / Test - Prot inhib. / Sgen / State |
|  <i>Module input state: External blocking2</i> | |
| Ex ForcePost-I (↪ Sgen . Ex ForcePost) | Operation / Status Display / Sgen Service / Test - Prot inhib. / Sgen / State |
|  <i>State of the module input:Force Post state. Abort simulation.</i> | |

15.1.5 Sgen: Signals (Output States)

| | |
|---|--|
| Manual Start | Operation / Status Display / Sgen |
|  <i>Fault Simulation has been started manually.</i> | |
| Manual Stop | Operation / Status Display / Sgen |
|  <i>Fault Simulation has been stopped manually.</i> | |
| Running | Operation / Status Display / Sgen Service / Test - Prot inhib. / Sgen / State |
|  <i>Signal: Measuring value simulation is running</i> | |
| Started | Operation / Status Display / Sgen |
|  <i>Fault Simulation has been started</i> | |
| Stopped | Operation / Status Display / Sgen |
|  <i>Fault Simulation has been stopped</i> | |
| State | Operation / Status Display / Sgen |
|  <i>Signal: Wave generation states: 0=Off, 1=PreFault, 2=Fault, 3=PostFault, 4=InitReset</i> | |


15.1.6 Sgen: Values


| | |
|---|---|
| State | Service / Test - Prot inhib. / Sgen / State |
|  <i>Wave generation states: 0=Off, 1=PreFault, 2=Fault, 3=PostFault, 4=InitReset</i> | |


15.1.7 Sgen


Sine wave generator


15.1.7.1 Sgen: Global Parameters


| | | |
|---|---|-----|
| IL1 | Service / Test - Prot inhib. / Sgen / Configuration / PreFault / CT | |
| 0.0In | 0.00In ... 40.00In | S.3 |
|  | <i>Current Fundamental Magnitude in Pre State: phase L1</i> | |


| | | |
|---|---|-----|
| IL2 | Service / Test - Prot inhib. / Sgen / Configuration / PreFault / CT | |
| 0.0In | 0.00In ... 40.00In | S.3 |
|  | <i>Current Fundamental Magnitude in Pre State: phase L2</i> | |


| | | |
|---|---|-----|
| IL3 | Service / Test - Prot inhib. / Sgen / Configuration / PreFault / CT | |
| 0.0In | 0.00In ... 40.00In | S.3 |
|  | <i>Current Fundamental Magnitude in Pre State: phase L3</i> | |

| | | |
|---|---|-----|
| IG meas | Service / Test - Prot inhib. / Sgen / Configuration / PreFault / CT | |
| 0.0In | Adjustable range: <ul style="list-style-type: none"> • 0.00In ... 2.500In, If: slot 3 = Current measuring inputs2 • 0.00In ... 25.00In, If: slot 3 ≠ Current measuring inputs2 | S.3 |
|  | <i>Current Fundamental Magnitude in Pre State: IG</i> | |


| | | |
|---|--|-----|
| phi IL1 | Service / Test - Prot inhib. / Sgen / Configuration / PreFault / CT | |
| 0° | -360° ... 360° | S.3 |
|  | <i>Start Position respectively Start Angle of the Current Phasor during Pre-Phase:phase L1</i> | |


| | | |
|---|--|-----|
| phi IL2 | Service / Test - Prot inhib. / Sgen / Configuration / PreFault / CT | |
| 240° | -360° ... 360° | S.3 |
|  | <i>Start Position respectively Start Angle of the Current Phasor during Pre-Phase:phase L2</i> | |


| | | |
|---|--|-----|
| phi IL3 | Service / Test - Prot inhib. / Sgen / Configuration / PreFault / CT | |
| 120° | -360° ... 360° | S.3 |
|  | <i>Start Position respectively Start Angle of the Current Phasor during Pre-Phase:phase L3</i> | |


| | | |
|---|---|-----|
| phi IG meas | Service / Test - Prot inhib. / Sgen / Configuration / PreFault / CT | |
| 0° | -360° ... 360° | S.3 |
|  | <i>Start Position respectively Start Angle of the Current Phasor during Pre-Phase: IG</i> | |


| | | |
|---|---|-----|
| IL1 | Service / Test - Prot inhib. / Sgen / Configuration / FaultSimulation / CT | |
| 0.0In | 0.00In ... 40.00In | S.3 |
|  | <i>Current Fundamental Magnitude in Fault State: phase L1</i> | |
| IL2 | Service / Test - Prot inhib. / Sgen / Configuration / FaultSimulation / CT | |
| 0.0In | 0.00In ... 40.00In | S.3 |
|  | <i>Current Fundamental Magnitude in Fault State: phase L2</i> | |
| IL3 | Service / Test - Prot inhib. / Sgen / Configuration / FaultSimulation / CT | |
| 0.0In | 0.00In ... 40.00In | S.3 |
|  | <i>Current Fundamental Magnitude in Fault State: phase L3</i> | |
| IG meas | Service / Test - Prot inhib. / Sgen / Configuration / FaultSimulation / CT | |
| 0.0In | Adjustable range: <ul style="list-style-type: none"> • 0.00In ... 2.500In, If: slot 3 = Current measuring inputs2 • 0.00In ... 25.00In, If: slot 3 ≠ Current measuring inputs2 | S.3 |
|  | <i>Current Fundamental Magnitude in Fault State: IG</i> | |
| phi IL1 | Service / Test - Prot inhib. / Sgen / Configuration / FaultSimulation / CT | |
| 0° | -360° ... 360° | S.3 |
|  | <i>Start Position respectively Start Angle of the Current Phasor during Fault-Phase:phase L1</i> | |
| phi IL2 | Service / Test - Prot inhib. / Sgen / Configuration / FaultSimulation / CT | |
| 240° | -360° ... 360° | S.3 |
|  | <i>Start Position respectively Start Angle of the Current Phasor during Fault-Phase:phase L2</i> | |
| phi IL3 | Service / Test - Prot inhib. / Sgen / Configuration / FaultSimulation / CT | |
| 120° | -360° ... 360° | S.3 |
|  | <i>Start Position respectively Start Angle of the Current Phasor during Fault-Phase:phase L3</i> | |
| phi IG meas | Service / Test - Prot inhib. / Sgen / Configuration / FaultSimulation / CT | |
| 0° | -360° ... 360° | S.3 |
|  | <i>Start Position respectively Start Angle of the Current Phasor during Fault-Phase: IG</i> | |
| IL1 | Service / Test - Prot inhib. / Sgen / Configuration / PostFault / CT | |
| 0.0In | 0.00In ... 40.00In | S.3 |
|  | <i>Current Fundamental Magnitude during Post phase: phase L1</i> | |


| | | |
|---|--|-----|
| IL2 | Service / Test - Prot inhib. / Sgen / Configuration / PostFault / CT | |
| 0.0In | 0.00In ... 40.00In | S.3 |
|  | <i>Current Fundamental Magnitude during Post phase: phase L2</i> | |


| | | |
|---|--|-----|
| IL3 | Service / Test - Prot inhib. / Sgen / Configuration / PostFault / CT | |
| 0.0In | 0.00In ... 40.00In | S.3 |
|  | <i>Current Fundamental Magnitude during Post phase: phase L3</i> | |

| | | |
|---|---|-----|
| IG meas | Service / Test - Prot inhib. / Sgen / Configuration / PostFault / CT | |
| 0.0In | Adjustable range: <ul style="list-style-type: none"> • 0.00In ... 2.500In, If: slot 3 = Current measuring inputs2 • 0.00In ... 25.00In, If: slot 3 ≠ Current measuring inputs2 | S.3 |
|  | <i>Current Fundamental Magnitude during Post phase: IG</i> | |

| | | |
|--|--|-----|
| phi IL1 | Service / Test - Prot inhib. / Sgen / Configuration / PostFault / CT | |
| 0° | -360° ... 360° | S.3 |
|  | <i>Start Position respectively Start Angle of the Current Phasor during Post phase: phase L1</i> | |


| | | |
|---|--|-----|
| phi IL2 | Service / Test - Prot inhib. / Sgen / Configuration / PostFault / CT | |
| 240° | -360° ... 360° | S.3 |
|  | <i>Start Position respectively Start Angle of the Current Phasor during Post phase: phase L2</i> | |


| | | |
|---|--|-----|
| phi IL3 | Service / Test - Prot inhib. / Sgen / Configuration / PostFault / CT | |
| 120° | -360° ... 360° | S.3 |
|  | <i>Start Position respectively Start Angle of the Current Phasor during Post phase: phase L3</i> | |


| | | |
|---|--|-----|
| phi IG meas | Service / Test - Prot inhib. / Sgen / Configuration / PostFault / CT | |
| 0° | -360° ... 360° | S.3 |
|  | <i>Start Position respectively Start Angle of the Current Phasor during Post phase: IG</i> | |


16 Statistics


16.1 Statistics: Global Parameters


| ResFc Max | | Device Para / Statistics / Min / Max | |
|--|---------------------------|--------------------------------------|-----|
| - | - ... Internal test state | Table | S.3 |
|  <i>Resetting of all Maximum values</i> | | | |

| ResFc Min | | Device Para / Statistics / Min / Max | |
|--|---------------------------|--------------------------------------|-----|
| - | - ... Internal test state | Table | S.3 |
|  <i>Resetting of all Minimum values</i> | | | |

| Start I Demand via: | | Device Para / Statistics / Demand / Current Demand | |
|---|--------------------|--|-----|
| Duration | Duration, StartFct | Table | S.3 |
|  <i>Statistics/Demand Management: Start Current demand by the set trigger.</i> | | | |


| Start I Demand Fc | | Device Para / Statistics / Demand / Current Demand | |
|--|---------------------------|--|-----|
| <ul style="list-style-type: none"> Only available if: Start I Demand via: = StartFct | - ... Internal test state | Table | S.3 |
|  <i>If the trigger for Current Demand has been set to "StartFct": Start of the calculation as soon as the assigned signal becomes true.</i> | | | |

| ResFc I Demand | | Device Para / Statistics / Demand / Current Demand | |
|---|---------------------------|--|-----|
| - | - ... Internal test state | Table | S.3 |
|  <i>Resetting of Statistics - Current Demand (avg, peak avg)</i> | | | |

| Duration I Demand | | Device Para / Statistics / Demand / Current Demand | |
|---|--------------|--|-----|
| <ul style="list-style-type: none"> Only available if: Start I Demand via: = Duration | 2 s ... 30 d | Table | S.3 |
| 15 s | | | |
|  <i>Recording time</i> | | | |

16 Statistics

16.2 Statistics: Direct Controls

| Window I Demand | | Device Para / Statistics / Demand / Current Demand | |
|---|-----------------------------|--|-----|
| sliding | sliding, fixed | | S.3 |
| | ↩> Table | | |
|  | Window configuration | | |

16.2 Statistics: Direct Controls


| ResFc all | | Operation / Reset/Acknowledge / Reset | |
|----------------------------------|--|---------------------------------------|-----|
| Inactive | Inactive, Active | | P.1 |
| | ↩> Table | | |
| <input checked="" type="radio"/> | Resetting of all Statistic values (Current Demand, Power Demand, Min, Max) | | |

| ResFc I Demand | | Operation / Reset/Acknowledge / Reset | |
|----------------------------------|--|---------------------------------------|-----|
| Inactive | Inactive, Active | | P.1 |
| | ↩> Table | | |
| <input checked="" type="radio"/> | Resetting of Statistics - Current Demand (avg, peak avg) | | |


| ResFc Min | | Operation / Reset/Acknowledge / Reset | |
|----------------------------------|---------------------------------|---------------------------------------|-----|
| Inactive | Inactive, Active | | P.1 |
| | ↩> Table | | |
| <input checked="" type="radio"/> | Resetting of all Minimum values | | |

| ResFc Max | | Operation / Reset/Acknowledge / Reset | |
|----------------------------------|---------------------------------|---------------------------------------|-----|
| Inactive | Inactive, Active | | P.1 |
| | ↩> Table | | |
| <input checked="" type="radio"/> | Resetting of all Maximum values | | |

16.3 Statistics: Input States

| StartFc I Demand-I | | Operation / Status Display / Statistics | |
|---|--|---|--|
|  | State of the module input: Start of the Statistics of the Current Demand | | |

16.4 Statistics: Signals (Output States)

| ResFc all | | Operation / Status Display / Statistics | |
|---|--|---|--|
|  | Signal: Resetting of all Statistic values (Current Demand, Power Demand, Min, Max) | | |

| | |
|-----------------------|--|
| ResFc I Demand | Operation / Status Display / Statistics |
| ↑↓ | Signal: Resetting of Statistics - Current Demand (avg, peak avg) |
| ResFc Max | Operation / Status Display / Statistics |
| ↑↓ | Signal: Resetting of all Maximum values |
| ResFc Min | Operation / Status Display / Statistics |
| ↑↓ | Signal: Resetting of all Minimum values |

16.5 Statistics: Counters

| | |
|--------------------------|--|
| Res Cr I Demand | Operation / Statistics / Demand / Current Demand |
| # | Number of resets since the last device restart. The timestamp shows date and time of the last reset. |
| Res Cr Min values | Operation / Statistics / Min / Current |
| # | Number of resets since the last device restart. The timestamp shows date and time of the last reset. |
| Res Cr Max values | Operation / Statistics / Max / Current Operation / Statistics / Max / URTD |
| # | Number of resets since the last device restart. The timestamp shows date and time of the last reset. |

17 Selection Lists

17.1 yes/no

Selection list referenced by the following parameters:

- [Sys . Reboot](#)
- [I\[1\] . Superv. only](#)
- [\[...\]](#)

| yes/no | Description |
|--------|-------------|
| no | no |
| yes | yes |

17.2 active/inactive

Selection list referenced by the following parameters:

- [Prot . ExBlo Fc](#)
- [Prot . ExBlo TripCmd Fc](#)
- [SG\[1\] . SGwear Curve Fc](#)
- [MStart . Reversing](#)
- [MStart . ExBlo TripCmd Fc](#)
- [I\[1\] . ExBlo Fc](#)
- [URTD . Function](#)
- [BO Slot X2 . DISARMED](#)
- [BO Slot X2 . DISARMED](#)
- [\[...\]](#)

| active/inactive | Description |
|-----------------|-------------|
| Inactive | Inactive |
| Active | Active |

17.3 Mode

Selection list referenced by the following parameters:

- [Prot . Function](#)
- [Prot . Blo TripCmd](#)
- [Prot . Res FaultNo a GridFaultNo](#)
- [Prot . Reset I-Prot](#)
- [Sys . Ack BO LED Scd Trips](#)
- [Sys . Ack LED](#)
- [\[...\]](#)

| Mode | Description |
|----------|-------------|
| Inactive | Inactive |
| Active | Active |

17.4 True or not true

Selection list referenced by the following parameters:

- [Ctrl . Reset max values](#)
- [Disturb rec . Man Trigger](#)
- [SSV . Ack System LED](#)

| True or not true | Description |
|------------------|-------------|
| False | False |
| True | True |

17.5 Scaling

Referenced by:

- [Sys . Scaling](#)

| Scaling | Description |
|------------------|------------------|
| Per unit values | Per unit values |
| Primary values | Primary values |
| Secondary values | Secondary values |

17.6 PSet-Switch

Referenced by:

- [Sys . PSet-Switch](#)

| PSet-Switch | Description |
|--------------------|---|
| PS1 | The currently active Parameter Set is PS1 |
| PS2 | The currently active Parameter Set is PS2 |
| PS3 | The currently active Parameter Set is PS3 |
| PS4 | The currently active Parameter Set is PS4 |
| PSS via Inp fct | Parameter Set Switch via input function |
| PSS via Scada | Parameter Set Switch via Scada. Write into this output byte the integer of the parameter set that should become active (e.g. 4 => Switch onto parameter set 4). |

17.7 Mode

Referenced by:

- [Sys . Maint Mode](#)

| Mode | Description |
|----------------------|--|
| Inactive | Inactive |
| Activation Manually | Arc Flash Reduction Maintenance Manual Mode |
| Activation via SCADA | Arc Flash Reduction Maintenance SCADA Mode |
| Activation via DI | Arc Flash Reduction Maintenance Digital Input Mode |

17.8 Ack via »C« key

Referenced by:

- [Sys . Ack via »C« key](#)

| Ack via »C« key | Description |
|---------------------|--|
| Nothing | No elements can be simply reset via pressing the »C« key for a long time (ca. 1 second). This has the consequence that pressing the »C« key is only a shortcut to the Acknowledge menu, from which the user has to select the elements to be reset. |
| Ack LEDs w/o passw. | All LEDs are acknowledged (reset) via pressing the »C« key for ca. 1 second. No password has to be entered for this. The reset activity can be recognized from the fact that it always includes an LED test, i.e. all LEDs flash in red color for a second, then flash in green color for a second. |
| Ack LEDs | All LEDs are reset via pressing the »C« key (for ca. 1 second). The reset activity can be recognized from the fact that it always includes an LED test, i.e. all LEDs flash in red color for a second, then flash in green color for a second. |
| Ack LEDs and relays | All LEDs and all acknowledgeable binary output relays are reset via pressing the »C« key (for ca. 1 second). The reset activity can be recognized from the fact that it always includes an LED test, i.e. all LEDs flash in red color for a second, then flash in green color for a second. |
| Ack Everything | All acknowledgeable elements are reset via pressing the »C« key (for ca. 1 second): \n- All LEDs, and \n- all binary output relays, and \n- all latched SCADA signals, and \n- the Trip command. The reset activity can be recognized from the fact that it always includes an LED test, i.e. all LEDs flash in red color for a second, then flash in green color for a second. |

17.9 fN

Referenced by:

- [Field Para . f](#)

| fN | Description |
|----|-----------------|
| 50 | Rated frequency |
| 60 | Rated frequency |

17.10 Phase Sequence

Referenced by:

- [Field Para . Phase Sequence](#)

| Phase Sequence | Description |
|----------------|--|
| ABC | rotating clockwise |
| ACB | Counter-clockwise phase sequence. Positive and negative phase sequence are exchanged and MTA is turned for 180°. |

17.11 Polarity

Selection list referenced by the following parameters:

- [CT . CT dir](#)
- [CT . ECT dir](#)

| Polarity | Description |
|----------|--|
| 0 | 0 |
| 180 | 180 degree polarity correction (wiring faults) |

17.12 Ratio prim/sec

Selection list referenced by the following parameters:

- [CT . CT sec](#)
- [CT . ECT sec](#)

| Ratio prim/sec | Description |
|----------------|--|
| 1 | Rated value of the secondary side of the current transformers. |
| 5 | Rated value of the secondary side of the current transformers. |

17.13 Switching Authority

Selection list referenced by the following parameters:

- [Ctrl . Switching Authority](#)
- [Ctrl . Switching Authority](#)

| Switching Authority | Description |
|---------------------|------------------|
| None | None |
| Local | Local |
| Remote | Remote |
| Local and Remote | Local and Remote |

17.14 NonIL ResetMode

Referenced by:

- [Ctrl . Res NonIL](#)

| NonIL ResetMode | Description |
|------------------|------------------|
| single Operation | single Operation |
| timeout | timeout |
| permanent | permanent |

17.15 Manipulate Position

Referenced by:

- [SG\[1\] . Manipulate Position](#)

| Manipulate Position | Description |
|---------------------|--|
| Inactive | Inactive |
| Pos OFF | Signal: Circuit Breaker is in OFF-Position |
| Pos ON | Signal: Circuit Breaker is in ON-Position |

17.16 1..n, TRN List

Referenced by:

- [MStart . TRN Criterion](#)

| 1..n, TRN List | Description |
|----------------|--------------------------------|
| TRN I | Transition on current only |
| TRN TIME | Transition on time only |
| TRN T and I | Transition on current AND time |
| TRN T or I | Transition on current OR time |

17.17 1..n, InSq

Referenced by:

- [MStart . InSq Fc](#)

| 1..n, InSq | Description |
|-----------------|-----------------------------------|
| Inactive | Inactive |
| InSq Start2Run | INSQ reporting from start-to-run |
| InSq Stop2Start | INSQ reporting from stop-to-start |

17.18 1..n, Zero speed

Referenced by:

- [MStart . ZSS](#)

| 1..n, Zero speed | Description |
|------------------|-------------|
| Inactive | Inactive |
| Active | Active |

17.19 EmgOvr

Referenced by:

- [MStart . EmgOvr](#)

| EmgOvr | Description |
|-----------|--|
| Inactive | Inactive |
| DI | Enable emergency override from digital input DI |
| HMI | Enable emergency override from HMI |
| DI or HMI | Enable emergency override from digital (DI) input or front panel (HMI) |

17.20 I>

Selection list referenced by the following parameters:

- [I\[1\] . Mode](#)

| I> | Description |
|-----------------|-----------------|
| - | Do not use |
| Non-directional | Non-directional |

17.21 Char

Selection list referenced by the following parameters:

- [I\[1\] . Char](#)

| Char | Description |
|------------|---|
| DEFT | DEFT |
| IEC NINV | IEC Normal Inverse |
| IEC VINV | IEC Very Inverse [VINV] |
| IEC EINV | IEC Extremely Inverse - Characteristic |
| IEC LINV | IEC Long Time Inverse - Characteristic [LINV] |
| RINV | R Inverse [RINV] - Characteristic |
| ANSI MINV | ANSI Moderately Inverse [MINV] - Characteristic |
| ANSI VINV | ANSI Very Inverse [VINV] |
| ANSI EINV | ANSI Extremely Inverse - Characteristic |
| Therm Flat | Therm Flat [TF] - Characteristic |
| IT | IT - Characteristic |
| I2T | I2T - Characteristic |
| I4T | I4T - Characteristic |

17.22 Reset Mode

Selection list referenced by the following parameters:

- [I\[1\] . Reset Mode](#)
- [IG\[1\] . Reset Mode](#)

| Reset Mode | Description |
|---------------|--|
| instantaneous | Instantaneous reset: when the current drops below the pickup setting, the TOC time resets to zero within 2 cycles. |
| definite time | Reset after a fixed time.\n(Remark: This delay is then defined by the parameter »t-reset delay«.) |
| inverse time | Calculated reset, based on the selected characteristic. |

17.23 Measuring method

Selection list referenced by the following parameters:

- [I\[1\] . Measuring method](#)

| Measuring method | Description |
|------------------|--|
| Fundamental | Protection is based on Fundamental (1st. Harmonic) |
| True RMS | Protection is based on root-mean-square value (True RMS) |
| I2 | Protection is based on negative phase sequence current |

17.24 Earth overcurrent

Selection list referenced by the following parameters:

- [IG\[1\] . Mode](#)

| Earth overcurrent | Description |
|-------------------|-----------------|
| - | Do not use |
| Non-directional | Non-directional |

17.25 Char

Selection list referenced by the following parameters:

- [IG\[1\] . Char](#)

| Char | Description |
|------------|---|
| DEFT | DEFT |
| IEC NINV | IEC Normal Inverse |
| IEC VINV | IEC Very Inverse [VINV] |
| IEC EINV | IEC Extremely Inverse - Characteristic |
| IEC LINV | IEC Long Time Inverse - Characteristic [LINV] |
| RINV | R Inverse [RINV] - Characteristic |
| ANSI MINV | ANSI Moderately Inverse [MINV] - Characteristic |
| ANSI VINV | ANSI Very Inverse [VINV] |
| ANSI EINV | ANSI Extremely Inverse - Characteristic |
| Therm Flat | Therm Flat [TF] - Characteristic |
| IT | IT - Characteristic |
| I2T | I2T - Characteristic |
| I4T | I4T - Characteristic |
| RXIDG | Special Overcurrent Curve |

17.26 Measuring method

Selection list referenced by the following parameters:

- [IG\[1\] . Measuring method](#)

| Measuring method | Description |
|------------------|--|
| Fundamental | Protection is based on Fundamental (1st. Harmonic) |
| True RMS | Protection is based on root-mean-square value (True RMS) |

17.27 Mode

Selection list referenced by the following parameters:

- [Jam\[1\] . Mode](#)
- [I<\[1\] . Mode](#)
- [MLS . Mode](#)
- [SysA . Mode](#)
- [Syslog . Mode](#)
- [IRIG-B . Mode](#)
- [SNTP . Mode](#)
- [Sgen . Mode](#)

| Mode | Description |
|------|-------------|
| - | Do not use |
| use | use |

17.28 Alarm Mode

Selection list referenced by the following parameters:

- [I<\[1\] . Alarm Mode](#)

| Alarm Mode | Description |
|------------|---|
| any one | any one: Trip Command, if the tripping criterion is fulfilled within at least one phase. |
| all | all: Trip Command for 3p-faults, i.e. if the tripping criterion is fulfilled in all three phases. |

17.29 Device planning

Selection list referenced by the following parameters:

- I2>[1] . Mode
- ExP[1] . Mode
- RTD . Mode
- CBF . Mode
- TCS . Mode
- CTS . Mode

| Device planning | Description |
|-----------------|-------------|
| - | Do not use |
| use | use |

17.30 Char

Selection list referenced by the following parameters:

- I2>[1] . Char

| Char | Description |
|------|-------------|
| DEFT | DEFT |
| INV | INV |

17.31 Mode

Selection list referenced by the following parameters:

- URTD . Force Mode
- BO Slot X2 . Disarm Mode
- BO Slot X2 . Force Mode
- BO Slot X2 . Disarm Mode
- BO Slot X2 . Force Mode

| Mode | Description |
|-----------|-------------|
| permanent | permanent |
| timeout | timeout |

17.32 Units

Referenced by:

- [URTD . Temperature Unit](#)

| Units | Description |
|------------|-------------|
| Celsius | Celsius |
| Fahrenheit | Fahrenheit |

17.33 TripCmd Selection

Referenced by:

- [RTD . TripCmd Selection](#)

| TripCmd Selection | Description |
|-------------------|--|
| Trip | Default RTD Trip |
| Voting Trip | Voting Trip. Trip if one of the voting groups has a pending/active trip. |

17.34 Trigger

Referenced by:

- [CBF . Trigger](#)

| Trigger | Description |
|-------------------|--|
| - . - | no assignment |
| All TripCmds | All trip commands that are assigned to this breaker (within the trip manager) will start the BF module. |
| External TripCmds | All external trip commands that are assigned to this breaker (within the trip manager) will start the BF module. |
| Current TripCmds | All current trip commands that are assigned to this breaker (within the trip manager) will start the BF module. |

17.35 Scheme

Referenced by:

- [CBF . Scheme](#)

| Scheme | Description |
|-----------------|---|
| 50BF | A Breaker Failure is detected, if the measured currents do not fall below a settable threshold within a settable time interval. |
| CB Pos | A Circuit Breaker Failure is detected after a CB open command, if the Position Contacts of the Circuit Breaker do not allow the conclusion that the Breaker is now in the Open Position within a settable time interval. |
| 50BF and CB Pos | A Circuit Breaker Failure is detected if the evaluation of the Position Indicators or the evaluation of the current measurement indicate that the CB Off-Command was not executed. This scheme is called "Minimal Current Scheme" according to IEEEC37.119. |

17.36 Mode

Referenced by:

- [TCS . Mode](#)

| Mode | Description |
|--------|--|
| Closed | Selects that the breaker is going to be monitored when the breaker is closed. |
| Either | Selects that the breaker is going to be monitored when the breaker is either closed or open. |

17.37 Nom voltage

Selection list referenced by the following parameters:

- [DI Slot X1 . Nom voltage](#)
- [DI Slot X1 . Nom voltage](#)
- [DI Slot X1 . Nom voltage](#)
- [DI Slot X1 . Nom voltage](#)

| Nom voltage | Description |
|-------------|-------------|
| 24 VDC | 24 VDC |
| 48 VDC | 48 VDC |
| 60 VDC | 60 VDC |
| 110 VDC | 110 VDC |
| 230 VDC | 230 VDC |
| 110 VAC | 110 VAC |
| 230 VAC | 230 VAC |

17.38 Debouncing time

Selection list referenced by the following parameters:

- DI Slot X1 . Debouncing time 1
- DI Slot X1 . Debouncing time 2
- DI Slot X1 . Debouncing time 3
- DI Slot X1 . Debouncing time 4
- DI Slot X1 . Debouncing time 5
- DI Slot X1 . Debouncing time 6
- DI Slot X1 . Debouncing time 3
- DI Slot X1 . Debouncing time 4
- DI Slot X1 . Debouncing time 1
- DI Slot X1 . Debouncing time 2
- DI Slot X1 . Debouncing time 3
- DI Slot X1 . Debouncing time 4
- [...]

| Debouncing time | Description |
|--------------------|--------------------|
| no debouncing time | no debouncing time |
| 20 ms | 20 ms |
| 50 ms | 50 ms |
| 100 ms | 100 ms |

17.39 Relay operating modes

Selection list referenced by the following parameters:

- BO Slot X2 . Force all Outs
- BO Slot X2 . Force OR1
- BO Slot X2 . Force all Outs
- BO Slot X2 . Force OR1

| Relay operating modes | Description |
|-----------------------|--------------|
| Normal | Normal |
| De-Energized | De-Energized |
| Energized | Energized |

17.40 1...n Operating Modes

Selection list referenced by the following parameters:

- [BO Slot X2 . Operating Mode](#)
- [BO Slot X2 . Operating Mode](#)
- [BO Slot X2 . Operating Mode](#)
- [BO Slot X2 . Operating Mode](#)
- [BO Slot X2 . Operating Mode](#)
- [BO Slot X2 . Operating Mode](#)
- [BO Slot X2 . Operating Mode](#)
- [BO Slot X2 . Operating Mode](#)
- [BO Slot X2 . Operating Mode](#)

| 1...n Operating Modes | Description |
|-----------------------|--|
| Normally open (NO) | The working principle of the relay corresponds to a normally open contact. |
| Normally closed (NC) | The working principle of the relay corresponds to a normally closed contact. |

17.41 Type of Output

Referenced by:

- [AnOut\[1\] . Range](#)

| Type of Output | Description |
|----------------|-------------|
| 0...20mA | 0...20mA |
| 4...20mA | 4...20mA |

17.42 Disarm

Referenced by:

- [AnOut\[1\] . Force Mode](#)

| Disarm | Description |
|-----------|-------------|
| permanent | permanent |
| timeout | timeout |

17.43 Active

Referenced by:

- [AnOut\[1\] . Function](#)

| Active | Description |
|----------|-------------|
| Inactive | Inactive |
| Active | Active |

17.44 Mode

Selection list referenced by the following parameters:

- [LEDs group A . Latched](#)
- [LEDs group A . Latched](#)
- [LEDs group A . Latched](#)
- [LEDs group A . Latched](#)
- [LEDs group A . Latched](#)
- [LEDs group A . Latched](#)
- [LEDs group A . Latched](#)
- [\[...\]](#)

| Mode | Description |
|-----------------------|---|
| Inactive | Inactive |
| Active | Active |
| active, ack. by alarm | Latching of LEDs is active, but will be acknowledged (reset) automatically (by the »Prot« module) in case of a General Alarm. |

17.45 LED active color

Selection list referenced by the following parameters:

- [LEDs group A . LED active color](#)
- [LEDs group A . LED inactive color](#)
- [LEDs group A . LED active color](#)
- [LEDs group A . LED inactive color](#)
- [LEDs group A . LED active color](#)
- [LEDs group A . LED inactive color](#)
- [\[... \]](#)

| LED active color | Description |
|------------------|----------------|
| green | green |
| red | red |
| red flash | red flashing |
| green flash | green blinking |
| - | No assignment |

17.46 Rec state

Referenced by:

- [Disturb rec . Rec state](#)

| Rec state | Description |
|--------------|---|
| Ready | Ready |
| Recording | Recording |
| Writing file | Signal: Writing file |
| Trigger Blo | Trigger signal is still active - wait for fallback. A new record can only be started if and only the trigger signal that started the previous record has fallen back once. Therewith endless records are prevented. |

17.47 Fault

Referenced by:

- [Disturb rec . Error code](#)

| Fault | Description |
|----------------------|---|
| OK | OK |
| Write err | Signal: Writing error in memory |
| Clear fail | Signal: Clear failure in memory |
| Calculation err | Calculation error |
| File not found | File not found |
| Auto overwriting off | If there is no more memory available the record is being stopped. |

17.48 Record-Mode

Referenced by:

- [Fault rec . Record-Mode](#)

| Record-Mode | Description |
|------------------|---|
| Alarms and Trips | A recording is started in case of an alarm or a trip. |
| Trips only | A recording is started only in case of a trip. |

17.49 Resolution

Referenced by:

- [Trend rec . Resolution](#)

| Resolution | Description |
|------------|------------------------|
| 60 min | Add next entry: 60 min |
| 30 min | Add next entry: 30 min |
| 15 min | Add next entry: 15 min |
| 10 min | Add next entry: 10 min |
| 5 min | Add next entry: 5 min |
| 1 min | Add next entry: 1 min |

17.50 Resolution

Referenced by:

- [Start rec . Resolution](#)

| Resolution | Description |
|------------|--------------------------|
| 50ms | The resolution is: 50ms |
| 100ms | The resolution is: 100ms |
| 1s | The resolution is: 1s |

17.51 TLS Certificate

Referenced by:

- [Sys . TLS Certificate](#)

| TLS Certificate | Description |
|-----------------|---|
| Device-specific | The device uses a device-specific certificate for the encrypted communication. This corresponds to the highest security-level of the communication. |
| Basic | The device uses a basic certificate for the encrypted communication. Compared with a device-specific certificate, this means a slightly reduced security level. |
| Corrupt | The certificate for the encrypted communication is corrupt and therefore unusable. |

17.52 Type of passw. def.

Selection list referenced by the following parameters:

- [Sys . Passw.remote net.conn.](#)
- [Sys . Passw. for USB conn.](#)

| Type of passw. def. | Description |
|---------------------|--|
| disabled | The password disabled. |
| default | The password is the same as the factory default, i.e. it has not been altered by the user. (However, for devices with a disabled default password the password type is displayed as “disabled”, not as “default”.) |
| def. by user | The password has been defined by the user. This corresponds to the highest security-level of the access to the device. |

17.53 Conf. Dev. Reset

Selection list referenced by the following parameters:

- [HMI . Conf. Dev. Reset](#)
- [HMI . Conf. Dev. Reset](#)

| Conf. Dev. Reset | Description |
|-----------------------|---|
| "Fact.def.", "PW rst" | Two Reset Options shall be available:\n- "Reset to factory defaults",\n- "Reset passwords". |
| Only "Fact.defaults" | Only one Reset Option shall be available:\n- "Reset to factory defaults".\nCAUTION: If this option has been chosen and the password should ever get lost then the only chance to recover control is to reset the protection device to factory defaults. |
| Reset deact. | The Reset Options shall be deactivated.\nCAUTION: If this option has been chosen and the password should ever get lost, then the protection device has to be sent to the manufacturer as a service request. |

17.54 Baud rate

Referenced by:

- [DNP3 . Baud rate](#)

| Baud rate | Description |
|-----------|-------------|
| 1200 | 1200 |
| 2400 | 2400 |
| 4800 | 4800 |
| 9600 | 9600 |
| 19200 | 19200 |
| 38400 | 38400 |
| 57600 | 57600 |
| 115200 | 115200 |

17.55 Byte Frame

Selection list referenced by the following parameters:

- [DNP3 . Frame Layout](#)
- [Modbus . Physical Settings](#)
- [IEC103 . Physical Settings](#)

| Byte Frame | Description |
|------------|--------------------------------------|
| 8E1 | 8 data bits, even parity, 1 stopbit. |
| 8O1 | 8 data bits, odd, 1 stopbit. |
| 8N1 | 8 data bits, no parity, 1 stopbit. |
| 8N2 | 8 data bits, no parity, 2 stopbits. |

17.56 Optical rest position

Selection list referenced by the following parameters:

- [DNP3 . Optical rest position](#)
- [Modbus . Optical rest position](#)

| Optical rest position | Description |
|-----------------------|-------------|
| Light off | Light off |
| Light on | Light on |

17.57 Communication Start Variants

Referenced by:

- [DNP3 . DataLink confirm](#)

| Communication Start Variants | Description |
|------------------------------|---|
| Never | Option Never is recommended |
| Always | If this variable is set to Always then LinkLayer needs to establish a connection before sending any Frame. |
| On_Large | If set to On_Large then a connection needs to be established before sending the first Frame of a multi Term Message |

17.58 _AL_ResponseType_k

Referenced by:

- [DNP3 . AppLink confirm](#)

| _AL_ResponseType_k | Description |
|--------------------|-------------|
| Never | Never |
| Always | Always |
| Event | Event |

17.59 Scale Factor

Referenced by:

- [DNP3 . Scale Factor 0](#)
- [\[...\]](#)

| Scale Factor | Description |
|--------------|-------------|
| 0.001 | 0.001 |
| 0.01 | 0.01 |
| 0.1 | 0.1 |
| 1 | 1 |
| 10 | 10 |
| 100 | 100 |
| 1000 | 1000 |
| 10000 | 10000 |
| 100000 | 100000 |
| 1000000 | 1000000 |

17.60 Baud rate

Referenced by:

- [Modbus . Baud rate](#)

| Baud rate | Description |
|-----------|-------------|
| 1200 | 1200 |
| 2400 | 2400 |
| 4800 | 4800 |
| 9600 | 9600 |
| 19200 | 19200 |
| 38400 | 38400 |

17.61 Port selection

Selection list referenced by the following parameters:

- [Modbus . TCP Port Config](#)
- [IEC104 . TCP Port Config](#)

| Port selection | Description |
|----------------|--------------|
| Default | Default Port |
| Private | Private Port |

17.62 Type of SCADA mapping

Selection list referenced by the following parameters:

- [Modbus . Type of SCADA mapping](#)
- [IEC103 . Type of SCADA mapping](#)
- [IEC104 . Type of SCADA mapping](#)
- [Profibus . Type of SCADA mapping](#)

| Type of SCADA mapping | Description |
|-----------------------|--------------------------------------|
| Standard | Default mapping of data objects |
| User-defined | User-defined mapping of data objects |

17.63 Config status

Selection list referenced by the following parameters:

- [Modbus . Config status](#)
- [IEC103 . Config status](#)
- [IEC104 . Config status](#)
- [Profibus . Config status](#)

| Config status | Description |
|--------------------|---|
| Changing | New SCADA configuration is being loaded, but not active yet. |
| OK | The SCADA configuration is active. |
| Config. not avail. | The user-defined SCADA configuration is not available (e.g. has not been loaded into the device). |
| Error | Unexpected error. Please contact our service-team. |

17.64 1..n, OnOffList

Referenced by:

- [IEC 61850 . Function](#)

| 1..n, OnOffList | Description |
|-----------------|-------------|
| Inactive | Inactive |
| Active | Active |

17.65 State

Selection list referenced by the following parameters:

- [IEC 61850 . GoosePublisherState](#)
- [IEC 61850 . GooseSubscriberState](#)
- [IEC 61850 . MmsServerState](#)

| State | Description |
|-------|-------------|
| Off | Off |
| On | On |
| Error | Error |

17.66 Baud rate

Referenced by:

- [IEC103 . Baud rate](#)

| Baud rate | Description |
|-----------|-------------|
| 1200 | 1200 |
| 2400 | 2400 |
| 4800 | 4800 |
| 9600 | 9600 |
| 19200 | 19200 |
| 38400 | 38400 |
| 57600 | 57600 |

17.67 Timezone

Selection list referenced by the following parameters:

- [IEC103 . Timezone](#)
- [IEC104 . Timezone](#)

| Timezone | Description |
|------------|---|
| UTC | UTC |
| Local Time | Local time according to the »Time Zones« setting (in Device Parameters) (incl. daylight saving settings). |

17.68 PNO Id

Referenced by:

- [Profibus . PNO Id](#)

| PNO Id | Description |
|--------|-----------------------------|
| 0C50h | PnodID for the Config file. |

17.69 Baud rate

Referenced by:

- [Profibus . Baud rate](#)

| Baud rate | Description |
|-------------|-------------|
| 12 Mb/s | 12 Mb/s |
| 6 Mb/s | 6 Mb/s |
| 3 Mb/s | 3 Mb/s |
| 1.5 Mb/s | 1.5 Mb/s |
| 0.5 Mb/s | 0.5 Mb/s |
| 187500 baud | 187500 baud |
| 93750 baud | 93750 baud |
| 45450 baud | 45450 baud |
| 19200 baud | 19200 baud |
| 9600 baud | 9600 baud |
| -- | -- |

17.70 State

Referenced by:

- [Profibus . Slave State](#)

| State | Description |
|---------------|---|
| Baud Search | No connection to the PROFIBUS-DP Master |
| Baud Found | The PROFIBUS DP Slave is connected to the bus. The Slave has not yet been addressed by the Master Device (and it was not yet addressed since the last break of the connection). |
| PRM OK | The slave was addressed by the master, the parameter setting message was received and is OK, a configuration message is expected from the master. |
| PRM REQ | The slave is no longer addressed by the master (modified parameters within the master without having the connection stopped, master software is tuned off but lower PROFIBUS layer is still active) |
| PRM Fault | An Error in the parameter setting message (e.g. wrong PNO identification number) |
| CFG Fault | Configuration error the number of input/output bytes parameterised in the master does not match the number parametrised in the device (slave). |
| Clear Data | Master sends a General Control command to clear the data. |
| Data exchange | Master and slave exchange data. |

17.71 IRIG-B00X

Referenced by:

- [IRIG-B . IRIG-B00X](#)

| IRIG-B00X | Description |
|-----------|---------------------------------------|
| IRIGB-000 | Please refer to: IRIG STANDARD 200-04 |
| IRIGB-001 | Please refer to: IRIG STANDARD 200-04 |
| IRIGB-002 | Please refer to: IRIG STANDARD 200-04 |
| IRIGB-003 | Please refer to: IRIG STANDARD 200-04 |
| IRIGB-004 | Please refer to: IRIG STANDARD 200-04 |
| IRIGB-005 | Please refer to: IRIG STANDARD 200-04 |
| IRIGB-006 | Please refer to: IRIG STANDARD 200-04 |
| IRIGB-007 | Please refer to: IRIG STANDARD 200-04 |

17.72 Server State

Referenced by:

- [SNTP . Used Server](#)

| Server State | Description |
|--------------|-----------------|
| Server1 | Server1 used. |
| Server2 | Server2 used. |
| None | No Server used. |

17.73 State

Selection list referenced by the following parameters:

- [SNTP . ServerQty](#)
- [SNTP . NetConn](#)

| State | Description |
|------------|---------------|
| GOOD | GOOD |
| SUFFICIENT | SUFFICIENT |
| BAD | BAD |
| - | NO CONNECTION |

17.74 Time Zones

Referenced by:

• TimeSync . Time Zones

| Time Zones | Description |
|---------------------------|---------------------------|
| UTC+14 Kiritimati | UTC+14 Kiritimati |
| UTC+13 Rawaki | UTC+13 Rawaki |
| UTC+12.75 Chatham Island | UTC+12.75 Chatham Island |
| UTC+12 Wellington | UTC+12 Wellington |
| UTC+11.5 Kingston | UTC+11.5 Kingston |
| UTC+11 Port Vila | UTC+11 Port Vila |
| UTC+10.5 Lord Howe Island | UTC+10.5 Lord Howe Island |
| UTC+10 Sydney | UTC+10 Sydney |
| UTC+9.5 Adelaide | UTC+9.5 Adelaide |
| UTC+9 Tokyo | UTC+9 Tokyo |
| UTC+8 Hong Kong | UTC+8 Hong Kong |
| UTC+7 Bangkok | UTC+7 Bangkok |
| UTC+6.5 Rangoon | UTC+6.5 Rangoon |
| UTC+6 Colombo | UTC+6 Colombo |
| UTC+5.75 Kathmandu | UTC+5.75 Kathmandu |
| UTC+5.5 New Delhi | UTC+5.5 New Delhi |
| UTC+5 Islamabad | UTC+5 Islamabad |
| UTC+4.5 Kabul | UTC+4.5 Kabul |
| UTC+4 Abu Dhabi | UTC+4 Abu Dhabi |
| UTC+3.5 Tehran | UTC+3.5 Tehran |
| UTC+3 Moscow | UTC+3 Moscow |
| UTC+2 Athens | UTC+2 Athens |
| UTC+1 Berlin | UTC+1 Berlin |
| UTC+0 London | UTC+0 London |
| UTC-1 Azores | UTC-1 Azores |
| UTC-2 Fern. d. Noronha | UTC-2 Fern. d. Noronha |
| UTC-3 Buenos Aires | UTC-3 Buenos Aires |
| UTC-3.5 St. John's | UTC-3.5 St. John's |
| UTC-4 Santiago | UTC-4 Santiago |
| UTC-5 New York | UTC-5 New York |
| UTC-6 Chicago | UTC-6 Chicago |
| UTC-7 Salt Lake City | UTC-7 Salt Lake City |
| UTC-8 Los Angeles | UTC-8 Los Angeles |
| UTC-9 Anchorage | UTC-9 Anchorage |
| UTC-9.5 Taiohae | UTC-9.5 Taiohae |
| UTC-10 Honolulu | UTC-10 Honolulu |

| Time Zones | Description |
|-----------------------|-----------------------|
| UTC-11 Midway Islands | UTC-11 Midway Islands |

17.75 Month of clock change

Selection list referenced by the following parameters:

- [TimeSync . Summertime m](#)
- [TimeSync . Wintertime m](#)

| Month of clock change | Description |
|-----------------------|-------------|
| January | January |
| February | February |
| March | March |
| April | April |
| May | May |
| June | June |
| July | July |
| August | August |
| September | September |
| October | October |
| November | November |
| December | December |

17.76 Date

Selection list referenced by the following parameters:

- [TimeSync . Summertime d](#)
- [TimeSync . Wintertime d](#)

| Date | Description |
|-------------|--|
| Sunday | Sunday |
| Monday | Monday |
| Tuesday | Tuesday |
| Wednesday | Wednesday |
| Thursday | Thursday |
| Friday | Friday |
| Saturday | Saturday |
| General day | General day: Examples: first day of month, last day of month |

17.77 Day of clock change

Selection list referenced by the following parameters:

- [TimeSync . Summertime w](#)
- [TimeSync . Wintertime w](#)

| Day of clock change | Description |
|---------------------|--------------------------|
| First | First week of the month |
| Second | Second week of the month |
| Third | Third week of the month |
| Fourth | Fourth week of the month |
| Last | Last week of the month |

17.78 Duration

Referenced by:

- [Statistics . Start I Demand via:](#)

| Duration | Description |
|----------|----------------|
| Duration | Recording time |
| StartFct | Start function |

17.79 Duration

Referenced by:

- [Statistics . Duration I Demand](#)

| Duration | Description |
|----------|-------------|
| 2 s | s |
| 5 s | s |
| 10 s | s |
| 15 s | seconds |
| 30 s | seconds |
| 1 min | minute |
| 5 min | minute |
| 10 min | minute |
| 15 min | minute |
| 30 min | minute |
| 1 h | Hours |
| 2 h | Hours |
| 6 h | Hours |
| 12 h | Hours |
| 1 d | days |
| 2 d | days |
| 5 d | days |
| 7 d | days |
| 10 d | days |
| 30 d | days |

17.80 Window configuration

Referenced by:

- [Statistics . Window I Demand](#)

| Window configuration | Description |
|----------------------|---|
| sliding | Moving mean: Continuously the newest measuring value is added and the oldest measuring value is removed from the moving mean (average value). |
| fixed | The average value is calculated for a fixed window. |

17.81 No of Equations:

Referenced by:

- [Logics . No of Equations:](#)

| No of Equations: | Description |
|------------------|-------------|
| 0 | 0 |
| 5 | 5 |
| 10 | 10 |
| 20 | 20 |
| 40 | 40 |
| 80 | 80 |

17.82 LE1.Gate

Referenced by:

- [Logics . LE1.Gate](#)

| LE1.Gate | Description |
|----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.83 LE2.Gate

Referenced by:

| LE2.Gate | Description |
|----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.84 LE3.Gate

Referenced by:

| LE3.Gate | Description |
|----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.85 LE4.Gate

Referenced by:

| LE4.Gate | Description |
|----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.86 LE5.Gate

Referenced by:

| LE5.Gate | Description |
|----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.87 LE6.Gate

Referenced by:

| LE6.Gate | Description |
|----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.88 LE7.Gate

Referenced by:

| LE7.Gate | Description |
|----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.89 LE8.Gate

Referenced by:

| LE8.Gate | Description |
|----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.90 LE9.Gate

Referenced by:

| LE9.Gate | Description |
|----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.91 LE10.Gate

Referenced by:

| LE10.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.92 LE11.Gate

Referenced by:

| LE11.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.93 LE12.Gate

Referenced by:

| LE12.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.94 LE13.Gate

Referenced by:

| LE13.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.95 LE14.Gate

Referenced by:

| LE14.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.96 LE15.Gate

Referenced by:

| LE15.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.97 LE16.Gate

Referenced by:

| LE16.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.98 LE17.Gate

Referenced by:

| LE17.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.99 LE18.Gate

Referenced by:

| LE18.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.100 LE19.Gate

Referenced by:

| LE19.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.101 LE20.Gate

Referenced by:

| LE20.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.102 LE21.Gate

Referenced by:

| LE21.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.103 LE22.Gate

Referenced by:

| LE22.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.104 LE23.Gate

Referenced by:

| LE23.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.105 LE24.Gate

Referenced by:

| LE24.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.106 LE25.Gate

Referenced by:

| LE25.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.107 LE26.Gate

Referenced by:

| LE26.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.108 LE27.Gate

Referenced by:

| LE27.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.109 LE28.Gate

Referenced by:

| LE28.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.110 LE29.Gate

Referenced by:

| LE29.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.111 LE30.Gate

Referenced by:

| LE30.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.112 LE31.Gate

Referenced by:

| LE31.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.113 LE32.Gate

Referenced by:

| LE32.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.114 LE33.Gate

Referenced by:

| LE33.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.115 LE34.Gate

Referenced by:

| LE34.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.116 LE35.Gate

Referenced by:

| LE35.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.117 LE36.Gate

Referenced by:

| LE36.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.118 LE37.Gate

Referenced by:

| LE37.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.119 LE38.Gate

Referenced by:

| LE38.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.120 LE39.Gate

Referenced by:

| LE39.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.121 LE40.Gate

Referenced by:

| LE40.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.122 LE41.Gate

Referenced by:

| LE41.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.123 LE42.Gate

Referenced by:

| LE42.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.124 LE43.Gate

Referenced by:

| LE43.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.125 LE44.Gate

Referenced by:

| LE44.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.126 LE45.Gate

Referenced by:

| LE45.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.127 LE46.Gate

Referenced by:

| LE46.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.128 LE47.Gate

Referenced by:

| LE47.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.129 LE48.Gate

Referenced by:

| LE48.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.130 LE49.Gate

Referenced by:

| LE49.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.131 LE50.Gate

Referenced by:

| LE50.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.132 LE51.Gate

Referenced by:

| LE51.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.133 LE52.Gate

Referenced by:

| LE52.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.134 LE53.Gate

Referenced by:

| LE53.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.135 LE54.Gate

Referenced by:

| LE54.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.136 LE55.Gate

Referenced by:

| LE55.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.137 LE56.Gate

Referenced by:

| LE56.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.138 LE57.Gate

Referenced by:

| LE57.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.139 LE58.Gate

Referenced by:

| LE58.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.140 LE59.Gate

Referenced by:

| LE59.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.141 LE60.Gate

Referenced by:

| LE60.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.142 LE61.Gate

Referenced by:

| LE61.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.143 LE62.Gate

Referenced by:

| LE62.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.144 LE63.Gate

Referenced by:

| LE63.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.145 LE64.Gate

Referenced by:

| LE64.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.146 LE65.Gate

Referenced by:

| LE65.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.147 LE66.Gate

Referenced by:

| LE66.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.148 LE67.Gate

Referenced by:

| LE67.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.149 LE68.Gate

Referenced by:

| LE68.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.150 LE69.Gate

Referenced by:

| LE69.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.151 LE70.Gate

Referenced by:

| LE70.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.152 LE71.Gate

Referenced by:

| LE71.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.153 LE72.Gate

Referenced by:

| LE72.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.154 LE73.Gate

Referenced by:

| LE73.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.155 LE74.Gate

Referenced by:

| LE74.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.156 LE75.Gate

Referenced by:

| LE75.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.157 LE76.Gate

Referenced by:

| LE76.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.158 LE77.Gate

Referenced by:

| LE77.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.159 LE78.Gate

Referenced by:

| LE78.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.160 LE79.Gate

Referenced by:

| LE79.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.161 LE80.Gate

Referenced by:

| LE80.Gate | Description |
|-----------|-------------|
| AND | AND Gate |
| OR | OR Gate |
| NAND | NAND Gate |
| NOR | NOR Gate |

17.162 TripCmd Mode

Referenced by:

- [Sgen . TripCmd Mode](#)

| TripCmd Mode | Description |
|--------------|---|
| No TripCmd | No Trip Command: The TripCmd of all protection functions is blocked. The protection function will possibly trip but not generate a TripCmd. |
| With TripCmd | With Trip Command: The trip of a protection function generates a TripCmd, that can open the circuit breaker. |

17.163 State

Referenced by:

- [Sgen . State](#)

| State | Description |
|-----------------|------------------------------|
| Off | Off |
| PreFault | Pre Fault Duration |
| FaultSimulation | Duration of Fault Simulation |
| PostFault | Post Fault Duration |
| Init Res | Init Reset |

17.164 1..n, Assignment List

Selection list referenced by the following parameters:

- [Prot . ExBlo1](#)
- [Prot . ExBlo TripCmd](#)
- [Sys . Ack LED](#)
- [Sys . Ack BO](#)
- [Sys . Ack Scada](#)
- [\[...\]](#)

| 1..n, Assignment List | Description |
|-----------------------|---|
| - | No assignment |
| available | Signal: Protection is available |
| Active | Signal: active |
| ExBlo | Signal: External Blocking |
| Blo TripCmd | Signal: Trip Command blocked |
| ExBlo TripCmd | Signal: External Blocking of the Trip Command |
| Alarm L1 | Signal: General-Alarm L1 |
| Alarm L2 | Signal: General-Alarm L2 |
| Alarm L3 | Signal: General-Alarm L3 |
| Alarm G | Signal: General-Alarm - Earth fault |
| Alarm | Signal: General Alarm |
| Trip L1 | Signal: General Trip L1 |
| Trip L2 | Signal: General Trip L2 |
| Trip L3 | Signal: General Trip L3 |
| Trip G | Signal: General Trip Ground fault |
| Trip | Signal: General Trip |

| 1..n, Assignment List | Description |
|---------------------------|---|
| Res FaultNo a GridFaultNo | Signal: Resetting of fault number and grid fault number. |
| ExBlo1-I | Module input state: External blocking1 |
| ExBlo2-I | Module input state: External blocking2 |
| ExBlo TripCmd-I | Module input state: External Blocking of the Trip Command |
| Phase seq. wrong | Signal that the device has detected a phase sequence (L1-L2-L3 / L1-L3-L2) that is different from the one that had been set at [Field settings / General Settings] »Phase Sequence«. |
| Local | Switching Authority: Local |
| Remote | Switching Authority: Remote |
| NonInterl | Non-Interlocking is active |
| SG Indeterm | (At least one) Switchgear is moving (Position cannot be determined). |
| SG Disturb | (At least one) Switchgear is disturbed. |
| NonInterl-I | Non-Interlocking |
| SI SingleContactInd | Signal: The Position of the Switchgear is detected by one auxiliary contact (pole) only. Thus indeterminate and disturbed Positions cannot be detected. |
| Pos not ON | Signal: Pos not ON |
| Pos ON | Signal: Circuit Breaker is in ON-Position |
| Pos OFF | Signal: Circuit Breaker is in OFF-Position |
| Pos Indeterm | Signal: Circuit Breaker is in Indeterminate Position |
| Pos Disturb | Signal: Circuit Breaker Disturbed - Undefined Breaker Position. The Position Indicators contradict themselves. After expiring of a supervision timer this signal becomes true. |
| Ready | Signal: Circuit breaker is ready for operation. |
| t-Dwell | Signal: Dwell time |
| Removed | Signal: The withdrawable circuit breaker is Removed |
| Interl ON | Signal: One or more IL_On inputs are active. |
| Interl OFF | Signal: One or more IL_Off inputs are active. |
| CES succesf | Signal: Command Execution Supervision: Switching command executed successfully. |
| CES Disturbed | Signal: Command Execution Supervision: Switching Command unsuccessful. Switchgear in disturbed position. |
| CES Fail TripCmd | Signal: Command Execution Supervision: Command execution failed because trip command is pending. |
| CES SwitchDir | Signal: Command Execution Supervision respectively Switching Direction Control: This signal becomes true, if a switch command is issued even though the switchgear is already in the requested position. Example: A switchgear that is already OFF should be switched OFF again (doubly). The same applies to CLOSE commands. |
| CES ON d OFF | Signal: Command Execution Supervision: On Command during a pending OFF Command. |
| CES SG not ready | Signal: Command Execution Supervision: Switchgear not ready |
| CES Fiel Interl | Signal: Command Execution Supervision: Switching Command not executed because of field interlocking. |
| CES SG removed | Signal: Command Execution Supervision: Switching Command unsuccessful, Switchgear removed. |
| TripCmd | Signal: Trip Command |
| Ack TripCmd | Signal: Acknowledge Trip Command |

| 1..n, Assignment List | Description |
|-----------------------|---|
| OFF incl TripCmd | Signal: The OFF Command includes the OFF Command issued by the Protection module. |
| Position Ind manipul | Signal: Position Indicators faked |
| SGwear Slow SG | Signal: Alarm, the circuit breaker (load-break switch) becomes slower |
| Res SGwear SI SG | Signal: Resetting the slow Switchgear Alarm |
| ON Cmd | Signal: ON Command issued to the switchgear. Depending on the setting the signal may include the ON command of the Prot module. |
| OFF Cmd | Signal: OFF Command issued to the switchgear. Depending on the setting the signal may include the OFF command of the Prot module. |
| ON Cmd manual | Signal: ON Cmd manual |
| OFF Cmd manual | Signal: OFF Cmd manual |
| Test Trip Cmd | A trip command has been triggered manually (for testing purposes). |
| Aux ON-I | Module Input State: Position indicator/check-back signal of the CB (52a) |
| Aux OFF-I | Module input state: Position indicator/check-back signal of the CB (52b) |
| Ready-I | Module input state: CB ready |
| Removed-I | State of the module input: The withdrawable circuit breaker is Removed |
| Ack TripCmd-I | State of the module input: Acknowledgement Signal (for the Trip Command) Module input signal |
| Interl ON1-I | State of the module input: Interlocking of the ON command |
| Interl ON2-I | State of the module input: Interlocking of the ON command |
| Interl ON3-I | State of the module input: Interlocking of the ON command |
| Interl OFF1-I | State of the module input: Interlocking of the OFF command |
| Interl OFF2-I | State of the module input: Interlocking of the OFF command |
| Interl OFF3-I | State of the module input: Interlocking of the OFF command |
| SCmd ON-I | State of the module input: Switching ON Command, e.g. the state of the Logics or the state of the digital input |
| SCmd OFF-I | State of the module input: Switching OFF Command, e.g. the state of the Logics or the state of the digital input |
| Operations Alarm | Signal: Too many Operations. (The operations counter »TripCmd Cr« has exceeded the limit set at »Operations Alarm«.) |
| Isum Intr trip: IL1 | Signal: Maximum permissible Summation of the interrupting (tripping) currents exceeded: IL1 |
| Isum Intr trip: IL2 | Signal: Maximum permissible Summation of the interrupting (tripping) currents exceeded: IL2 |
| Isum Intr trip: IL3 | Signal: Maximum permissible Summation of the interrupting (tripping) currents exceeded: IL3 |
| Isum Intr trip | Signal: Maximum permissible Summation of the interrupting (tripping) currents exceeded in at least one phase. |
| Res TripCmd Cr | Signal: Resetting of the Counter: Total number of trips of the switchgear |
| Res Sum trip | Signal: Reset summation of the tripping currents |
| WearLevel Alarm | Signal: Threshold for the Alarm |
| WearLevel Lockout | Signal: Threshold for the Lockout Level |
| Res CB OPEN capacity | Signal: Reset of the wear maintenance curve (i. e. of the counter for the Circuit Breaker OPEN capacity). |

| 1..n, Assignment List | Description |
|-----------------------|--|
| Isum Intr ph Alm | Signal: Alarm, the per hour Sum (Limit) of interrupting currents has been exceeded. |
| Res Isum Intr ph Alm | Signal: Reset of the Alarm, "the per hour Sum (Limit) of interrupting currents has been exceeded". |
| Active | Signal: active |
| Blo TripCmd | Signal: Trip Command blocked |
| Trip | Signal: Trip |
| TripCmd | Signal: Trip Command |
| Start | Signal: Motor is in start mode |
| Run | Signal: Motor is in run mode |
| Stop | Signal: Motor is in stop mode |
| Blo | Signal: Motor is blocked for starting or transition to Run mode |
| NOCSBlocked | Signal: Motor is prohibited to start due to number of cold start limits |
| SPHBlocked | Signal: Motor is prohibited to start due to starts per hour limits |
| SPHBlockAlarm | Signal: Motor is prohibited to start due to starts per hour limits, would come active in the next stop |
| TBSBlocked | Signal: Motor is prohibited to start due to time between starts limits |
| ThermalBlo | Signal: Thermal block |
| RemBlockStart | Signal: Motor is prohibited to start due to external blocking through digital input DI |
| TransitionTrip | Signal: Start transition fail trip |
| ZSSTrip | Signal: Zero speed trip (possible locked rotor) |
| InSq Stop2Start Fail | Signal: Fail to transit from stop to start based on reported back time |
| InSq Start2Run Fail | Signal: Fail to transit from start to run based on reported back time |
| LATBlock | Signal: Long acceleration timer enforced |
| ColdStartSeq | Signal: Motor cold start sequence flag |
| ForcedStart | Signal: Motor being forced to start |
| TripPhaseReverse | Signal: Relay tripped because of phase reverse detection |
| EmergOverrideDI | Signal: Emergency override start blocking through digital input DI |
| EmergOverrideUI | Signal: Emergency override start blocking through front panel |
| ABSActive | Signal: Anti-backspin is active. For certain applications, such as pumping a fluid up a pipe, the motor may be driven backward for a period of time after it stops. The anti-backspin timer prevents starting the motor while it is spinning in the reverse direction. |
| Blo-IOCStart | Signal: Phase Instantaneous Overcurrent Start Delay. IOC (Instantaneous Overcurrent) elements are blocked for the time programmed under this parameter |
| Blo-GOCStart | Signal: Ground Instantaneous Overcurrent Start Delay. GOC (Instantaneous Overcurrent) elements are blocked for the time programmed under this parameter |
| Blo-I<Start | Signal: Underload Start Delay. Underload(Instantaneous Overcurrent) elements are blocked for the time programmed under this parameter |
| Blo-I2>Start | Signal: Motor start block current unbalance signal |
| Blo-JamStart | Signal: JAM Start Delay. JAM(Instantaneous Overcurrent) elements are blocked for the time programmed under this parameter |
| Blo-Generic1 | Generic Start Delay. This value can be used to block any protective element.1 |
| Blo-Generic2 | Generic Start Delay. This value can be used to block any protective element.2 |

| 1..n, Assignment List | Description |
|-----------------------|---|
| Blo-Generic3 | Generic Start Delay. This value can be used to block any protective element.3 |
| Blo-Generic4 | Generic Start Delay. This value can be used to block any protective element.4 |
| Blo-Generic5 | Generic Start Delay. This value can be used to block any protective element.5 |
| I_Transit | Signal: Current transition signal |
| T_Transit | Signal: Time transition signal |
| MotorStopBlo | Signal: Motor stop block other protection functions |
| Rotating forward | Signal: Rotation Direction forward |
| Rotating backward | Signal: Rotation Direction reverse |
| ExBlo TripCmd-I | Module input state: External Blocking of the Trip Command |
| RemStartBlock-I | State of the module input: Remote Motor Start Blocking |
| EmgOvr-I | State of the module input: Emergency Override. Signal has to be active in order to release the thermal capacity of the motor. Please notice that by doing this you run the risk of damaging the motor. "EMGOVR" has to be set to "DI" or "DI or UI" for this input to take effect |
| InSq-I | State of the module input: Incomplete Sequence |
| ZSS-I | State of the module input: Zero Speed Switch |
| STPC Blo-I | State of the module input: With this setting a Digital Input keeps the Motor in the RUN mode, even when the motor current drops below STPC (motor stop current). |
| Active | Signal: active |
| ExBlo | Signal: External Blocking |
| Ex rev Interl | Signal: External reverse Interlocking |
| Blo TripCmd | Signal: Trip Command blocked |
| ExBlo TripCmd | Signal: External Blocking of the Trip Command |
| Alarm L1 | Signal: Alarm L1 |
| Alarm L2 | Signal: Alarm L2 |
| Alarm L3 | Signal: Alarm L3 |
| Alarm | Signal: Alarm |
| Trip L1 | Signal: General Trip Phase L1 |
| Trip L2 | Signal: General Trip Phase L2 |
| Trip L3 | Signal: General Trip Phase L3 |
| Trip | Signal: Trip |
| TripCmd | Signal: Trip Command |
| DefaultSet | Signal: Default Parameter Set |
| AdaptSet 1 | Signal: Adaptive Parameter 1 |
| AdaptSet 2 | Signal: Adaptive Parameter 2 |
| AdaptSet 3 | Signal: Adaptive Parameter 3 |
| AdaptSet 4 | Signal: Adaptive Parameter 4 |
| ExBlo1-I | Module input state: External blocking1 |
| ExBlo2-I | Module input state: External blocking2 |
| ExBlo TripCmd-I | Module input state: External Blocking of the Trip Command |

| 1..n, Assignment List | Description |
|-----------------------|---|
| Ex rev Interl-I | Module input state: External reverse interlocking |
| AdaptSet1-I | Module input state: Adaptive Parameter1 |
| AdaptSet2-I | Module input state: Adaptive Parameter2 |
| AdaptSet3-I | Module input state: Adaptive Parameter3 |
| AdaptSet4-I | Module input state: Adaptive Parameter4 |
| Active | Signal: active |
| ExBlo | Signal: External Blocking |
| Ex rev Interl | Signal: External reverse Interlocking |
| Blo TripCmd | Signal: Trip Command blocked |
| ExBlo TripCmd | Signal: External Blocking of the Trip Command |
| Alarm L1 | Signal: Alarm L1 |
| Alarm L2 | Signal: Alarm L2 |
| Alarm L3 | Signal: Alarm L3 |
| Alarm | Signal: Alarm |
| Trip L1 | Signal: General Trip Phase L1 |
| Trip L2 | Signal: General Trip Phase L2 |
| Trip L3 | Signal: General Trip Phase L3 |
| Trip | Signal: Trip |
| TripCmd | Signal: Trip Command |
| DefaultSet | Signal: Default Parameter Set |
| AdaptSet 1 | Signal: Adaptive Parameter 1 |
| AdaptSet 2 | Signal: Adaptive Parameter 2 |
| AdaptSet 3 | Signal: Adaptive Parameter 3 |
| AdaptSet 4 | Signal: Adaptive Parameter 4 |
| ExBlo1-I | Module input state: External blocking1 |
| ExBlo2-I | Module input state: External blocking2 |
| ExBlo TripCmd-I | Module input state: External Blocking of the Trip Command |
| Ex rev Interl-I | Module input state: External reverse interlocking |
| AdaptSet1-I | Module input state: Adaptive Parameter1 |
| AdaptSet2-I | Module input state: Adaptive Parameter2 |
| AdaptSet3-I | Module input state: Adaptive Parameter3 |
| AdaptSet4-I | Module input state: Adaptive Parameter4 |
| Active | Signal: active |
| ExBlo | Signal: External Blocking |
| Ex rev Interl | Signal: External reverse Interlocking |
| Blo TripCmd | Signal: Trip Command blocked |
| ExBlo TripCmd | Signal: External Blocking of the Trip Command |
| Alarm L1 | Signal: Alarm L1 |

17 Selection Lists

17.164 1..n, Assignment List

| 1..n, Assignment List | Description |
|------------------------------|---|
| Alarm L2 | Signal: Alarm L2 |
| Alarm L3 | Signal: Alarm L3 |
| Alarm | Signal: Alarm |
| Trip L1 | Signal: General Trip Phase L1 |
| Trip L2 | Signal: General Trip Phase L2 |
| Trip L3 | Signal: General Trip Phase L3 |
| Trip | Signal: Trip |
| TripCmd | Signal: Trip Command |
| DefaultSet | Signal: Default Parameter Set |
| AdaptSet 1 | Signal: Adaptive Parameter 1 |
| AdaptSet 2 | Signal: Adaptive Parameter 2 |
| AdaptSet 3 | Signal: Adaptive Parameter 3 |
| AdaptSet 4 | Signal: Adaptive Parameter 4 |
| ExBlo1-I | Module input state: External blocking1 |
| ExBlo2-I | Module input state: External blocking2 |
| ExBlo TripCmd-I | Module input state: External Blocking of the Trip Command |
| Ex rev Interl-I | Module input state: External reverse interlocking |
| AdaptSet1-I | Module input state: Adaptive Parameter1 |
| AdaptSet2-I | Module input state: Adaptive Parameter2 |
| AdaptSet3-I | Module input state: Adaptive Parameter3 |
| AdaptSet4-I | Module input state: Adaptive Parameter4 |
| Active | Signal: active |
| ExBlo | Signal: External Blocking |
| Ex rev Interl | Signal: External reverse Interlocking |
| Blo TripCmd | Signal: Trip Command blocked |
| ExBlo TripCmd | Signal: External Blocking of the Trip Command |
| Alarm L1 | Signal: Alarm L1 |
| Alarm L2 | Signal: Alarm L2 |
| Alarm L3 | Signal: Alarm L3 |
| Alarm | Signal: Alarm |
| Trip L1 | Signal: General Trip Phase L1 |
| Trip L2 | Signal: General Trip Phase L2 |
| Trip L3 | Signal: General Trip Phase L3 |
| Trip | Signal: Trip |
| TripCmd | Signal: Trip Command |
| DefaultSet | Signal: Default Parameter Set |
| AdaptSet 1 | Signal: Adaptive Parameter 1 |
| AdaptSet 2 | Signal: Adaptive Parameter 2 |

| 1..n, Assignment List | Description |
|------------------------------|---|
| AdaptSet 3 | Signal: Adaptive Parameter 3 |
| AdaptSet 4 | Signal: Adaptive Parameter 4 |
| ExBlo1-I | Module input state: External blocking1 |
| ExBlo2-I | Module input state: External blocking2 |
| ExBlo TripCmd-I | Module input state: External Blocking of the Trip Command |
| Ex rev Interl-I | Module input state: External reverse interlocking |
| AdaptSet1-I | Module input state: Adaptive Parameter1 |
| AdaptSet2-I | Module input state: Adaptive Parameter2 |
| AdaptSet3-I | Module input state: Adaptive Parameter3 |
| AdaptSet4-I | Module input state: Adaptive Parameter4 |
| Active | Signal: active |
| ExBlo | Signal: External Blocking |
| Ex rev Interl | Signal: External reverse Interlocking |
| Blo TripCmd | Signal: Trip Command blocked |
| ExBlo TripCmd | Signal: External Blocking of the Trip Command |
| Alarm L1 | Signal: Alarm L1 |
| Alarm L2 | Signal: Alarm L2 |
| Alarm L3 | Signal: Alarm L3 |
| Alarm | Signal: Alarm |
| Trip L1 | Signal: General Trip Phase L1 |
| Trip L2 | Signal: General Trip Phase L2 |
| Trip L3 | Signal: General Trip Phase L3 |
| Trip | Signal: Trip |
| TripCmd | Signal: Trip Command |
| DefaultSet | Signal: Default Parameter Set |
| AdaptSet 1 | Signal: Adaptive Parameter 1 |
| AdaptSet 2 | Signal: Adaptive Parameter 2 |
| AdaptSet 3 | Signal: Adaptive Parameter 3 |
| AdaptSet 4 | Signal: Adaptive Parameter 4 |
| ExBlo1-I | Module input state: External blocking1 |
| ExBlo2-I | Module input state: External blocking2 |
| ExBlo TripCmd-I | Module input state: External Blocking of the Trip Command |
| Ex rev Interl-I | Module input state: External reverse interlocking |
| AdaptSet1-I | Module input state: Adaptive Parameter1 |
| AdaptSet2-I | Module input state: Adaptive Parameter2 |
| AdaptSet3-I | Module input state: Adaptive Parameter3 |
| AdaptSet4-I | Module input state: Adaptive Parameter4 |
| Active | Signal: active |

17 Selection Lists

17.164 1..n, Assignment List

| 1..n, Assignment List | Description |
|------------------------------|---|
| ExBlo | Signal: External Blocking |
| Ex rev Interl | Signal: External reverse Interlocking |
| Blo TripCmd | Signal: Trip Command blocked |
| ExBlo TripCmd | Signal: External Blocking of the Trip Command |
| Alarm L1 | Signal: Alarm L1 |
| Alarm L2 | Signal: Alarm L2 |
| Alarm L3 | Signal: Alarm L3 |
| Alarm | Signal: Alarm |
| Trip L1 | Signal: General Trip Phase L1 |
| Trip L2 | Signal: General Trip Phase L2 |
| Trip L3 | Signal: General Trip Phase L3 |
| Trip | Signal: Trip |
| TripCmd | Signal: Trip Command |
| DefaultSet | Signal: Default Parameter Set |
| AdaptSet 1 | Signal: Adaptive Parameter 1 |
| AdaptSet 2 | Signal: Adaptive Parameter 2 |
| AdaptSet 3 | Signal: Adaptive Parameter 3 |
| AdaptSet 4 | Signal: Adaptive Parameter 4 |
| ExBlo1-I | Module input state: External blocking1 |
| ExBlo2-I | Module input state: External blocking2 |
| ExBlo TripCmd-I | Module input state: External Blocking of the Trip Command |
| Ex rev Interl-I | Module input state: External reverse interlocking |
| AdaptSet1-I | Module input state: Adaptive Parameter1 |
| AdaptSet2-I | Module input state: Adaptive Parameter2 |
| AdaptSet3-I | Module input state: Adaptive Parameter3 |
| AdaptSet4-I | Module input state: Adaptive Parameter4 |
| Active | Signal: active |
| ExBlo | Signal: External Blocking |
| Ex rev Interl | Signal: External reverse Interlocking |
| Blo TripCmd | Signal: Trip Command blocked |
| ExBlo TripCmd | Signal: External Blocking of the Trip Command |
| Alarm | Signal: The alarm threshold has been exceeded. |
| Trip | Signal: Trip |
| TripCmd | Signal: Trip Command |
| DefaultSet | Signal: Default Parameter Set |
| AdaptSet 1 | Signal: Adaptive Parameter 1 |
| AdaptSet 2 | Signal: Adaptive Parameter 2 |
| AdaptSet 3 | Signal: Adaptive Parameter 3 |

| 1..n, Assignment List | Description |
|-----------------------|---|
| AdaptSet 4 | Signal: Adaptive Parameter 4 |
| ExBlo1-I | Module input state: External blocking1 |
| ExBlo2-I | Module input state: External blocking2 |
| ExBlo TripCmd-I | Module input state: External Blocking of the Trip Command |
| Ex rev Interl-I | Module input state: External reverse interlocking |
| AdaptSet1-I | Module input state: Adaptive Parameter1 |
| AdaptSet2-I | Module input state: Adaptive Parameter2 |
| AdaptSet3-I | Module input state: Adaptive Parameter3 |
| AdaptSet4-I | Module input state: Adaptive Parameter4 |
| Active | Signal: active |
| ExBlo | Signal: External Blocking |
| Ex rev Interl | Signal: External reverse Interlocking |
| Blo TripCmd | Signal: Trip Command blocked |
| ExBlo TripCmd | Signal: External Blocking of the Trip Command |
| Alarm | Signal: The alarm threshold has been exceeded. |
| Trip | Signal: Trip |
| TripCmd | Signal: Trip Command |
| DefaultSet | Signal: Default Parameter Set |
| AdaptSet 1 | Signal: Adaptive Parameter 1 |
| AdaptSet 2 | Signal: Adaptive Parameter 2 |
| AdaptSet 3 | Signal: Adaptive Parameter 3 |
| AdaptSet 4 | Signal: Adaptive Parameter 4 |
| ExBlo1-I | Module input state: External blocking1 |
| ExBlo2-I | Module input state: External blocking2 |
| ExBlo TripCmd-I | Module input state: External Blocking of the Trip Command |
| Ex rev Interl-I | Module input state: External reverse interlocking |
| AdaptSet1-I | Module input state: Adaptive Parameter1 |
| AdaptSet2-I | Module input state: Adaptive Parameter2 |
| AdaptSet3-I | Module input state: Adaptive Parameter3 |
| AdaptSet4-I | Module input state: Adaptive Parameter4 |
| Active | Signal: active |
| ExBlo | Signal: External Blocking |
| Ex rev Interl | Signal: External reverse Interlocking |
| Blo TripCmd | Signal: Trip Command blocked |
| ExBlo TripCmd | Signal: External Blocking of the Trip Command |
| Alarm | Signal: The alarm threshold has been exceeded. |
| Trip | Signal: Trip |
| TripCmd | Signal: Trip Command |

| 1..n, Assignment List | Description |
|------------------------------|--|
| DefaultSet | Signal: Default Parameter Set |
| AdaptSet 1 | Signal: Adaptive Parameter 1 |
| AdaptSet 2 | Signal: Adaptive Parameter 2 |
| AdaptSet 3 | Signal: Adaptive Parameter 3 |
| AdaptSet 4 | Signal: Adaptive Parameter 4 |
| ExBlo1-I | Module input state: External blocking1 |
| ExBlo2-I | Module input state: External blocking2 |
| ExBlo TripCmd-I | Module input state: External Blocking of the Trip Command |
| Ex rev Interl-I | Module input state: External reverse interlocking |
| AdaptSet1-I | Module input state: Adaptive Parameter1 |
| AdaptSet2-I | Module input state: Adaptive Parameter2 |
| AdaptSet3-I | Module input state: Adaptive Parameter3 |
| AdaptSet4-I | Module input state: Adaptive Parameter4 |
| Active | Signal: active |
| ExBlo | Signal: External Blocking |
| Ex rev Interl | Signal: External reverse Interlocking |
| Blo TripCmd | Signal: Trip Command blocked |
| ExBlo TripCmd | Signal: External Blocking of the Trip Command |
| Alarm | Signal: The alarm threshold has been exceeded. |
| Trip | Signal: Trip |
| TripCmd | Signal: Trip Command |
| DefaultSet | Signal: Default Parameter Set |
| AdaptSet 1 | Signal: Adaptive Parameter 1 |
| AdaptSet 2 | Signal: Adaptive Parameter 2 |
| AdaptSet 3 | Signal: Adaptive Parameter 3 |
| AdaptSet 4 | Signal: Adaptive Parameter 4 |
| ExBlo1-I | Module input state: External blocking1 |
| ExBlo2-I | Module input state: External blocking2 |
| ExBlo TripCmd-I | Module input state: External Blocking of the Trip Command |
| Ex rev Interl-I | Module input state: External reverse interlocking |
| AdaptSet1-I | Module input state: Adaptive Parameter1 |
| AdaptSet2-I | Module input state: Adaptive Parameter2 |
| AdaptSet3-I | Module input state: Adaptive Parameter3 |
| AdaptSet4-I | Module input state: Adaptive Parameter4 |
| Alarm Pickup | Signal: Alarm Pickup |
| Alarm Timeout | Signal: Alarm Timeout |
| RTD effective | This state becomes true if the following conditions are all fulfilled:\n- the state "Load above SF" is true,\n- the Winding Temperature Trip has been activated in the RTD |

| 1..n, Assignment List | Description |
|-----------------------|--|
| | module,\n- for at least one temperature a valid value above 0°C (32°F) is being displayed. |
| Load above SF | “Load above Service Factor”: If the current exceeds the set value of “UTC” (“Ultimate trip threshold”) then the used thermal capacity counts up and the state “Load above SF” is becoming true. If the current is below the “UTC” value this state is false. |
| Active | Signal: active |
| ExBlo | Signal: External Blocking |
| Blo TripCmd | Signal: Trip Command blocked |
| ExBlo TripCmd | Signal: External Blocking of the Trip Command |
| Alarm | Signal: Alarm |
| Trip | Signal: Trip |
| TripCmd | Signal: Trip Command |
| ExBlo1-I | Module input state: External blocking |
| ExBlo2-I | Module input state: External blocking |
| ExBlo TripCmd-I | Module input state: External Blocking of the Trip Command |
| Active | Signal: active |
| ExBlo | Signal: External Blocking |
| Blo TripCmd | Signal: Trip Command blocked |
| ExBlo TripCmd | Signal: External Blocking of the Trip Command |
| Alarm | Signal: Alarm |
| Trip | Signal: Trip |
| TripCmd | Signal: Trip Command |
| ExBlo1-I | Module input state: External blocking1 |
| ExBlo2-I | Module input state: External blocking2 |
| ExBlo TripCmd-I | Module input state: External Blocking of the Trip Command |
| Active | Signal: active |
| ExBlo | Signal: External Blocking |
| Blo TripCmd | Signal: Trip Command blocked |
| ExBlo TripCmd | Signal: External Blocking of the Trip Command |
| Alarm | Signal: Alarm |
| Trip | Signal: Trip |
| TripCmd | Signal: Trip Command |
| ExBlo1-I | Module input state: External blocking1 |
| ExBlo2-I | Module input state: External blocking2 |
| ExBlo TripCmd-I | Module input state: External Blocking of the Trip Command |
| Active | Signal: active |
| ExBlo | Signal: External Blocking |
| Blo TripCmd | Signal: Trip Command blocked |
| ExBlo TripCmd | Signal: External Blocking of the Trip Command |

17 Selection Lists

17.164 1..n, Assignment List

| 1..n, Assignment List | Description |
|------------------------------|---|
| Alarm | Signal: Alarm |
| Trip | Signal: Trip |
| TripCmd | Signal: Trip Command |
| ExBlo1-I | Module input state: External blocking1 |
| ExBlo2-I | Module input state: External blocking2 |
| ExBlo TripCmd-I | Module input state: External Blocking of the Trip Command |
| Active | Signal: active |
| ExBlo | Signal: External Blocking |
| Blo TripCmd | Signal: Trip Command blocked |
| ExBlo TripCmd | Signal: External Blocking of the Trip Command |
| Alarm | Signal: Alarm |
| Trip | Signal: Trip |
| TripCmd | Signal: Trip Command |
| ExBlo1-I | Module input state: External blocking1 |
| ExBlo2-I | Module input state: External blocking2 |
| ExBlo TripCmd-I | Module input state: External Blocking of the Trip Command |
| Active | Signal: active |
| ExBlo | Signal: External Blocking |
| Blo TripCmd | Signal: Trip Command blocked |
| ExBlo TripCmd | Signal: External Blocking of the Trip Command |
| Alarm | Signal: Alarm |
| Trip | Signal: Trip |
| TripCmd | Signal: Trip Command |
| ExBlo1-I | Module input state: External blocking1 |
| ExBlo2-I | Module input state: External blocking2 |
| ExBlo TripCmd-I | Module input state: External Blocking of the Trip Command |
| Active | Signal: active |
| ExBlo | Signal: External Blocking |
| Alarm | Signal: Alarm |
| Trip | Signal: Trip |
| ExBlo1-I | Module input state: External blocking1 |
| ExBlo2-I | Module input state: External blocking2 |
| Active | Signal: active |
| ExBlo | Signal: External Blocking |
| Blo TripCmd | Signal: Trip Command blocked |
| ExBlo TripCmd | Signal: External Blocking of the Trip Command |
| Alarm | Signal: Alarm Negative Sequence |
| Trip | Signal: Trip |

| 1..n, Assignment List | Description |
|-----------------------|---|
| TripCmd | Signal: Trip Command |
| ExBlo1-I | Module input state: External blocking1 |
| ExBlo2-I | Module input state: External blocking2 |
| ExBlo TripCmd-I | Module input state: External Blocking of the Trip Command |
| Active | Signal: active |
| ExBlo | Signal: External Blocking |
| Blo TripCmd | Signal: Trip Command blocked |
| ExBlo TripCmd | Signal: External Blocking of the Trip Command |
| Alarm | Signal: Alarm Negative Sequence |
| Trip | Signal: Trip |
| TripCmd | Signal: Trip Command |
| ExBlo1-I | Module input state: External blocking1 |
| ExBlo2-I | Module input state: External blocking2 |
| ExBlo TripCmd-I | Module input state: External Blocking of the Trip Command |
| Active | Signal: active |
| ExBlo | Signal: External Blocking |
| Blo TripCmd | Signal: Trip Command blocked |
| ExBlo TripCmd | Signal: External Blocking of the Trip Command |
| Alarm | Signal: Alarm |
| Trip | Signal: Trip |
| TripCmd | Signal: Trip Command |
| ExBlo1-I | Module input state: External blocking1 |
| ExBlo2-I | Module input state: External blocking2 |
| ExBlo TripCmd-I | Module input state: External Blocking of the Trip Command |
| Alarm-I | Module input state: Alarm |
| Trip-I | Module input state: Trip |
| Active | Signal: active |
| ExBlo | Signal: External Blocking |
| Blo TripCmd | Signal: Trip Command blocked |
| ExBlo TripCmd | Signal: External Blocking of the Trip Command |
| Alarm | Signal: Alarm |
| Trip | Signal: Trip |
| TripCmd | Signal: Trip Command |
| ExBlo1-I | Module input state: External blocking1 |
| ExBlo2-I | Module input state: External blocking2 |
| ExBlo TripCmd-I | Module input state: External Blocking of the Trip Command |
| Alarm-I | Module input state: Alarm |
| Trip-I | Module input state: Trip |

17 Selection Lists

17.164 1..n, Assignment List

| 1..n, Assignment List | Description |
|-----------------------|---|
| Active | Signal: active |
| ExBlo | Signal: External Blocking |
| Blo TripCmd | Signal: Trip Command blocked |
| ExBlo TripCmd | Signal: External Blocking of the Trip Command |
| Alarm | Signal: Alarm |
| Trip | Signal: Trip |
| TripCmd | Signal: Trip Command |
| ExBlo1-I | Module input state: External blocking1 |
| ExBlo2-I | Module input state: External blocking2 |
| ExBlo TripCmd-I | Module input state: External Blocking of the Trip Command |
| Alarm-I | Module input state: Alarm |
| Trip-I | Module input state: Trip |
| Active | Signal: active |
| ExBlo | Signal: External Blocking |
| Blo TripCmd | Signal: Trip Command blocked |
| ExBlo TripCmd | Signal: External Blocking of the Trip Command |
| Alarm | Signal: Alarm |
| Trip | Signal: Trip |
| TripCmd | Signal: Trip Command |
| ExBlo1-I | Module input state: External blocking1 |
| ExBlo2-I | Module input state: External blocking2 |
| ExBlo TripCmd-I | Module input state: External Blocking of the Trip Command |
| Alarm-I | Module input state: Alarm |
| Trip-I | Module input state: Trip |
| Windg1 Superv | Signal: Windg1, Channel Supervision. The value "1" reports a detected channel failure. (The value "0" means that this RTD channel is healthy.) |
| Windg2 Superv | Signal: Windg2, Channel Supervision. The value "1" reports a detected channel failure. (The value "0" means that this RTD channel is healthy.) |
| Windg3 Superv | Signal: Windg3, Channel Supervision. The value "1" reports a detected channel failure. (The value "0" means that this RTD channel is healthy.) |
| Windg4 Superv | Signal: Windg4, Channel Supervision. The value "1" reports a detected channel failure. (The value "0" means that this RTD channel is healthy.) |
| Windg5 Superv | Signal: Windg5, Channel Supervision. The value "1" reports a detected channel failure. (The value "0" means that this RTD channel is healthy.) |
| Windg6 Superv | Signal: Windg6, Channel Supervision. The value "1" reports a detected channel failure. (The value "0" means that this RTD channel is healthy.) |
| MotBear1 Superv | Signal: MotBear1, Channel Supervision. The value "1" reports a detected channel failure. (The value "0" means that this RTD channel is healthy.) |
| MotBear2 Superv | Signal: MotBear2, Channel Supervision. The value "1" reports a detected channel failure. (The value "0" means that this RTD channel is healthy.) |
| LoadBear1 Superv | Signal: LoadBear1, Channel Supervision. The value "1" reports a detected channel failure. (The value "0" means that this RTD channel is healthy.) |

| 1..n, Assignment List | Description |
|-----------------------|--|
| LoadBear2 Superv | Signal: LoadBear2, Channel Supervision. The value "1" reports a detected channel failure. (The value "0" means that this RTD channel is healthy.) |
| Aux1 Superv | Signal: Aux1, Channel Supervision. The value "1" reports a detected channel failure. (The value "0" means that this RTD channel is healthy.) |
| Aux2 Superv | Signal: Aux2, Channel Supervision. The value "1" reports a detected channel failure. (The value "0" means that this RTD channel is healthy.) |
| Superv | Signal: URTD Channel Supervision. The value "1" reports a detected channel failure of at least one channel. (The value "0" means that all RTD channels are healthy.) |
| Connection active | Signal: There is an active connection between the Temperature Detector (URTD) and the protective relay. |
| Outs forced | Signal: The State of at least one Relay Output has been set by force. That means that the state of at least one Relay is forced and hence does not show the state of the assigned signals. |
| Active | Signal: active |
| ExBlo | Signal: External Blocking |
| Blo TripCmd | Signal: Trip Command blocked |
| ExBlo TripCmd | Signal: External Blocking of the Trip Command |
| Alarm | Alarm RTD Temperature Protection |
| Trip | Signal: Trip |
| TripCmd | Signal: Trip Command |
| Windg 1 Trip | Winding 1 Signal: Trip |
| Windg 1 Alarm | Winding 1 Alarm RTD Temperature Protection |
| Windg 1 Timeout Alarm | Winding 1 Timeout Alarm |
| Windg 1 Invalid | Winding 1 Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement) |
| Windg 2 Trip | Winding 2 Signal: Trip |
| Windg 2 Alarm | Winding 2 Alarm RTD Temperature Protection |
| Windg 2 Timeout Alarm | Winding 2 Timeout Alarm |
| Windg 2 Invalid | Winding 2 Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement) |
| Windg 3 Trip | Winding 3 Signal: Trip |
| Windg 3 Alarm | Winding 3 Alarm RTD Temperature Protection |
| Windg 3 Timeout Alarm | Winding 3 Timeout Alarm |
| Windg 3 Invalid | Winding 3 Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement) |
| Windg 4 Trip | Winding 4 Signal: Trip |
| Windg 4 Alarm | Winding 4 Alarm RTD Temperature Protection |
| Windg 4 Timeout Alarm | Winding 4 Timeout Alarm |
| Windg 4 Invalid | Winding 4 Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement) |
| Windg 5 Trip | Winding 5 Signal: Trip |
| Windg 5 Alarm | Winding 5 Alarm RTD Temperature Protection |
| Windg 5 Timeout Alarm | Winding 5 Timeout Alarm |

17 Selection Lists

17.164 1..n, Assignment List

| 1..n, Assignment List | Description |
|------------------------------|---|
| Windg 5 Invalid | Winding 5 Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement) |
| Windg 6 Trip | Winding 6 Signal: Trip |
| Windg 6 Alarm | Winding 6 Alarm RTD Temperature Protection |
| Windg 6 Timeout Alarm | Winding 6 Timeout Alarm |
| Windg 6 Invalid | Winding 6 Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement) |
| MotBear 1 Trip | Motor Bearing 1 Signal: Trip |
| MotBear 1 Alarm | Motor Bearing 1 Alarm RTD Temperature Protection |
| MotBear 1 Timeout Alarm | Motor Bearing 1 Timeout Alarm |
| MotBear 1 Invalid | Motor Bearing 1 Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement) |
| MotBear 2 Trip | Motor Bearing 2 Signal: Trip |
| MotBear 2 Alarm | Motor Bearing 2 Alarm RTD Temperature Protection |
| MotBear 2 Timeout Alarm | Motor Bearing 2 Timeout Alarm |
| MotBear 2 Invalid | Motor Bearing 2 Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement) |
| LoadBear 1 Trip | Load Bearing 1 Signal: Trip |
| LoadBear 1 Alarm | Load Bearing 1 Alarm RTD Temperature Protection |
| LoadBear 1 Timeout Alarm | Load Bearing 1 Timeout Alarm |
| LoadBear 1 Invalid | Load Bearing 1 Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement) |
| LoadBear 2 Trip | Load Bearing 2 Signal: Trip |
| LoadBear 2 Alarm | Load Bearing 2 Alarm RTD Temperature Protection |
| LoadBear 2 Timeout Alarm | Load Bearing 2 Timeout Alarm |
| LoadBear 2 Invalid | Load Bearing 2 Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement) |
| Aux1 Trip | Auxiliary 1 Signal: Trip |
| Aux1 Alarm | Auxiliary 1 Alarm RTD Temperature Protection |
| Aux1 Timeout Alarm | Auxiliary 1 Timeout Alarm |
| Aux1 Invalid | Auxiliary 1 Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement) |
| Aux2 Trip | Auxiliary 2 Signal: Trip |
| Aux2 Alarm | Auxiliary 2 Alarm RTD Temperature Protection |
| Aux2 Timeout Alarm | Auxiliary 2 Timeout Alarm |
| Aux2 Invalid | Auxiliary 2 Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement) |
| Trip WD Group | Trip all Windings |
| Alarm WD Group | Alarm all Windings |
| TimeoutAlmWDGrp | Timeout Alarm all Windings |
| Windg Group Invalid | Winding Group Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement) |

| 1..n, Assignment List | Description |
|------------------------|---|
| Trip MB Group | Trip all Motor Bearings |
| Alarm MB Group | Alarm all Motor Bearings |
| TimeoutAlmMBGrp | Timeout Alarm all Motor Bearings |
| MotBear Group Invalid | Motor Bearing Group Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement) |
| Trip LB Group | Trip all Load Bearings |
| Alarm LB Group | Alarm all Load Bearings |
| TimeoutAlmLBGrp | Timeout Alarm all Load Bearings |
| LoadBear Group Invalid | Load Bearing Group Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement) |
| Trip Any Group | Trip Any Group |
| Alarm Any Group | Alarm Any Group |
| TimeoutAlmAnyGrp | Timeout Alarm Any Group |
| Trip Group 1 | Trip Group 1 |
| Trip Group 2 | Trip Group 2 |
| Timeout Alarm | Alarm timeout expired |
| Trip Aux Group | Trip Auxiliary Group |
| Alarm Aux Group | Alarm Auxiliary Group |
| TimeoutAlmAuxGrp | Timeout Alarm Auxiliary Group |
| AuxGrpInvalid | Invalid Auxiliary Group |
| ExBlo1-I | Module input state: External blocking1 |
| ExBlo2-I | Module input state: External blocking2 |
| ExBlo TripCmd-I | Module input state: External Blocking of the Trip Command |
| Active | Signal: active |
| ExBlo | Signal: External Blocking |
| Waiting for Trigger | Waiting for Trigger |
| running | Signal: CBF-Module started |
| Alarm | Signal: Circuit Breaker Failure |
| Lockout | Signal: Lockout |
| Res Lockout | Signal: Reset Lockout |
| ExBlo1-I | Module input state: External blocking1 |
| ExBlo2-I | Module input state: External blocking2 |
| Trigger1-I | Module Input: Trigger that will start the CBF |
| Trigger2-I | Module Input: Trigger that will start the CBF |
| Trigger3-I | Module Input: Trigger that will start the CBF |
| Active | Signal: active |
| ExBlo | Signal: External Blocking |
| Alarm | Signal: Alarm Trip Circuit Supervision |
| Not Possible | Not possible because no state indicator assigned to the breaker. |

17 Selection Lists

17.164 1..n, Assignment List

| 1..n, Assignment List | Description |
|-------------------------|---|
| Aux ON-I | Module Input State: Position indicator/check-back signal of the CB (52a) |
| Aux OFF-I | Module input state: Position indicator/check-back signal of the CB (52b) |
| ExBlo1-I | Module input state: External blocking1 |
| ExBlo2-I | Module input state: External blocking2 |
| Active | Signal: active |
| ExBlo | Signal: External Blocking |
| Alarm | Signal: Alarm Current Transformer Measuring Circuit Supervision |
| ExBlo1-I | Module input state: External blocking1 |
| ExBlo2-I | Module input state: External blocking2 |
| Active | Signal: active |
| ExBlo | Signal: External Blocking |
| Alm Current avg (Demd) | Signal: Alarm: Averaged demand current exceeded |
| Alarm I THD | Signal: Alarm Total Harmonic Distortion Current |
| Trip Current avg (Demd) | Signal: Trip: Averaged demand current exceeded |
| Trip I THD | Signal: Trip Total Harmonic Distortion Current |
| ExBlo-I | Module input state: External blocking |
| DI 1 | Signal: Digital Input |
| DI 2 | Signal: Digital Input |
| DI 3 | Signal: Digital Input |
| DI 4 | Signal: Digital Input |
| DI 5 | Signal: Digital Input |
| DI 6 | Signal: Digital Input |
| DI 7 | Signal: Digital Input |
| DI 8 | Signal: Digital Input |
| DI 1 | Signal: Digital Input |
| DI 2 | Signal: Digital Input |
| DI 3 | Signal: Digital Input |
| DI 4 | Signal: Digital Input |
| BO 1 | Signal: Binary Output Relay |
| BO 2 | Signal: Binary Output Relay |
| BO 3 | Signal: Binary Output Relay |
| BO 4 | Signal: Binary Output Relay |
| BO 5 | Signal: Binary Output Relay |
| DISARMED! | Signal: CAUTION! RELAYS DISARMED in order to safely perform maintenance while eliminating the risk of taking an entire process off-line. (Note: The Self Supervision Contact cannot be disarmed). YOU MUST ENSURE that the relays are ARMED AGAIN after maintenance |
| Outs forced | Signal: The State of at least one Relay Output has been set by force. That means that the state of at least one Relay is forced and hence does not show the state of the assigned signals. |

| 1..n, Assignment List | Description |
|-----------------------|---|
| BO 1 | Signal: Binary Output Relay |
| BO 2 | Signal: Binary Output Relay |
| BO 3 | Signal: Binary Output Relay |
| DISARMED! | Signal: CAUTION! RELAYS DISARMED in order to safely perform maintenance while eliminating the risk of taking an entire process off-line. (Note: The Self Supervision Contact cannot be disarmed). YOU MUST ENSURE that the relays are ARMED AGAIN after maintenance |
| Outs forced | Signal: The State of at least one Relay Output has been set by force. That means that the state of at least one Relay is forced and hence does not show the state of the assigned signals. |
| Force Mode | For commissioning purposes or for maintenance, Analog Outputs can be set by force. By means of this function the normal Analog Outputs can be overwritten (forced). |
| Res all records | Signal: All records are being deleted. (Remark: Immediately afterwards, this signal becomes inactive again.) |
| recording | Signal: Recording |
| memory full | Signal: Memory full |
| Clear fail | Signal: Clear failure in memory |
| Res all records | Signal: All records are being deleted. (Remark: Immediately afterwards, this signal becomes inactive again.) |
| Res record | Signal: Delete record |
| Man Trigger | Signal: Manual Trigger |
| Start1-I | State of the module input:: Trigger event / start recording |
| Start2-I | State of the module input:: Trigger event / start recording |
| Start3-I | State of the module input:: Trigger event / start recording |
| Start4-I | State of the module input:: Trigger event / start recording |
| Start5-I | State of the module input:: Trigger event / start recording |
| Start6-I | State of the module input:: Trigger event / start recording |
| Start7-I | State of the module input:: Trigger event / start recording |
| Start8-I | State of the module input:: Trigger event / start recording |
| Res record | Signal: Delete record |
| Res all records | Signal: All records are being deleted. (Remark: Immediately afterwards, this signal becomes inactive again.) |
| Storing | Signal: Data are saved |
| System Error | Signal: Device Failure |
| New error | Signal: A new error message has been issued. |
| New warning | Signal: A new warning message has been issued. |
| Test SC | A drop of SelfSuperVision Contact (SC) has been triggered manually (for testing purposes). |
| Active | Signal: active |
| Smart view via USB | Information whether or not the Smart view access via the USB interface is activated (allowed). |
| Smart view via Eth | Information whether or not the Smart view access via the Ethernet interface is activated (allowed). |
| SCADA connected | At least one SCADA System is connected to the device. |

| 1..n, Assignment List | Description |
|-----------------------|--|
| SCADA not connected | No SCADA System is connected to the device |
| busy | This message is set if the protocol is started. It will be reset if the protocol is shut down. |
| ready | The message will be set if the protocol is successfully started and ready for data exchange. |
| Active | The communication with the Master (SCADA) is active. Note that for TCP/UDP, this state is permanently "Low" unless »DataLink confirm« is set to "Always". |
| BinaryOutput0 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| BinaryOutput1 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| BinaryOutput2 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| BinaryOutput3 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| BinaryOutput4 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| BinaryOutput5 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| BinaryOutput6 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| BinaryOutput7 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| BinaryOutput8 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| BinaryOutput9 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| BinaryOutput10 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| BinaryOutput11 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| BinaryOutput12 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| BinaryOutput13 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| BinaryOutput14 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| BinaryOutput15 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| BinaryOutput16 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| BinaryOutput17 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| BinaryOutput18 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| BinaryOutput19 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| BinaryOutput20 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |

| 1..n, Assignment List | Description |
|-----------------------|--|
| BinaryOutput21 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| BinaryOutput22 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| BinaryOutput23 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| BinaryOutput24 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| BinaryOutput25 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| BinaryOutput26 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| BinaryOutput27 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| BinaryOutput28 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| BinaryOutput29 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| BinaryOutput30 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| BinaryOutput31 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| BinaryInput0-I | Virtual Digital Input (DNP). This corresponds to a virtual binary output of the protective device. |
| BinaryInput1-I | Virtual Digital Input (DNP). This corresponds to a virtual binary output of the protective device. |
| BinaryInput2-I | Virtual Digital Input (DNP). This corresponds to a virtual binary output of the protective device. |
| BinaryInput3-I | Virtual Digital Input (DNP). This corresponds to a virtual binary output of the protective device. |
| BinaryInput4-I | Virtual Digital Input (DNP). This corresponds to a virtual binary output of the protective device. |
| BinaryInput5-I | Virtual Digital Input (DNP). This corresponds to a virtual binary output of the protective device. |
| BinaryInput6-I | Virtual Digital Input (DNP). This corresponds to a virtual binary output of the protective device. |
| BinaryInput7-I | Virtual Digital Input (DNP). This corresponds to a virtual binary output of the protective device. |
| BinaryInput8-I | Virtual Digital Input (DNP). This corresponds to a virtual binary output of the protective device. |
| BinaryInput9-I | Virtual Digital Input (DNP). This corresponds to a virtual binary output of the protective device. |
| BinaryInput10-I | Virtual Digital Input (DNP). This corresponds to a virtual binary output of the protective device. |
| BinaryInput11-I | Virtual Digital Input (DNP). This corresponds to a virtual binary output of the protective device. |
| BinaryInput12-I | Virtual Digital Input (DNP). This corresponds to a virtual binary output of the protective device. |
| BinaryInput13-I | Virtual Digital Input (DNP). This corresponds to a virtual binary output of the protective device. |

17 Selection Lists

17.164 1..n, Assignment List

| 1..n, Assignment List | Description |
|-----------------------|---|
| Transmission RTU | Signal: SCADA active |
| Transmission TCP | Signal: SCADA active |
| Scada Cmd 1 | Scada Command |
| Scada Cmd 2 | Scada Command |
| Scada Cmd 3 | Scada Command |
| Scada Cmd 4 | Scada Command |
| Scada Cmd 5 | Scada Command |
| Scada Cmd 6 | Scada Command |
| Scada Cmd 7 | Scada Command |
| Scada Cmd 8 | Scada Command |
| Scada Cmd 9 | Scada Command |
| Scada Cmd 10 | Scada Command |
| Scada Cmd 11 | Scada Command |
| Scada Cmd 12 | Scada Command |
| Scada Cmd 13 | Scada Command |
| Scada Cmd 14 | Scada Command |
| Scada Cmd 15 | Scada Command |
| Scada Cmd 16 | Scada Command |
| Config Bin Inp1-I | State of the module input: Config Bin Inp |
| Config Bin Inp2-I | State of the module input: Config Bin Inp |
| Config Bin Inp3-I | State of the module input: Config Bin Inp |
| Config Bin Inp4-I | State of the module input: Config Bin Inp |
| Config Bin Inp5-I | State of the module input: Config Bin Inp |
| Config Bin Inp6-I | State of the module input: Config Bin Inp |
| Config Bin Inp7-I | State of the module input: Config Bin Inp |
| Config Bin Inp8-I | State of the module input: Config Bin Inp |
| Config Bin Inp9-I | State of the module input: Config Bin Inp |
| Config Bin Inp10-I | State of the module input: Config Bin Inp |
| Config Bin Inp11-I | State of the module input: Config Bin Inp |
| Config Bin Inp12-I | State of the module input: Config Bin Inp |
| Config Bin Inp13-I | State of the module input: Config Bin Inp |
| Config Bin Inp14-I | State of the module input: Config Bin Inp |
| Config Bin Inp15-I | State of the module input: Config Bin Inp |
| Config Bin Inp16-I | State of the module input: Config Bin Inp |
| Config Bin Inp17-I | State of the module input: Config Bin Inp |
| Config Bin Inp18-I | State of the module input: Config Bin Inp |
| Config Bin Inp19-I | State of the module input: Config Bin Inp |
| Config Bin Inp20-I | State of the module input: Config Bin Inp |

| 1..n, Assignment List | Description |
|-----------------------------|--|
| Config Bin Inp21-I | State of the module input: Config Bin Inp |
| Config Bin Inp22-I | State of the module input: Config Bin Inp |
| Config Bin Inp23-I | State of the module input: Config Bin Inp |
| Config Bin Inp24-I | State of the module input: Config Bin Inp |
| Config Bin Inp25-I | State of the module input: Config Bin Inp |
| Config Bin Inp26-I | State of the module input: Config Bin Inp |
| Config Bin Inp27-I | State of the module input: Config Bin Inp |
| Config Bin Inp28-I | State of the module input: Config Bin Inp |
| Config Bin Inp29-I | State of the module input: Config Bin Inp |
| Config Bin Inp30-I | State of the module input: Config Bin Inp |
| Config Bin Inp31-I | State of the module input: Config Bin Inp |
| Config Bin Inp32-I | State of the module input: Config Bin Inp |
| MMS Client connected | At least one MMS client is connected to the device |
| All Goose Subscriber active | All Goose subscriber in the device are working |
| GOSINGGIO1.Ind1.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO1.Ind2.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO1.Ind3.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO1.Ind4.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO1.Ind5.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO1.Ind6.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO1.Ind7.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO1.Ind8.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO1.Ind9.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO1.Ind10.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO1.Ind11.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO1.Ind12.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO1.Ind13.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO1.Ind14.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO1.Ind15.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO1.Ind16.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO1.Ind17.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO1.Ind18.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO1.Ind19.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO1.Ind20.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO1.Ind21.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO1.Ind22.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO1.Ind23.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO1.Ind24.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |

17 Selection Lists

17.164 1..n, Assignment List

| 1..n, Assignment List | Description |
|------------------------|--|
| GOSINGGIO1.Ind25.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO1.Ind26.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO1.Ind27.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO1.Ind28.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO1.Ind29.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO1.Ind30.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO1.Ind31.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO1.Ind32.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO2.Ind1.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO2.Ind2.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO2.Ind3.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO2.Ind4.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO2.Ind5.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO2.Ind6.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO2.Ind7.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO2.Ind8.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO2.Ind9.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO2.Ind10.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO2.Ind11.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO2.Ind12.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO2.Ind13.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO2.Ind14.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO2.Ind15.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO2.Ind16.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO2.Ind17.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO2.Ind18.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO2.Ind19.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO2.Ind20.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO2.Ind21.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO2.Ind22.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO2.Ind23.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO2.Ind24.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO2.Ind25.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO2.Ind26.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO2.Ind27.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO2.Ind28.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO2.Ind29.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO2.Ind30.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |

| 1..n, Assignment List | Description |
|------------------------------|--|
| GOSINGGIO2.Ind5.q | Signal: Virtual Input (IEC61850 GGIO Ind): Self-Supervision of the GGIO Input |
| GOSINGGIO2.Ind6.q | Signal: Virtual Input (IEC61850 GGIO Ind): Self-Supervision of the GGIO Input |
| GOSINGGIO2.Ind7.q | Signal: Virtual Input (IEC61850 GGIO Ind): Self-Supervision of the GGIO Input |
| GOSINGGIO2.Ind8.q | Signal: Virtual Input (IEC61850 GGIO Ind): Self-Supervision of the GGIO Input |
| GOSINGGIO2.Ind9.q | Signal: Virtual Input (IEC61850 GGIO Ind): Self-Supervision of the GGIO Input |
| GOSINGGIO2.Ind10.q | Signal: Virtual Input (IEC61850 GGIO Ind): Self-Supervision of the GGIO Input |
| GOSINGGIO2.Ind11.q | Signal: Virtual Input (IEC61850 GGIO Ind): Self-Supervision of the GGIO Input |
| GOSINGGIO2.Ind12.q | Signal: Virtual Input (IEC61850 GGIO Ind): Self-Supervision of the GGIO Input |
| GOSINGGIO2.Ind13.q | Signal: Virtual Input (IEC61850 GGIO Ind): Self-Supervision of the GGIO Input |
| GOSINGGIO2.Ind14.q | Signal: Virtual Input (IEC61850 GGIO Ind): Self-Supervision of the GGIO Input |
| GOSINGGIO2.Ind15.q | Signal: Virtual Input (IEC61850 GGIO Ind): Self-Supervision of the GGIO Input |
| GOSINGGIO2.Ind16.q | Signal: Virtual Input (IEC61850 GGIO Ind): Self-Supervision of the GGIO Input |
| GOSINGGIO2.Ind17.q | Signal: Virtual Input (IEC61850 GGIO Ind): Self-Supervision of the GGIO Input |
| GOSINGGIO2.Ind18.q | Signal: Virtual Input (IEC61850 GGIO Ind): Self-Supervision of the GGIO Input |
| GOSINGGIO2.Ind19.q | Signal: Virtual Input (IEC61850 GGIO Ind): Self-Supervision of the GGIO Input |
| GOSINGGIO2.Ind20.q | Signal: Virtual Input (IEC61850 GGIO Ind): Self-Supervision of the GGIO Input |
| GOSINGGIO2.Ind21.q | Signal: Virtual Input (IEC61850 GGIO Ind): Self-Supervision of the GGIO Input |
| GOSINGGIO2.Ind22.q | Signal: Virtual Input (IEC61850 GGIO Ind): Self-Supervision of the GGIO Input |
| GOSINGGIO2.Ind23.q | Signal: Virtual Input (IEC61850 GGIO Ind): Self-Supervision of the GGIO Input |
| GOSINGGIO2.Ind24.q | Signal: Virtual Input (IEC61850 GGIO Ind): Self-Supervision of the GGIO Input |
| GOSINGGIO2.Ind25.q | Signal: Virtual Input (IEC61850 GGIO Ind): Self-Supervision of the GGIO Input |
| GOSINGGIO2.Ind26.q | Signal: Virtual Input (IEC61850 GGIO Ind): Self-Supervision of the GGIO Input |
| GOSINGGIO2.Ind27.q | Signal: Virtual Input (IEC61850 GGIO Ind): Self-Supervision of the GGIO Input |
| GOSINGGIO2.Ind28.q | Signal: Virtual Input (IEC61850 GGIO Ind): Self-Supervision of the GGIO Input |
| GOSINGGIO2.Ind29.q | Signal: Virtual Input (IEC61850 GGIO Ind): Self-Supervision of the GGIO Input |
| GOSINGGIO2.Ind30.q | Signal: Virtual Input (IEC61850 GGIO Ind): Self-Supervision of the GGIO Input |
| GOSINGGIO2.Ind31.q | Signal: Virtual Input (IEC61850 GGIO Ind): Self-Supervision of the GGIO Input |
| GOSINGGIO2.Ind32.q | Signal: Virtual Input (IEC61850 GGIO Ind): Self-Supervision of the GGIO Input |
| CTLGGIO1.SPCSO1.stVal | Status bit that can be set by clients like e.g. SCADA (Single Point Controllable Status Output). |
| CTLGGIO1.SPCSO2.stVal | Status bit that can be set by clients like e.g. SCADA (Single Point Controllable Status Output). |
| CTLGGIO1.SPCSO3.stVal | Status bit that can be set by clients like e.g. SCADA (Single Point Controllable Status Output). |
| CTLGGIO1.SPCSO4.stVal | Status bit that can be set by clients like e.g. SCADA (Single Point Controllable Status Output). |
| CTLGGIO1.SPCSO5.stVal | Status bit that can be set by clients like e.g. SCADA (Single Point Controllable Status Output). |
| CTLGGIO1.SPCSO6.stVal | Status bit that can be set by clients like e.g. SCADA (Single Point Controllable Status Output). |

| 1..n, Assignment List | Description |
|------------------------------|--|
| CTLGGIO1.SPCSO32.stVal | Status bit that can be set by clients like e.g. SCADA (Single Point Controllable Status Output). |
| Scada Cmd 1 | Scada Command |
| Scada Cmd 2 | Scada Command |
| Scada Cmd 3 | Scada Command |
| Scada Cmd 4 | Scada Command |
| Scada Cmd 5 | Scada Command |
| Scada Cmd 6 | Scada Command |
| Scada Cmd 7 | Scada Command |
| Scada Cmd 8 | Scada Command |
| Scada Cmd 9 | Scada Command |
| Scada Cmd 10 | Scada Command |
| Transmission | Signal: SCADA active |
| Failure Event lost | Failure event lost |
| Test mode active | Signal: IEC103 communication has been switched over into Test Mode. |
| Block MD active | Signal: The blocking of IEC103 transmission in monitor direction has been activated. |
| Ex activate test mode-I | Module input state: Test Mode of the IEC103 communication. |
| Ex activate Block MD-I | Module input state: Activation of the blocking of IEC103 transmission in monitor direction. |
| busy | This message is set if the protocol is started. It will be reset if the protocol is shut down. |
| ready | The message will be set if the protocol is successfully started and ready for data exchange. |
| Transmission | Signal: SCADA active |
| Failure Event lost | Failure event lost |
| Scada Cmd 1 | Scada Command |
| Scada Cmd 2 | Scada Command |
| Scada Cmd 3 | Scada Command |
| Scada Cmd 4 | Scada Command |
| Scada Cmd 5 | Scada Command |
| Scada Cmd 6 | Scada Command |
| Scada Cmd 7 | Scada Command |
| Scada Cmd 8 | Scada Command |
| Scada Cmd 9 | Scada Command |
| Scada Cmd 10 | Scada Command |
| Scada Cmd 11 | Scada Command |
| Scada Cmd 12 | Scada Command |
| Scada Cmd 13 | Scada Command |
| Scada Cmd 14 | Scada Command |
| Scada Cmd 15 | Scada Command |

| 1..n, Assignment List | Description |
|-----------------------|--|
| Scada Cmd 16 | Scada Command |
| Data OK | Data within the Input field are OK (Yes=1) |
| SubModul Err | Assignable Signal, Failure in Sub-Module, Communication Failure. |
| Connection active | Connection active |
| Scada Cmd 1 | Scada Command |
| Scada Cmd 2 | Scada Command |
| Scada Cmd 3 | Scada Command |
| Scada Cmd 4 | Scada Command |
| Scada Cmd 5 | Scada Command |
| Scada Cmd 6 | Scada Command |
| Scada Cmd 7 | Scada Command |
| Scada Cmd 8 | Scada Command |
| Scada Cmd 9 | Scada Command |
| Scada Cmd 10 | Scada Command |
| Scada Cmd 11 | Scada Command |
| Scada Cmd 12 | Scada Command |
| Scada Cmd 13 | Scada Command |
| Scada Cmd 14 | Scada Command |
| Scada Cmd 15 | Scada Command |
| Scada Cmd 16 | Scada Command |
| IRIG-B active | Signal: If there is no valid IRIG-B signal for 60 sec, IRIG-B is regarded as inactive. |
| High-Low Invert | Signal: The High and Low signals of the IRIG-B are inverted. This does NOT mean that the wiring is faulty. If the wiring is faulty no IRIG-B signal will be detected. |
| Control Signal1 | Signal: IRIG-B Control Signal. The external IRIG-B generator can set these signals. They can be used for further control procedures inside the device (e.g. logic funtions). |
| Control Signal2 | Signal: IRIG-B Control Signal. The external IRIG-B generator can set these signals. They can be used for further control procedures inside the device (e.g. logic funtions). |
| Control Signal3 | Signal: IRIG-B Control Signal. The external IRIG-B generator can set these signals. They can be used for further control procedures inside the device (e.g. logic funtions). |
| Control Signal4 | Signal: IRIG-B Control Signal. The external IRIG-B generator can set these signals. They can be used for further control procedures inside the device (e.g. logic funtions). |
| Control Signal5 | Signal: IRIG-B Control Signal. The external IRIG-B generator can set these signals. They can be used for further control procedures inside the device (e.g. logic funtions). |
| Control Signal6 | Signal: IRIG-B Control Signal. The external IRIG-B generator can set these signals. They can be used for further control procedures inside the device (e.g. logic funtions). |
| Control Signal7 | Signal: IRIG-B Control Signal. The external IRIG-B generator can set these signals. They can be used for further control procedures inside the device (e.g. logic funtions). |
| Control Signal8 | Signal: IRIG-B Control Signal. The external IRIG-B generator can set these signals. They can be used for further control procedures inside the device (e.g. logic funtions). |
| Control Signal9 | Signal: IRIG-B Control Signal. The external IRIG-B generator can set these signals. They can be used for further control procedures inside the device (e.g. logic funtions). |
| Control Signal10 | Signal: IRIG-B Control Signal. The external IRIG-B generator can set these signals. They can be used for further control procedures inside the device (e.g. logic funtions). |

| 1..n, Assignment List | Description |
|-----------------------|--|
| Control Signal11 | Signal: IRIG-B Control Signal. The external IRIG-B generator can set these signals. They can be used for further control procedures inside the device (e.g. logic funtions). |
| Control Signal12 | Signal: IRIG-B Control Signal. The external IRIG-B generator can set these signals. They can be used for further control procedures inside the device (e.g. logic funtions). |
| Control Signal13 | Signal: IRIG-B Control Signal. The external IRIG-B generator can set these signals. They can be used for further control procedures inside the device (e.g. logic funtions). |
| Control Signal14 | Signal: IRIG-B Control Signal. The external IRIG-B generator can set these signals. They can be used for further control procedures inside the device (e.g. logic funtions). |
| Control Signal15 | Signal: IRIG-B Control Signal. The external IRIG-B generator can set these signals. They can be used for further control procedures inside the device (e.g. logic funtions). |
| Control Signal16 | Signal: IRIG-B Control Signal. The external IRIG-B generator can set these signals. They can be used for further control procedures inside the device (e.g. logic funtions). |
| Control Signal17 | Signal: IRIG-B Control Signal. The external IRIG-B generator can set these signals. They can be used for further control procedures inside the device (e.g. logic funtions). |
| Control Signal18 | Signal: IRIG-B Control Signal. The external IRIG-B generator can set these signals. They can be used for further control procedures inside the device (e.g. logic funtions). |
| SNTP active | Signal: If there is no valid SNTP signal for 120 sec, SNTP is regarded as inactive. |
| synchronized | Clock is synchronized. |
| ResFc all | Signal: Resetting of all Statistic values (Current Demand, Power Demand, Min, Max) |
| ResFc I Demand | Signal: Resetting of Statistics - Current Demand (avg, peak avg) |
| ResFc Max | Signal: Resetting of all Maximum values |
| ResFc Min | Signal: Resetting of all Minimum values |
| StartFc I Demand-I | State of the module input: Start of the Statistics of the Current Demand |
| LE1.Gate Out | Signal: Output of the logic gate |
| LE1.Timer Out | Signal: Timer Output |
| LE1.Out | Signal: Latched Output (Q) |
| LE1.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE1.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE1.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE1.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE1.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE1.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE2.Gate Out | Signal: Output of the logic gate |
| LE2.Timer Out | Signal: Timer Output |
| LE2.Out | Signal: Latched Output (Q) |
| LE2.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE2.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE2.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE2.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE2.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE2.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE3.Gate Out | Signal: Output of the logic gate |

| 1..n, Assignment List | Description |
|------------------------------|---|
| LE3.Timer Out | Signal: Timer Output |
| LE3.Out | Signal: Latched Output (Q) |
| LE3.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE3.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE3.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE3.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE3.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE3.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE4.Gate Out | Signal: Output of the logic gate |
| LE4.Timer Out | Signal: Timer Output |
| LE4.Out | Signal: Latched Output (Q) |
| LE4.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE4.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE4.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE4.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE4.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE4.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE5.Gate Out | Signal: Output of the logic gate |
| LE5.Timer Out | Signal: Timer Output |
| LE5.Out | Signal: Latched Output (Q) |
| LE5.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE5.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE5.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE5.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE5.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE5.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE6.Gate Out | Signal: Output of the logic gate |
| LE6.Timer Out | Signal: Timer Output |
| LE6.Out | Signal: Latched Output (Q) |
| LE6.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE6.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE6.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE6.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE6.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE6.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE7.Gate Out | Signal: Output of the logic gate |
| LE7.Timer Out | Signal: Timer Output |
| LE7.Out | Signal: Latched Output (Q) |

| 1..n, Assignment List | Description |
|------------------------------|---|
| LE7.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE7.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE7.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE7.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE7.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE7.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE8.Gate Out | Signal: Output of the logic gate |
| LE8.Timer Out | Signal: Timer Output |
| LE8.Out | Signal: Latched Output (Q) |
| LE8.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE8.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE8.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE8.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE8.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE8.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE9.Gate Out | Signal: Output of the logic gate |
| LE9.Timer Out | Signal: Timer Output |
| LE9.Out | Signal: Latched Output (Q) |
| LE9.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE9.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE9.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE9.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE9.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE9.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE10.Gate Out | Signal: Output of the logic gate |
| LE10.Timer Out | Signal: Timer Output |
| LE10.Out | Signal: Latched Output (Q) |
| LE10.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE10.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE10.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE10.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE10.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE10.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE11.Gate Out | Signal: Output of the logic gate |
| LE11.Timer Out | Signal: Timer Output |
| LE11.Out | Signal: Latched Output (Q) |
| LE11.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE11.Gate In1-I | State of the module input: Assignment of the Input Signal |

| 1..n, Assignment List | Description |
|------------------------------|---|
| LE11.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE11.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE11.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE11.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE12.Gate Out | Signal: Output of the logic gate |
| LE12.Timer Out | Signal: Timer Output |
| LE12.Out | Signal: Latched Output (Q) |
| LE12.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE12.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE12.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE12.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE12.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE12.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE13.Gate Out | Signal: Output of the logic gate |
| LE13.Timer Out | Signal: Timer Output |
| LE13.Out | Signal: Latched Output (Q) |
| LE13.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE13.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE13.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE13.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE13.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE13.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE14.Gate Out | Signal: Output of the logic gate |
| LE14.Timer Out | Signal: Timer Output |
| LE14.Out | Signal: Latched Output (Q) |
| LE14.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE14.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE14.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE14.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE14.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE14.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE15.Gate Out | Signal: Output of the logic gate |
| LE15.Timer Out | Signal: Timer Output |
| LE15.Out | Signal: Latched Output (Q) |
| LE15.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE15.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE15.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE15.Gate In3-I | State of the module input: Assignment of the Input Signal |

| 1..n, Assignment List | Description |
|------------------------------|---|
| LE15.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE15.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE16.Gate Out | Signal: Output of the logic gate |
| LE16.Timer Out | Signal: Timer Output |
| LE16.Out | Signal: Latched Output (Q) |
| LE16.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE16.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE16.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE16.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE16.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE16.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE17.Gate Out | Signal: Output of the logic gate |
| LE17.Timer Out | Signal: Timer Output |
| LE17.Out | Signal: Latched Output (Q) |
| LE17.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE17.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE17.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE17.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE17.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE17.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE18.Gate Out | Signal: Output of the logic gate |
| LE18.Timer Out | Signal: Timer Output |
| LE18.Out | Signal: Latched Output (Q) |
| LE18.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE18.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE18.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE18.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE18.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE18.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE19.Gate Out | Signal: Output of the logic gate |
| LE19.Timer Out | Signal: Timer Output |
| LE19.Out | Signal: Latched Output (Q) |
| LE19.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE19.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE19.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE19.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE19.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE19.Reset Latch-I | State of the module input: Reset Signal for the Latching |

| 1..n, Assignment List | Description |
|------------------------------|---|
| LE20.Gate Out | Signal: Output of the logic gate |
| LE20.Timer Out | Signal: Timer Output |
| LE20.Out | Signal: Latched Output (Q) |
| LE20.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE20.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE20.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE20.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE20.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE20.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE21.Gate Out | Signal: Output of the logic gate |
| LE21.Timer Out | Signal: Timer Output |
| LE21.Out | Signal: Latched Output (Q) |
| LE21.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE21.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE21.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE21.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE21.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE21.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE22.Gate Out | Signal: Output of the logic gate |
| LE22.Timer Out | Signal: Timer Output |
| LE22.Out | Signal: Latched Output (Q) |
| LE22.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE22.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE22.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE22.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE22.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE22.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE23.Gate Out | Signal: Output of the logic gate |
| LE23.Timer Out | Signal: Timer Output |
| LE23.Out | Signal: Latched Output (Q) |
| LE23.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE23.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE23.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE23.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE23.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE23.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE24.Gate Out | Signal: Output of the logic gate |
| LE24.Timer Out | Signal: Timer Output |

| 1..n, Assignment List | Description |
|------------------------------|---|
| LE24.Out | Signal: Latched Output (Q) |
| LE24.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE24.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE24.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE24.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE24.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE24.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE25.Gate Out | Signal: Output of the logic gate |
| LE25.Timer Out | Signal: Timer Output |
| LE25.Out | Signal: Latched Output (Q) |
| LE25.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE25.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE25.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE25.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE25.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE25.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE26.Gate Out | Signal: Output of the logic gate |
| LE26.Timer Out | Signal: Timer Output |
| LE26.Out | Signal: Latched Output (Q) |
| LE26.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE26.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE26.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE26.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE26.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE26.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE27.Gate Out | Signal: Output of the logic gate |
| LE27.Timer Out | Signal: Timer Output |
| LE27.Out | Signal: Latched Output (Q) |
| LE27.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE27.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE27.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE27.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE27.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE27.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE28.Gate Out | Signal: Output of the logic gate |
| LE28.Timer Out | Signal: Timer Output |
| LE28.Out | Signal: Latched Output (Q) |
| LE28.Out inverted | Signal: Negated Latched Output (Q NOT) |

| 1..n, Assignment List | Description |
|------------------------------|---|
| LE28.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE28.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE28.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE28.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE28.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE29.Gate Out | Signal: Output of the logic gate |
| LE29.Timer Out | Signal: Timer Output |
| LE29.Out | Signal: Latched Output (Q) |
| LE29.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE29.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE29.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE29.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE29.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE29.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE30.Gate Out | Signal: Output of the logic gate |
| LE30.Timer Out | Signal: Timer Output |
| LE30.Out | Signal: Latched Output (Q) |
| LE30.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE30.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE30.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE30.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE30.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE30.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE31.Gate Out | Signal: Output of the logic gate |
| LE31.Timer Out | Signal: Timer Output |
| LE31.Out | Signal: Latched Output (Q) |
| LE31.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE31.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE31.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE31.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE31.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE31.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE32.Gate Out | Signal: Output of the logic gate |
| LE32.Timer Out | Signal: Timer Output |
| LE32.Out | Signal: Latched Output (Q) |
| LE32.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE32.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE32.Gate In2-I | State of the module input: Assignment of the Input Signal |

| 1..n, Assignment List | Description |
|------------------------------|---|
| LE32.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE32.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE32.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE33.Gate Out | Signal: Output of the logic gate |
| LE33.Timer Out | Signal: Timer Output |
| LE33.Out | Signal: Latched Output (Q) |
| LE33.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE33.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE33.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE33.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE33.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE33.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE34.Gate Out | Signal: Output of the logic gate |
| LE34.Timer Out | Signal: Timer Output |
| LE34.Out | Signal: Latched Output (Q) |
| LE34.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE34.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE34.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE34.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE34.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE34.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE35.Gate Out | Signal: Output of the logic gate |
| LE35.Timer Out | Signal: Timer Output |
| LE35.Out | Signal: Latched Output (Q) |
| LE35.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE35.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE35.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE35.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE35.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE35.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE36.Gate Out | Signal: Output of the logic gate |
| LE36.Timer Out | Signal: Timer Output |
| LE36.Out | Signal: Latched Output (Q) |
| LE36.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE36.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE36.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE36.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE36.Gate In4-I | State of the module input: Assignment of the Input Signal |

| 1..n, Assignment List | Description |
|------------------------------|---|
| LE36.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE37.Gate Out | Signal: Output of the logic gate |
| LE37.Timer Out | Signal: Timer Output |
| LE37.Out | Signal: Latched Output (Q) |
| LE37.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE37.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE37.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE37.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE37.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE37.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE38.Gate Out | Signal: Output of the logic gate |
| LE38.Timer Out | Signal: Timer Output |
| LE38.Out | Signal: Latched Output (Q) |
| LE38.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE38.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE38.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE38.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE38.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE38.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE39.Gate Out | Signal: Output of the logic gate |
| LE39.Timer Out | Signal: Timer Output |
| LE39.Out | Signal: Latched Output (Q) |
| LE39.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE39.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE39.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE39.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE39.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE39.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE40.Gate Out | Signal: Output of the logic gate |
| LE40.Timer Out | Signal: Timer Output |
| LE40.Out | Signal: Latched Output (Q) |
| LE40.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE40.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE40.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE40.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE40.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE40.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE41.Gate Out | Signal: Output of the logic gate |

| 1..n, Assignment List | Description |
|------------------------------|---|
| LE41.Timer Out | Signal: Timer Output |
| LE41.Out | Signal: Latched Output (Q) |
| LE41.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE41.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE41.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE41.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE41.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE41.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE42.Gate Out | Signal: Output of the logic gate |
| LE42.Timer Out | Signal: Timer Output |
| LE42.Out | Signal: Latched Output (Q) |
| LE42.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE42.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE42.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE42.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE42.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE42.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE43.Gate Out | Signal: Output of the logic gate |
| LE43.Timer Out | Signal: Timer Output |
| LE43.Out | Signal: Latched Output (Q) |
| LE43.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE43.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE43.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE43.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE43.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE43.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE44.Gate Out | Signal: Output of the logic gate |
| LE44.Timer Out | Signal: Timer Output |
| LE44.Out | Signal: Latched Output (Q) |
| LE44.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE44.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE44.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE44.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE44.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE44.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE45.Gate Out | Signal: Output of the logic gate |
| LE45.Timer Out | Signal: Timer Output |
| LE45.Out | Signal: Latched Output (Q) |

| 1..n, Assignment List | Description |
|------------------------------|---|
| LE45.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE45.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE45.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE45.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE45.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE45.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE46.Gate Out | Signal: Output of the logic gate |
| LE46.Timer Out | Signal: Timer Output |
| LE46.Out | Signal: Latched Output (Q) |
| LE46.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE46.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE46.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE46.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE46.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE46.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE47.Gate Out | Signal: Output of the logic gate |
| LE47.Timer Out | Signal: Timer Output |
| LE47.Out | Signal: Latched Output (Q) |
| LE47.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE47.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE47.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE47.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE47.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE47.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE48.Gate Out | Signal: Output of the logic gate |
| LE48.Timer Out | Signal: Timer Output |
| LE48.Out | Signal: Latched Output (Q) |
| LE48.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE48.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE48.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE48.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE48.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE48.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE49.Gate Out | Signal: Output of the logic gate |
| LE49.Timer Out | Signal: Timer Output |
| LE49.Out | Signal: Latched Output (Q) |
| LE49.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE49.Gate In1-I | State of the module input: Assignment of the Input Signal |

| 1..n, Assignment List | Description |
|------------------------------|---|
| LE49.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE49.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE49.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE49.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE50.Gate Out | Signal: Output of the logic gate |
| LE50.Timer Out | Signal: Timer Output |
| LE50.Out | Signal: Latched Output (Q) |
| LE50.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE50.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE50.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE50.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE50.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE50.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE51.Gate Out | Signal: Output of the logic gate |
| LE51.Timer Out | Signal: Timer Output |
| LE51.Out | Signal: Latched Output (Q) |
| LE51.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE51.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE51.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE51.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE51.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE51.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE52.Gate Out | Signal: Output of the logic gate |
| LE52.Timer Out | Signal: Timer Output |
| LE52.Out | Signal: Latched Output (Q) |
| LE52.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE52.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE52.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE52.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE52.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE52.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE53.Gate Out | Signal: Output of the logic gate |
| LE53.Timer Out | Signal: Timer Output |
| LE53.Out | Signal: Latched Output (Q) |
| LE53.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE53.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE53.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE53.Gate In3-I | State of the module input: Assignment of the Input Signal |

| 1..n, Assignment List | Description |
|------------------------------|---|
| LE53.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE53.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE54.Gate Out | Signal: Output of the logic gate |
| LE54.Timer Out | Signal: Timer Output |
| LE54.Out | Signal: Latched Output (Q) |
| LE54.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE54.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE54.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE54.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE54.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE54.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE55.Gate Out | Signal: Output of the logic gate |
| LE55.Timer Out | Signal: Timer Output |
| LE55.Out | Signal: Latched Output (Q) |
| LE55.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE55.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE55.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE55.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE55.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE55.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE56.Gate Out | Signal: Output of the logic gate |
| LE56.Timer Out | Signal: Timer Output |
| LE56.Out | Signal: Latched Output (Q) |
| LE56.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE56.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE56.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE56.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE56.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE56.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE57.Gate Out | Signal: Output of the logic gate |
| LE57.Timer Out | Signal: Timer Output |
| LE57.Out | Signal: Latched Output (Q) |
| LE57.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE57.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE57.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE57.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE57.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE57.Reset Latch-I | State of the module input: Reset Signal for the Latching |

| 1..n, Assignment List | Description |
|------------------------------|---|
| LE58.Gate Out | Signal: Output of the logic gate |
| LE58.Timer Out | Signal: Timer Output |
| LE58.Out | Signal: Latched Output (Q) |
| LE58.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE58.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE58.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE58.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE58.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE58.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE59.Gate Out | Signal: Output of the logic gate |
| LE59.Timer Out | Signal: Timer Output |
| LE59.Out | Signal: Latched Output (Q) |
| LE59.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE59.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE59.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE59.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE59.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE59.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE60.Gate Out | Signal: Output of the logic gate |
| LE60.Timer Out | Signal: Timer Output |
| LE60.Out | Signal: Latched Output (Q) |
| LE60.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE60.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE60.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE60.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE60.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE60.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE61.Gate Out | Signal: Output of the logic gate |
| LE61.Timer Out | Signal: Timer Output |
| LE61.Out | Signal: Latched Output (Q) |
| LE61.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE61.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE61.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE61.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE61.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE61.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE62.Gate Out | Signal: Output of the logic gate |
| LE62.Timer Out | Signal: Timer Output |

| 1..n, Assignment List | Description |
|------------------------------|---|
| LE62.Out | Signal: Latched Output (Q) |
| LE62.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE62.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE62.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE62.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE62.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE62.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE63.Gate Out | Signal: Output of the logic gate |
| LE63.Timer Out | Signal: Timer Output |
| LE63.Out | Signal: Latched Output (Q) |
| LE63.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE63.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE63.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE63.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE63.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE63.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE64.Gate Out | Signal: Output of the logic gate |
| LE64.Timer Out | Signal: Timer Output |
| LE64.Out | Signal: Latched Output (Q) |
| LE64.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE64.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE64.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE64.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE64.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE64.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE65.Gate Out | Signal: Output of the logic gate |
| LE65.Timer Out | Signal: Timer Output |
| LE65.Out | Signal: Latched Output (Q) |
| LE65.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE65.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE65.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE65.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE65.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE65.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE66.Gate Out | Signal: Output of the logic gate |
| LE66.Timer Out | Signal: Timer Output |
| LE66.Out | Signal: Latched Output (Q) |
| LE66.Out inverted | Signal: Negated Latched Output (Q NOT) |

| 1..n, Assignment List | Description |
|------------------------------|---|
| LE66.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE66.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE66.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE66.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE66.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE67.Gate Out | Signal: Output of the logic gate |
| LE67.Timer Out | Signal: Timer Output |
| LE67.Out | Signal: Latched Output (Q) |
| LE67.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE67.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE67.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE67.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE67.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE67.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE68.Gate Out | Signal: Output of the logic gate |
| LE68.Timer Out | Signal: Timer Output |
| LE68.Out | Signal: Latched Output (Q) |
| LE68.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE68.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE68.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE68.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE68.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE68.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE69.Gate Out | Signal: Output of the logic gate |
| LE69.Timer Out | Signal: Timer Output |
| LE69.Out | Signal: Latched Output (Q) |
| LE69.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE69.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE69.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE69.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE69.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE69.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE70.Gate Out | Signal: Output of the logic gate |
| LE70.Timer Out | Signal: Timer Output |
| LE70.Out | Signal: Latched Output (Q) |
| LE70.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE70.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE70.Gate In2-I | State of the module input: Assignment of the Input Signal |

| 1..n, Assignment List | Description |
|-----------------------|---|
| LE70.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE70.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE70.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE71.Gate Out | Signal: Output of the logic gate |
| LE71.Timer Out | Signal: Timer Output |
| LE71.Out | Signal: Latched Output (Q) |
| LE71.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE71.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE71.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE71.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE71.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE71.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE72.Gate Out | Signal: Output of the logic gate |
| LE72.Timer Out | Signal: Timer Output |
| LE72.Out | Signal: Latched Output (Q) |
| LE72.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE72.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE72.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE72.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE72.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE72.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE73.Gate Out | Signal: Output of the logic gate |
| LE73.Timer Out | Signal: Timer Output |
| LE73.Out | Signal: Latched Output (Q) |
| LE73.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE73.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE73.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE73.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE73.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE73.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE74.Gate Out | Signal: Output of the logic gate |
| LE74.Timer Out | Signal: Timer Output |
| LE74.Out | Signal: Latched Output (Q) |
| LE74.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE74.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE74.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE74.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE74.Gate In4-I | State of the module input: Assignment of the Input Signal |

| 1..n, Assignment List | Description |
|------------------------------|---|
| LE74.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE75.Gate Out | Signal: Output of the logic gate |
| LE75.Timer Out | Signal: Timer Output |
| LE75.Out | Signal: Latched Output (Q) |
| LE75.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE75.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE75.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE75.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE75.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE75.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE76.Gate Out | Signal: Output of the logic gate |
| LE76.Timer Out | Signal: Timer Output |
| LE76.Out | Signal: Latched Output (Q) |
| LE76.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE76.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE76.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE76.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE76.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE76.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE77.Gate Out | Signal: Output of the logic gate |
| LE77.Timer Out | Signal: Timer Output |
| LE77.Out | Signal: Latched Output (Q) |
| LE77.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE77.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE77.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE77.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE77.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE77.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE78.Gate Out | Signal: Output of the logic gate |
| LE78.Timer Out | Signal: Timer Output |
| LE78.Out | Signal: Latched Output (Q) |
| LE78.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE78.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE78.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE78.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE78.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE78.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE79.Gate Out | Signal: Output of the logic gate |

| 1..n, Assignment List | Description |
|-----------------------|---|
| LE79.Timer Out | Signal: Timer Output |
| LE79.Out | Signal: Latched Output (Q) |
| LE79.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE79.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE79.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE79.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE79.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE79.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| LE80.Gate Out | Signal: Output of the logic gate |
| LE80.Timer Out | Signal: Timer Output |
| LE80.Out | Signal: Latched Output (Q) |
| LE80.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE80.Gate In1-I | State of the module input: Assignment of the Input Signal |
| LE80.Gate In2-I | State of the module input: Assignment of the Input Signal |
| LE80.Gate In3-I | State of the module input: Assignment of the Input Signal |
| LE80.Gate In4-I | State of the module input: Assignment of the Input Signal |
| LE80.Reset Latch-I | State of the module input: Reset Signal for the Latching |
| Manual Start | Fault Simulation has been started manually. |
| Manual Stop | Fault Simulation has been stopped manually. |
| Running | Signal: Measuring value simulation is running |
| Started | Fault Simulation has been started |
| Stopped | Fault Simulation has been stopped |
| Ex Start Simulation-I | State of the module input: External Start of Fault Simulation (Using the test parameters) |
| ExBlo1-I | Module input state: External blocking1 |
| ExBlo2-I | Module input state: External blocking2 |
| Ex ForcePost-I | State of the module input: Force Post state. Abort simulation. |
| PS 1 | Signal: The currently active Parameter Set is PS 1 |
| PS 2 | Signal: The currently active Parameter Set is PS 2 |
| PS 3 | Signal: The currently active Parameter Set is PS 3 |
| PS 4 | Signal: The currently active Parameter Set is PS 4 |
| PSS manual | Signal: Manual Switch over of a Parameter Set |
| PSS via Scada | Signal: Parameter Set Switch via Scada. Write into this output byte the integer of the parameter set that should become active (e.g. 4 => Switch onto parameter set 4). |
| PSS via Inp fct | Signal: Parameter Set Switch via input function |
| min 1 param changed | Signal: At least one parameter has been changed |
| Setting Lock Bypass | Signal: Short-period unlock of the Setting Lock |
| Maint Mode Active | Signal: Arc Flash Reduction Maintenance Active |
| Maint Mode Inactive | Signal: Arc Flash Reduction Maintenance Inactive |

| 1..n, Assignment List | Description |
|------------------------------|--|
| MaintMode Manually | Signal: Arc Flash Reduction Maintenance Manual Mode |
| Maint Mode SCADA | Signal: Arc Flash Reduction Maintenance SCADA Mode |
| Maint Mode DI | Signal: Arc Flash Reduction Maintenance Digital Input Mode |
| Ack LED | Signal: LEDs acknowledgement |
| Ack BO | Signal: Acknowledgement of the Binary Outputs |
| Ack Scada | Signal: Acknowledge latched SCADA signals |
| Ack TripCmd | Signal: Reset Trip Command |
| Ack LED-HMI | Signal: LEDs acknowledgement, triggered at the HMI |
| Ack BO-HMI | Signal: Acknowledgement of the Binary Outputs, triggered at the HMI |
| Ack Scada-HMI | Signal: Acknowledge latched SCADA signals, triggered at the HMI |
| Ack TripCmd-HMI | Signal: Reset Trip Command, triggered at the HMI |
| Ack LED-Sca | Signal: LEDs acknowledgement, triggered via SCADA |
| Ack BO-Sca | Signal: Acknowledgement of the Binary Outputs, triggered via SCADA |
| Ack Counter-Sca | Signal: Reset of all Counters, triggered via SCADA |
| Ack Scada-Sca | Signal: Acknowledge latched SCADA signals, triggered via SCADA |
| Ack TripCmd-Sca | Signal: Reset Trip Command, triggered via SCADA |
| Res OperationsCr | Signal:: Res OperationsCr |
| Res AlarmCr | Signal:: Res AlarmCr |
| Res TripCmdCr | Signal:: Res TripCmdCr |
| Res TotalCr | Signal:: Res TotalCr |
| Ack LED-I | Module input state: LEDs acknowledgement by digital input |
| Ack BO-I | Module input state: Acknowledgement of the binary Output Relays |
| Ack Scada-I | Module input state: Acknowledge latched SCADA signals. |
| PS1-I | State of the module input respectively of the signal, that should activate this Parameter Setting Group. |
| PS2-I | State of the module input respectively of the signal, that should activate this Parameter Setting Group. |
| PS3-I | State of the module input respectively of the signal, that should activate this Parameter Setting Group. |
| PS4-I | State of the module input respectively of the signal, that should activate this Parameter Setting Group. |
| Maint Mode-I | Module Input State: Arc Flash Reduction Maintenance Switch |
| Internal test state | Auxiliary state for testing purposes. |

17.165 VTS Block

Selection list referenced by the following parameters:

- [IG\[1\] . Meas Circuit Superv](#)

| VTS Block | Description |
|-----------|-------------|
| Inactive | Inactive |

17.166 VTS Block

Selection list referenced by the following parameters:

- [I<\[1\] . MeasCircSv Curr](#)

| VTS Block | Description |
|-----------|-------------|
| Inactive | Inactive |
| Active | Active |

17.167 Measuring Channel

Selection list referenced by the following parameters:

- [IG\[1\] . IG Source](#)

| Measuring Channel | Description |
|-----------------------|-----------------------|
| sensitive measurement | sensitive measurement |
| measured | measured |
| calculated | calculated |

17.168 AdaptSet

Selection list referenced by the following parameters:

- [I\[1\] . AdaptSet 1](#)
- [I\[1\] . AdaptSet 2](#)
- [I\[1\] . AdaptSet 3](#)
- [I\[1\] . AdaptSet 4](#)
- [\[...\]](#)

| AdaptSet | Description |
|----------|---------------|
| - | No assignment |
| Alarm | Signal: Alarm |

17 Selection Lists
 17.168 AdaptSet

| AdaptSet | Description |
|-----------------------|---|
| Alarm | Signal: Alarm |
| Alarm | Signal: Alarm |
| Alarm | Signal: Alarm |
| Alarm | Signal: Alarm Current Transformer Measuring Circuit Supervision |
| DI 1 | Signal: Digital Input |
| DI 2 | Signal: Digital Input |
| DI 3 | Signal: Digital Input |
| DI 4 | Signal: Digital Input |
| DI 5 | Signal: Digital Input |
| DI 6 | Signal: Digital Input |
| DI 7 | Signal: Digital Input |
| DI 8 | Signal: Digital Input |
| DI 1 | Signal: Digital Input |
| DI 2 | Signal: Digital Input |
| DI 3 | Signal: Digital Input |
| DI 4 | Signal: Digital Input |
| Scada Cmd 1 | Scada Command |
| Scada Cmd 2 | Scada Command |
| Scada Cmd 3 | Scada Command |
| Scada Cmd 4 | Scada Command |
| Scada Cmd 5 | Scada Command |
| Scada Cmd 6 | Scada Command |
| Scada Cmd 7 | Scada Command |
| Scada Cmd 8 | Scada Command |
| Scada Cmd 9 | Scada Command |
| Scada Cmd 10 | Scada Command |
| Scada Cmd 11 | Scada Command |
| Scada Cmd 12 | Scada Command |
| Scada Cmd 13 | Scada Command |
| Scada Cmd 14 | Scada Command |
| Scada Cmd 15 | Scada Command |
| Scada Cmd 16 | Scada Command |
| GOSINGGIO1.Ind1.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO1.Ind2.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO1.Ind3.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO1.Ind4.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO1.Ind5.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO1.Ind6.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |

| AdaptSet | Description |
|------------------------|--|
| GOSINGGIO1.Ind7.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO1.Ind8.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO1.Ind9.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO1.Ind10.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO1.Ind11.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO1.Ind12.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO1.Ind13.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO1.Ind14.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO1.Ind15.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO1.Ind16.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO1.Ind17.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO1.Ind18.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO1.Ind19.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO1.Ind20.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO1.Ind21.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO1.Ind22.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO1.Ind23.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO1.Ind24.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO1.Ind25.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO1.Ind26.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO1.Ind27.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO1.Ind28.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO1.Ind29.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO1.Ind30.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO1.Ind31.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| GOSINGGIO1.Ind32.stVal | Signal: Virtual Input (IEC61850 GGIO Ind): State |
| CTLGGIO1.SPCSO1.stVal | Status bit that can be set by clients like e.g. SCADA (Single Point Controllable Status Output). |
| CTLGGIO1.SPCSO2.stVal | Status bit that can be set by clients like e.g. SCADA (Single Point Controllable Status Output). |
| CTLGGIO1.SPCSO3.stVal | Status bit that can be set by clients like e.g. SCADA (Single Point Controllable Status Output). |
| CTLGGIO1.SPCSO4.stVal | Status bit that can be set by clients like e.g. SCADA (Single Point Controllable Status Output). |
| CTLGGIO1.SPCSO5.stVal | Status bit that can be set by clients like e.g. SCADA (Single Point Controllable Status Output). |
| CTLGGIO1.SPCSO6.stVal | Status bit that can be set by clients like e.g. SCADA (Single Point Controllable Status Output). |
| CTLGGIO1.SPCSO7.stVal | Status bit that can be set by clients like e.g. SCADA (Single Point Controllable Status Output). |
| CTLGGIO1.SPCSO8.stVal | Status bit that can be set by clients like e.g. SCADA (Single Point Controllable Status Output). |

17 Selection Lists
 17.168 AdaptSet

| AdaptSet | Description |
|------------------------|--|
| CTLGGIO1.SPCSO9.stVal | Status bit that can be set by clients like e.g. SCADA (Single Point Controllable Status Output). |
| CTLGGIO1.SPCSO10.stVal | Status bit that can be set by clients like e.g. SCADA (Single Point Controllable Status Output). |
| CTLGGIO1.SPCSO11.stVal | Status bit that can be set by clients like e.g. SCADA (Single Point Controllable Status Output). |
| CTLGGIO1.SPCSO12.stVal | Status bit that can be set by clients like e.g. SCADA (Single Point Controllable Status Output). |
| CTLGGIO1.SPCSO13.stVal | Status bit that can be set by clients like e.g. SCADA (Single Point Controllable Status Output). |
| CTLGGIO1.SPCSO14.stVal | Status bit that can be set by clients like e.g. SCADA (Single Point Controllable Status Output). |
| CTLGGIO1.SPCSO15.stVal | Status bit that can be set by clients like e.g. SCADA (Single Point Controllable Status Output). |
| CTLGGIO1.SPCSO16.stVal | Status bit that can be set by clients like e.g. SCADA (Single Point Controllable Status Output). |
| Scada Cmd 1 | Scada Command |
| Scada Cmd 2 | Scada Command |
| Scada Cmd 3 | Scada Command |
| Scada Cmd 4 | Scada Command |
| Scada Cmd 5 | Scada Command |
| Scada Cmd 6 | Scada Command |
| Scada Cmd 7 | Scada Command |
| Scada Cmd 8 | Scada Command |
| Scada Cmd 9 | Scada Command |
| Scada Cmd 10 | Scada Command |
| Scada Cmd 1 | Scada Command |
| Scada Cmd 2 | Scada Command |
| Scada Cmd 3 | Scada Command |
| Scada Cmd 4 | Scada Command |
| Scada Cmd 5 | Scada Command |
| Scada Cmd 6 | Scada Command |
| Scada Cmd 7 | Scada Command |
| Scada Cmd 8 | Scada Command |
| Scada Cmd 9 | Scada Command |
| Scada Cmd 10 | Scada Command |
| Scada Cmd 11 | Scada Command |
| Scada Cmd 12 | Scada Command |
| Scada Cmd 13 | Scada Command |
| Scada Cmd 14 | Scada Command |
| Scada Cmd 15 | Scada Command |
| Scada Cmd 16 | Scada Command |

| AdaptSet | Description |
|------------------|--|
| Scada Cmd 1 | Scada Command |
| Scada Cmd 2 | Scada Command |
| Scada Cmd 3 | Scada Command |
| Scada Cmd 4 | Scada Command |
| Scada Cmd 5 | Scada Command |
| Scada Cmd 6 | Scada Command |
| Scada Cmd 7 | Scada Command |
| Scada Cmd 8 | Scada Command |
| Scada Cmd 9 | Scada Command |
| Scada Cmd 10 | Scada Command |
| Scada Cmd 11 | Scada Command |
| Scada Cmd 12 | Scada Command |
| Scada Cmd 13 | Scada Command |
| Scada Cmd 14 | Scada Command |
| Scada Cmd 15 | Scada Command |
| Scada Cmd 16 | Scada Command |
| LE1.Gate Out | Signal: Output of the logic gate |
| LE1.Timer Out | Signal: Timer Output |
| LE1.Out | Signal: Latched Output (Q) |
| LE1.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE2.Gate Out | Signal: Output of the logic gate |
| LE2.Timer Out | Signal: Timer Output |
| LE2.Out | Signal: Latched Output (Q) |
| LE2.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE3.Gate Out | Signal: Output of the logic gate |
| LE3.Timer Out | Signal: Timer Output |
| LE3.Out | Signal: Latched Output (Q) |
| LE3.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE4.Gate Out | Signal: Output of the logic gate |
| LE4.Timer Out | Signal: Timer Output |
| LE4.Out | Signal: Latched Output (Q) |
| LE4.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE5.Gate Out | Signal: Output of the logic gate |
| LE5.Timer Out | Signal: Timer Output |
| LE5.Out | Signal: Latched Output (Q) |
| LE5.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE6.Gate Out | Signal: Output of the logic gate |
| LE6.Timer Out | Signal: Timer Output |

| AdaptSet | Description |
|-------------------|--|
| LE6.Out | Signal: Latched Output (Q) |
| LE6.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE7.Gate Out | Signal: Output of the logic gate |
| LE7.Timer Out | Signal: Timer Output |
| LE7.Out | Signal: Latched Output (Q) |
| LE7.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE8.Gate Out | Signal: Output of the logic gate |
| LE8.Timer Out | Signal: Timer Output |
| LE8.Out | Signal: Latched Output (Q) |
| LE8.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE9.Gate Out | Signal: Output of the logic gate |
| LE9.Timer Out | Signal: Timer Output |
| LE9.Out | Signal: Latched Output (Q) |
| LE9.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE10.Gate Out | Signal: Output of the logic gate |
| LE10.Timer Out | Signal: Timer Output |
| LE10.Out | Signal: Latched Output (Q) |
| LE10.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE11.Gate Out | Signal: Output of the logic gate |
| LE11.Timer Out | Signal: Timer Output |
| LE11.Out | Signal: Latched Output (Q) |
| LE11.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE12.Gate Out | Signal: Output of the logic gate |
| LE12.Timer Out | Signal: Timer Output |
| LE12.Out | Signal: Latched Output (Q) |
| LE12.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE13.Gate Out | Signal: Output of the logic gate |
| LE13.Timer Out | Signal: Timer Output |
| LE13.Out | Signal: Latched Output (Q) |
| LE13.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE14.Gate Out | Signal: Output of the logic gate |
| LE14.Timer Out | Signal: Timer Output |
| LE14.Out | Signal: Latched Output (Q) |
| LE14.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE15.Gate Out | Signal: Output of the logic gate |
| LE15.Timer Out | Signal: Timer Output |
| LE15.Out | Signal: Latched Output (Q) |
| LE15.Out inverted | Signal: Negated Latched Output (Q NOT) |

| AdaptSet | Description |
|-------------------|--|
| LE16.Gate Out | Signal: Output of the logic gate |
| LE16.Timer Out | Signal: Timer Output |
| LE16.Out | Signal: Latched Output (Q) |
| LE16.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE17.Gate Out | Signal: Output of the logic gate |
| LE17.Timer Out | Signal: Timer Output |
| LE17.Out | Signal: Latched Output (Q) |
| LE17.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE18.Gate Out | Signal: Output of the logic gate |
| LE18.Timer Out | Signal: Timer Output |
| LE18.Out | Signal: Latched Output (Q) |
| LE18.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE19.Gate Out | Signal: Output of the logic gate |
| LE19.Timer Out | Signal: Timer Output |
| LE19.Out | Signal: Latched Output (Q) |
| LE19.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE20.Gate Out | Signal: Output of the logic gate |
| LE20.Timer Out | Signal: Timer Output |
| LE20.Out | Signal: Latched Output (Q) |
| LE20.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE21.Gate Out | Signal: Output of the logic gate |
| LE21.Timer Out | Signal: Timer Output |
| LE21.Out | Signal: Latched Output (Q) |
| LE21.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE22.Gate Out | Signal: Output of the logic gate |
| LE22.Timer Out | Signal: Timer Output |
| LE22.Out | Signal: Latched Output (Q) |
| LE22.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE23.Gate Out | Signal: Output of the logic gate |
| LE23.Timer Out | Signal: Timer Output |
| LE23.Out | Signal: Latched Output (Q) |
| LE23.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE24.Gate Out | Signal: Output of the logic gate |
| LE24.Timer Out | Signal: Timer Output |
| LE24.Out | Signal: Latched Output (Q) |
| LE24.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE25.Gate Out | Signal: Output of the logic gate |
| LE25.Timer Out | Signal: Timer Output |

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 17.168 AdaptSet

| AdaptSet | Description |
|-------------------|--|
| LE25.Out | Signal: Latched Output (Q) |
| LE25.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE26.Gate Out | Signal: Output of the logic gate |
| LE26.Timer Out | Signal: Timer Output |
| LE26.Out | Signal: Latched Output (Q) |
| LE26.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE27.Gate Out | Signal: Output of the logic gate |
| LE27.Timer Out | Signal: Timer Output |
| LE27.Out | Signal: Latched Output (Q) |
| LE27.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE28.Gate Out | Signal: Output of the logic gate |
| LE28.Timer Out | Signal: Timer Output |
| LE28.Out | Signal: Latched Output (Q) |
| LE28.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE29.Gate Out | Signal: Output of the logic gate |
| LE29.Timer Out | Signal: Timer Output |
| LE29.Out | Signal: Latched Output (Q) |
| LE29.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE30.Gate Out | Signal: Output of the logic gate |
| LE30.Timer Out | Signal: Timer Output |
| LE30.Out | Signal: Latched Output (Q) |
| LE30.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE31.Gate Out | Signal: Output of the logic gate |
| LE31.Timer Out | Signal: Timer Output |
| LE31.Out | Signal: Latched Output (Q) |
| LE31.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE32.Gate Out | Signal: Output of the logic gate |
| LE32.Timer Out | Signal: Timer Output |
| LE32.Out | Signal: Latched Output (Q) |
| LE32.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE33.Gate Out | Signal: Output of the logic gate |
| LE33.Timer Out | Signal: Timer Output |
| LE33.Out | Signal: Latched Output (Q) |
| LE33.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE34.Gate Out | Signal: Output of the logic gate |
| LE34.Timer Out | Signal: Timer Output |
| LE34.Out | Signal: Latched Output (Q) |
| LE34.Out inverted | Signal: Negated Latched Output (Q NOT) |

| AdaptSet | Description |
|-------------------|--|
| LE35.Gate Out | Signal: Output of the logic gate |
| LE35.Timer Out | Signal: Timer Output |
| LE35.Out | Signal: Latched Output (Q) |
| LE35.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE36.Gate Out | Signal: Output of the logic gate |
| LE36.Timer Out | Signal: Timer Output |
| LE36.Out | Signal: Latched Output (Q) |
| LE36.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE37.Gate Out | Signal: Output of the logic gate |
| LE37.Timer Out | Signal: Timer Output |
| LE37.Out | Signal: Latched Output (Q) |
| LE37.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE38.Gate Out | Signal: Output of the logic gate |
| LE38.Timer Out | Signal: Timer Output |
| LE38.Out | Signal: Latched Output (Q) |
| LE38.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE39.Gate Out | Signal: Output of the logic gate |
| LE39.Timer Out | Signal: Timer Output |
| LE39.Out | Signal: Latched Output (Q) |
| LE39.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE40.Gate Out | Signal: Output of the logic gate |
| LE40.Timer Out | Signal: Timer Output |
| LE40.Out | Signal: Latched Output (Q) |
| LE40.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE41.Gate Out | Signal: Output of the logic gate |
| LE41.Timer Out | Signal: Timer Output |
| LE41.Out | Signal: Latched Output (Q) |
| LE41.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE42.Gate Out | Signal: Output of the logic gate |
| LE42.Timer Out | Signal: Timer Output |
| LE42.Out | Signal: Latched Output (Q) |
| LE42.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE43.Gate Out | Signal: Output of the logic gate |
| LE43.Timer Out | Signal: Timer Output |
| LE43.Out | Signal: Latched Output (Q) |
| LE43.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE44.Gate Out | Signal: Output of the logic gate |
| LE44.Timer Out | Signal: Timer Output |

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 17.168 AdaptSet

| AdaptSet | Description |
|-------------------|--|
| LE44.Out | Signal: Latched Output (Q) |
| LE44.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE45.Gate Out | Signal: Output of the logic gate |
| LE45.Timer Out | Signal: Timer Output |
| LE45.Out | Signal: Latched Output (Q) |
| LE45.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE46.Gate Out | Signal: Output of the logic gate |
| LE46.Timer Out | Signal: Timer Output |
| LE46.Out | Signal: Latched Output (Q) |
| LE46.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE47.Gate Out | Signal: Output of the logic gate |
| LE47.Timer Out | Signal: Timer Output |
| LE47.Out | Signal: Latched Output (Q) |
| LE47.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE48.Gate Out | Signal: Output of the logic gate |
| LE48.Timer Out | Signal: Timer Output |
| LE48.Out | Signal: Latched Output (Q) |
| LE48.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE49.Gate Out | Signal: Output of the logic gate |
| LE49.Timer Out | Signal: Timer Output |
| LE49.Out | Signal: Latched Output (Q) |
| LE49.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE50.Gate Out | Signal: Output of the logic gate |
| LE50.Timer Out | Signal: Timer Output |
| LE50.Out | Signal: Latched Output (Q) |
| LE50.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE51.Gate Out | Signal: Output of the logic gate |
| LE51.Timer Out | Signal: Timer Output |
| LE51.Out | Signal: Latched Output (Q) |
| LE51.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE52.Gate Out | Signal: Output of the logic gate |
| LE52.Timer Out | Signal: Timer Output |
| LE52.Out | Signal: Latched Output (Q) |
| LE52.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE53.Gate Out | Signal: Output of the logic gate |
| LE53.Timer Out | Signal: Timer Output |
| LE53.Out | Signal: Latched Output (Q) |
| LE53.Out inverted | Signal: Negated Latched Output (Q NOT) |

| AdaptSet | Description |
|-------------------|--|
| LE54.Gate Out | Signal: Output of the logic gate |
| LE54.Timer Out | Signal: Timer Output |
| LE54.Out | Signal: Latched Output (Q) |
| LE54.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE55.Gate Out | Signal: Output of the logic gate |
| LE55.Timer Out | Signal: Timer Output |
| LE55.Out | Signal: Latched Output (Q) |
| LE55.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE56.Gate Out | Signal: Output of the logic gate |
| LE56.Timer Out | Signal: Timer Output |
| LE56.Out | Signal: Latched Output (Q) |
| LE56.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE57.Gate Out | Signal: Output of the logic gate |
| LE57.Timer Out | Signal: Timer Output |
| LE57.Out | Signal: Latched Output (Q) |
| LE57.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE58.Gate Out | Signal: Output of the logic gate |
| LE58.Timer Out | Signal: Timer Output |
| LE58.Out | Signal: Latched Output (Q) |
| LE58.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE59.Gate Out | Signal: Output of the logic gate |
| LE59.Timer Out | Signal: Timer Output |
| LE59.Out | Signal: Latched Output (Q) |
| LE59.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE60.Gate Out | Signal: Output of the logic gate |
| LE60.Timer Out | Signal: Timer Output |
| LE60.Out | Signal: Latched Output (Q) |
| LE60.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE61.Gate Out | Signal: Output of the logic gate |
| LE61.Timer Out | Signal: Timer Output |
| LE61.Out | Signal: Latched Output (Q) |
| LE61.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE62.Gate Out | Signal: Output of the logic gate |
| LE62.Timer Out | Signal: Timer Output |
| LE62.Out | Signal: Latched Output (Q) |
| LE62.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE63.Gate Out | Signal: Output of the logic gate |
| LE63.Timer Out | Signal: Timer Output |

| AdaptSet | Description |
|-------------------|--|
| LE63.Out | Signal: Latched Output (Q) |
| LE63.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE64.Gate Out | Signal: Output of the logic gate |
| LE64.Timer Out | Signal: Timer Output |
| LE64.Out | Signal: Latched Output (Q) |
| LE64.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE65.Gate Out | Signal: Output of the logic gate |
| LE65.Timer Out | Signal: Timer Output |
| LE65.Out | Signal: Latched Output (Q) |
| LE65.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE66.Gate Out | Signal: Output of the logic gate |
| LE66.Timer Out | Signal: Timer Output |
| LE66.Out | Signal: Latched Output (Q) |
| LE66.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE67.Gate Out | Signal: Output of the logic gate |
| LE67.Timer Out | Signal: Timer Output |
| LE67.Out | Signal: Latched Output (Q) |
| LE67.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE68.Gate Out | Signal: Output of the logic gate |
| LE68.Timer Out | Signal: Timer Output |
| LE68.Out | Signal: Latched Output (Q) |
| LE68.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE69.Gate Out | Signal: Output of the logic gate |
| LE69.Timer Out | Signal: Timer Output |
| LE69.Out | Signal: Latched Output (Q) |
| LE69.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE70.Gate Out | Signal: Output of the logic gate |
| LE70.Timer Out | Signal: Timer Output |
| LE70.Out | Signal: Latched Output (Q) |
| LE70.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE71.Gate Out | Signal: Output of the logic gate |
| LE71.Timer Out | Signal: Timer Output |
| LE71.Out | Signal: Latched Output (Q) |
| LE71.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE72.Gate Out | Signal: Output of the logic gate |
| LE72.Timer Out | Signal: Timer Output |
| LE72.Out | Signal: Latched Output (Q) |
| LE72.Out inverted | Signal: Negated Latched Output (Q NOT) |

| AdaptSet | Description |
|---------------------|--|
| LE73.Gate Out | Signal: Output of the logic gate |
| LE73.Timer Out | Signal: Timer Output |
| LE73.Out | Signal: Latched Output (Q) |
| LE73.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE74.Gate Out | Signal: Output of the logic gate |
| LE74.Timer Out | Signal: Timer Output |
| LE74.Out | Signal: Latched Output (Q) |
| LE74.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE75.Gate Out | Signal: Output of the logic gate |
| LE75.Timer Out | Signal: Timer Output |
| LE75.Out | Signal: Latched Output (Q) |
| LE75.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE76.Gate Out | Signal: Output of the logic gate |
| LE76.Timer Out | Signal: Timer Output |
| LE76.Out | Signal: Latched Output (Q) |
| LE76.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE77.Gate Out | Signal: Output of the logic gate |
| LE77.Timer Out | Signal: Timer Output |
| LE77.Out | Signal: Latched Output (Q) |
| LE77.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE78.Gate Out | Signal: Output of the logic gate |
| LE78.Timer Out | Signal: Timer Output |
| LE78.Out | Signal: Latched Output (Q) |
| LE78.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE79.Gate Out | Signal: Output of the logic gate |
| LE79.Timer Out | Signal: Timer Output |
| LE79.Out | Signal: Latched Output (Q) |
| LE79.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE80.Gate Out | Signal: Output of the logic gate |
| LE80.Timer Out | Signal: Timer Output |
| LE80.Out | Signal: Latched Output (Q) |
| LE80.Out inverted | Signal: Negated Latched Output (Q NOT) |
| Maint Mode Active | Signal: Arc Flash Reduction Maintenance Active |
| Maint Mode Inactive | Signal: Arc Flash Reduction Maintenance Inactive |

17.169 1..n, Dig Inputs

Selection list referenced by the following parameters:

- [TCS . Input 1](#)
- [TCS . Input 2](#)

| 1..n, Dig Inputs | Description |
|------------------|-----------------------|
| - | No assignment |
| DI 1 | Signal: Digital Input |
| DI 2 | Signal: Digital Input |
| DI 3 | Signal: Digital Input |
| DI 4 | Signal: Digital Input |
| DI 5 | Signal: Digital Input |
| DI 6 | Signal: Digital Input |
| DI 7 | Signal: Digital Input |
| DI 8 | Signal: Digital Input |
| DI 1 | Signal: Digital Input |
| DI 2 | Signal: Digital Input |
| DI 3 | Signal: Digital Input |
| DI 4 | Signal: Digital Input |

17.170 1..n, DI-LogicList

Selection list referenced by the following parameters:

- [Sys . Maint Mode Activated by](#)
- [SG\[1\] . Aux ON](#)
- [SG\[1\] . Aux OFF](#)
- [SG\[1\] . Ready](#)
- [SG\[1\] . Removed](#)
- [SG\[1\] . SCmd ON](#)
- [\[...\]](#)

| 1..n, DI-LogicList | Description |
|--------------------|-----------------------|
| - | No assignment |
| DI 1 | Signal: Digital Input |
| DI 2 | Signal: Digital Input |
| DI 3 | Signal: Digital Input |
| DI 4 | Signal: Digital Input |

| 1..n, DI-LogicList | Description |
|---------------------------|--|
| DI 5 | Signal: Digital Input |
| DI 6 | Signal: Digital Input |
| DI 7 | Signal: Digital Input |
| DI 8 | Signal: Digital Input |
| DI 1 | Signal: Digital Input |
| DI 2 | Signal: Digital Input |
| DI 3 | Signal: Digital Input |
| DI 4 | Signal: Digital Input |
| BinaryOutput0 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| BinaryOutput1 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| BinaryOutput2 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| BinaryOutput3 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| BinaryOutput4 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| BinaryOutput5 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| BinaryOutput6 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| BinaryOutput7 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| BinaryOutput8 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| BinaryOutput9 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| BinaryOutput10 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| BinaryOutput11 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| BinaryOutput12 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| BinaryOutput13 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| BinaryOutput14 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| BinaryOutput15 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| BinaryOutput16 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| BinaryOutput17 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| BinaryOutput18 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |

| 1..n, DI-LogicList | Description |
|---------------------------|--|
| BinaryOutput19 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| BinaryOutput20 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| BinaryOutput21 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| BinaryOutput22 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| BinaryOutput23 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| BinaryOutput24 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| BinaryOutput25 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| BinaryOutput26 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| BinaryOutput27 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| BinaryOutput28 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| BinaryOutput29 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| BinaryOutput30 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| BinaryOutput31 | Virtual Digital Output (DNP). This corresponds to a virtual binary input of the protective device. |
| Scada Cmd 1 | Scada Command |
| Scada Cmd 2 | Scada Command |
| Scada Cmd 3 | Scada Command |
| Scada Cmd 4 | Scada Command |
| Scada Cmd 5 | Scada Command |
| Scada Cmd 6 | Scada Command |
| Scada Cmd 7 | Scada Command |
| Scada Cmd 8 | Scada Command |
| Scada Cmd 9 | Scada Command |
| Scada Cmd 10 | Scada Command |
| Scada Cmd 11 | Scada Command |
| Scada Cmd 12 | Scada Command |
| Scada Cmd 13 | Scada Command |
| Scada Cmd 14 | Scada Command |
| Scada Cmd 15 | Scada Command |
| Scada Cmd 16 | Scada Command |
| LE1.Gate Out | Signal: Output of the logic gate |
| LE1.Timer Out | Signal: Timer Output |

| 1..n, DI-LogicList | Description |
|---------------------------|--|
| LE1.Out | Signal: Latched Output (Q) |
| LE1.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE2.Gate Out | Signal: Output of the logic gate |
| LE2.Timer Out | Signal: Timer Output |
| LE2.Out | Signal: Latched Output (Q) |
| LE2.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE3.Gate Out | Signal: Output of the logic gate |
| LE3.Timer Out | Signal: Timer Output |
| LE3.Out | Signal: Latched Output (Q) |
| LE3.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE4.Gate Out | Signal: Output of the logic gate |
| LE4.Timer Out | Signal: Timer Output |
| LE4.Out | Signal: Latched Output (Q) |
| LE4.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE5.Gate Out | Signal: Output of the logic gate |
| LE5.Timer Out | Signal: Timer Output |
| LE5.Out | Signal: Latched Output (Q) |
| LE5.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE6.Gate Out | Signal: Output of the logic gate |
| LE6.Timer Out | Signal: Timer Output |
| LE6.Out | Signal: Latched Output (Q) |
| LE6.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE7.Gate Out | Signal: Output of the logic gate |
| LE7.Timer Out | Signal: Timer Output |
| LE7.Out | Signal: Latched Output (Q) |
| LE7.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE8.Gate Out | Signal: Output of the logic gate |
| LE8.Timer Out | Signal: Timer Output |
| LE8.Out | Signal: Latched Output (Q) |
| LE8.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE9.Gate Out | Signal: Output of the logic gate |
| LE9.Timer Out | Signal: Timer Output |
| LE9.Out | Signal: Latched Output (Q) |
| LE9.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE10.Gate Out | Signal: Output of the logic gate |
| LE10.Timer Out | Signal: Timer Output |
| LE10.Out | Signal: Latched Output (Q) |
| LE10.Out inverted | Signal: Negated Latched Output (Q NOT) |

| 1..n, DI-LogicList | Description |
|---------------------------|--|
| LE11.Gate Out | Signal: Output of the logic gate |
| LE11.Timer Out | Signal: Timer Output |
| LE11.Out | Signal: Latched Output (Q) |
| LE11.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE12.Gate Out | Signal: Output of the logic gate |
| LE12.Timer Out | Signal: Timer Output |
| LE12.Out | Signal: Latched Output (Q) |
| LE12.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE13.Gate Out | Signal: Output of the logic gate |
| LE13.Timer Out | Signal: Timer Output |
| LE13.Out | Signal: Latched Output (Q) |
| LE13.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE14.Gate Out | Signal: Output of the logic gate |
| LE14.Timer Out | Signal: Timer Output |
| LE14.Out | Signal: Latched Output (Q) |
| LE14.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE15.Gate Out | Signal: Output of the logic gate |
| LE15.Timer Out | Signal: Timer Output |
| LE15.Out | Signal: Latched Output (Q) |
| LE15.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE16.Gate Out | Signal: Output of the logic gate |
| LE16.Timer Out | Signal: Timer Output |
| LE16.Out | Signal: Latched Output (Q) |
| LE16.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE17.Gate Out | Signal: Output of the logic gate |
| LE17.Timer Out | Signal: Timer Output |
| LE17.Out | Signal: Latched Output (Q) |
| LE17.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE18.Gate Out | Signal: Output of the logic gate |
| LE18.Timer Out | Signal: Timer Output |
| LE18.Out | Signal: Latched Output (Q) |
| LE18.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE19.Gate Out | Signal: Output of the logic gate |
| LE19.Timer Out | Signal: Timer Output |
| LE19.Out | Signal: Latched Output (Q) |
| LE19.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE20.Gate Out | Signal: Output of the logic gate |
| LE20.Timer Out | Signal: Timer Output |

| 1..n, DI-LogicList | Description |
|---------------------------|--|
| LE20.Out | Signal: Latched Output (Q) |
| LE20.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE21.Gate Out | Signal: Output of the logic gate |
| LE21.Timer Out | Signal: Timer Output |
| LE21.Out | Signal: Latched Output (Q) |
| LE21.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE22.Gate Out | Signal: Output of the logic gate |
| LE22.Timer Out | Signal: Timer Output |
| LE22.Out | Signal: Latched Output (Q) |
| LE22.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE23.Gate Out | Signal: Output of the logic gate |
| LE23.Timer Out | Signal: Timer Output |
| LE23.Out | Signal: Latched Output (Q) |
| LE23.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE24.Gate Out | Signal: Output of the logic gate |
| LE24.Timer Out | Signal: Timer Output |
| LE24.Out | Signal: Latched Output (Q) |
| LE24.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE25.Gate Out | Signal: Output of the logic gate |
| LE25.Timer Out | Signal: Timer Output |
| LE25.Out | Signal: Latched Output (Q) |
| LE25.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE26.Gate Out | Signal: Output of the logic gate |
| LE26.Timer Out | Signal: Timer Output |
| LE26.Out | Signal: Latched Output (Q) |
| LE26.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE27.Gate Out | Signal: Output of the logic gate |
| LE27.Timer Out | Signal: Timer Output |
| LE27.Out | Signal: Latched Output (Q) |
| LE27.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE28.Gate Out | Signal: Output of the logic gate |
| LE28.Timer Out | Signal: Timer Output |
| LE28.Out | Signal: Latched Output (Q) |
| LE28.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE29.Gate Out | Signal: Output of the logic gate |
| LE29.Timer Out | Signal: Timer Output |
| LE29.Out | Signal: Latched Output (Q) |
| LE29.Out inverted | Signal: Negated Latched Output (Q NOT) |

| 1..n, DI-LogicList | Description |
|---------------------------|--|
| LE30.Gate Out | Signal: Output of the logic gate |
| LE30.Timer Out | Signal: Timer Output |
| LE30.Out | Signal: Latched Output (Q) |
| LE30.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE31.Gate Out | Signal: Output of the logic gate |
| LE31.Timer Out | Signal: Timer Output |
| LE31.Out | Signal: Latched Output (Q) |
| LE31.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE32.Gate Out | Signal: Output of the logic gate |
| LE32.Timer Out | Signal: Timer Output |
| LE32.Out | Signal: Latched Output (Q) |
| LE32.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE33.Gate Out | Signal: Output of the logic gate |
| LE33.Timer Out | Signal: Timer Output |
| LE33.Out | Signal: Latched Output (Q) |
| LE33.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE34.Gate Out | Signal: Output of the logic gate |
| LE34.Timer Out | Signal: Timer Output |
| LE34.Out | Signal: Latched Output (Q) |
| LE34.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE35.Gate Out | Signal: Output of the logic gate |
| LE35.Timer Out | Signal: Timer Output |
| LE35.Out | Signal: Latched Output (Q) |
| LE35.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE36.Gate Out | Signal: Output of the logic gate |
| LE36.Timer Out | Signal: Timer Output |
| LE36.Out | Signal: Latched Output (Q) |
| LE36.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE37.Gate Out | Signal: Output of the logic gate |
| LE37.Timer Out | Signal: Timer Output |
| LE37.Out | Signal: Latched Output (Q) |
| LE37.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE38.Gate Out | Signal: Output of the logic gate |
| LE38.Timer Out | Signal: Timer Output |
| LE38.Out | Signal: Latched Output (Q) |
| LE38.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE39.Gate Out | Signal: Output of the logic gate |
| LE39.Timer Out | Signal: Timer Output |

| 1..n, DI-LogicList | Description |
|---------------------------|--|
| LE39.Out | Signal: Latched Output (Q) |
| LE39.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE40.Gate Out | Signal: Output of the logic gate |
| LE40.Timer Out | Signal: Timer Output |
| LE40.Out | Signal: Latched Output (Q) |
| LE40.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE41.Gate Out | Signal: Output of the logic gate |
| LE41.Timer Out | Signal: Timer Output |
| LE41.Out | Signal: Latched Output (Q) |
| LE41.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE42.Gate Out | Signal: Output of the logic gate |
| LE42.Timer Out | Signal: Timer Output |
| LE42.Out | Signal: Latched Output (Q) |
| LE42.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE43.Gate Out | Signal: Output of the logic gate |
| LE43.Timer Out | Signal: Timer Output |
| LE43.Out | Signal: Latched Output (Q) |
| LE43.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE44.Gate Out | Signal: Output of the logic gate |
| LE44.Timer Out | Signal: Timer Output |
| LE44.Out | Signal: Latched Output (Q) |
| LE44.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE45.Gate Out | Signal: Output of the logic gate |
| LE45.Timer Out | Signal: Timer Output |
| LE45.Out | Signal: Latched Output (Q) |
| LE45.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE46.Gate Out | Signal: Output of the logic gate |
| LE46.Timer Out | Signal: Timer Output |
| LE46.Out | Signal: Latched Output (Q) |
| LE46.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE47.Gate Out | Signal: Output of the logic gate |
| LE47.Timer Out | Signal: Timer Output |
| LE47.Out | Signal: Latched Output (Q) |
| LE47.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE48.Gate Out | Signal: Output of the logic gate |
| LE48.Timer Out | Signal: Timer Output |
| LE48.Out | Signal: Latched Output (Q) |
| LE48.Out inverted | Signal: Negated Latched Output (Q NOT) |

| 1..n, DI-LogicList | Description |
|---------------------------|--|
| LE49.Gate Out | Signal: Output of the logic gate |
| LE49.Timer Out | Signal: Timer Output |
| LE49.Out | Signal: Latched Output (Q) |
| LE49.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE50.Gate Out | Signal: Output of the logic gate |
| LE50.Timer Out | Signal: Timer Output |
| LE50.Out | Signal: Latched Output (Q) |
| LE50.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE51.Gate Out | Signal: Output of the logic gate |
| LE51.Timer Out | Signal: Timer Output |
| LE51.Out | Signal: Latched Output (Q) |
| LE51.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE52.Gate Out | Signal: Output of the logic gate |
| LE52.Timer Out | Signal: Timer Output |
| LE52.Out | Signal: Latched Output (Q) |
| LE52.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE53.Gate Out | Signal: Output of the logic gate |
| LE53.Timer Out | Signal: Timer Output |
| LE53.Out | Signal: Latched Output (Q) |
| LE53.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE54.Gate Out | Signal: Output of the logic gate |
| LE54.Timer Out | Signal: Timer Output |
| LE54.Out | Signal: Latched Output (Q) |
| LE54.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE55.Gate Out | Signal: Output of the logic gate |
| LE55.Timer Out | Signal: Timer Output |
| LE55.Out | Signal: Latched Output (Q) |
| LE55.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE56.Gate Out | Signal: Output of the logic gate |
| LE56.Timer Out | Signal: Timer Output |
| LE56.Out | Signal: Latched Output (Q) |
| LE56.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE57.Gate Out | Signal: Output of the logic gate |
| LE57.Timer Out | Signal: Timer Output |
| LE57.Out | Signal: Latched Output (Q) |
| LE57.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE58.Gate Out | Signal: Output of the logic gate |
| LE58.Timer Out | Signal: Timer Output |

| 1..n, DI-LogicList | Description |
|---------------------------|--|
| LE58.Out | Signal: Latched Output (Q) |
| LE58.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE59.Gate Out | Signal: Output of the logic gate |
| LE59.Timer Out | Signal: Timer Output |
| LE59.Out | Signal: Latched Output (Q) |
| LE59.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE60.Gate Out | Signal: Output of the logic gate |
| LE60.Timer Out | Signal: Timer Output |
| LE60.Out | Signal: Latched Output (Q) |
| LE60.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE61.Gate Out | Signal: Output of the logic gate |
| LE61.Timer Out | Signal: Timer Output |
| LE61.Out | Signal: Latched Output (Q) |
| LE61.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE62.Gate Out | Signal: Output of the logic gate |
| LE62.Timer Out | Signal: Timer Output |
| LE62.Out | Signal: Latched Output (Q) |
| LE62.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE63.Gate Out | Signal: Output of the logic gate |
| LE63.Timer Out | Signal: Timer Output |
| LE63.Out | Signal: Latched Output (Q) |
| LE63.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE64.Gate Out | Signal: Output of the logic gate |
| LE64.Timer Out | Signal: Timer Output |
| LE64.Out | Signal: Latched Output (Q) |
| LE64.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE65.Gate Out | Signal: Output of the logic gate |
| LE65.Timer Out | Signal: Timer Output |
| LE65.Out | Signal: Latched Output (Q) |
| LE65.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE66.Gate Out | Signal: Output of the logic gate |
| LE66.Timer Out | Signal: Timer Output |
| LE66.Out | Signal: Latched Output (Q) |
| LE66.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE67.Gate Out | Signal: Output of the logic gate |
| LE67.Timer Out | Signal: Timer Output |
| LE67.Out | Signal: Latched Output (Q) |
| LE67.Out inverted | Signal: Negated Latched Output (Q NOT) |

| 1..n, DI-LogicList | Description |
|---------------------------|--|
| LE68.Gate Out | Signal: Output of the logic gate |
| LE68.Timer Out | Signal: Timer Output |
| LE68.Out | Signal: Latched Output (Q) |
| LE68.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE69.Gate Out | Signal: Output of the logic gate |
| LE69.Timer Out | Signal: Timer Output |
| LE69.Out | Signal: Latched Output (Q) |
| LE69.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE70.Gate Out | Signal: Output of the logic gate |
| LE70.Timer Out | Signal: Timer Output |
| LE70.Out | Signal: Latched Output (Q) |
| LE70.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE71.Gate Out | Signal: Output of the logic gate |
| LE71.Timer Out | Signal: Timer Output |
| LE71.Out | Signal: Latched Output (Q) |
| LE71.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE72.Gate Out | Signal: Output of the logic gate |
| LE72.Timer Out | Signal: Timer Output |
| LE72.Out | Signal: Latched Output (Q) |
| LE72.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE73.Gate Out | Signal: Output of the logic gate |
| LE73.Timer Out | Signal: Timer Output |
| LE73.Out | Signal: Latched Output (Q) |
| LE73.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE74.Gate Out | Signal: Output of the logic gate |
| LE74.Timer Out | Signal: Timer Output |
| LE74.Out | Signal: Latched Output (Q) |
| LE74.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE75.Gate Out | Signal: Output of the logic gate |
| LE75.Timer Out | Signal: Timer Output |
| LE75.Out | Signal: Latched Output (Q) |
| LE75.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE76.Gate Out | Signal: Output of the logic gate |
| LE76.Timer Out | Signal: Timer Output |
| LE76.Out | Signal: Latched Output (Q) |
| LE76.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE77.Gate Out | Signal: Output of the logic gate |
| LE77.Timer Out | Signal: Timer Output |

| 1..n, DI-LogicList | Description |
|--------------------|--|
| LE77.Out | Signal: Latched Output (Q) |
| LE77.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE78.Gate Out | Signal: Output of the logic gate |
| LE78.Timer Out | Signal: Timer Output |
| LE78.Out | Signal: Latched Output (Q) |
| LE78.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE79.Gate Out | Signal: Output of the logic gate |
| LE79.Timer Out | Signal: Timer Output |
| LE79.Out | Signal: Latched Output (Q) |
| LE79.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE80.Gate Out | Signal: Output of the logic gate |
| LE80.Timer Out | Signal: Timer Output |
| LE80.Out | Signal: Latched Output (Q) |
| LE80.Out inverted | Signal: Negated Latched Output (Q NOT) |

17.171 1..n, AnalogOutputList

Referenced by:

- [AnOut\[1\] . Assignment](#)

| 1..n, AnalogOutputList | Description |
|------------------------|--|
| - | No assignment |
| IL1 RMS | Measured value: Phase current (RMS) |
| IL2 RMS | Measured value: Phase current (RMS) |
| IL3 RMS | Measured value: Phase current (RMS) |
| IG meas RMS | Measured value (measured): IG (RMS) |
| IG calc RMS | Measured value (calculated): IG (RMS) |
| I1 | Measured value (calculated): Positive phase sequence current (fundamental) |
| I2 | Measured value (calculated): Unbalanced load current (fundamental) |
| %IL1 THD | Measured value (calculated): IL1 Total Harmonic Distortion |
| %IL2 THD | Measured value (calculated): IL2 Total Harmonic Distortion |
| %IL3 THD | Measured value (calculated): IL3 Total Harmonic Distortion |
| IL1 THD | Measured value (calculated): IL1 Total Harmonic Current |
| IL2 THD | Measured value (calculated): IL2 Total Harmonic Current |
| IL3 THD | Measured value (calculated): IL3 Total Harmonic Current |
| IL1 Ib | Measured value: Phase current as multiple of Ib |
| IL2 Ib | Measured value: Phase current as multiple of Ib |
| IL3 Ib | Measured value: Phase current as multiple of Ib |

| 1..n, AnalogOutputList | Description |
|------------------------|--|
| I3 P (%Ib) avg | Average RMS current of all 3 phases as percentages of Ib |
| I3P Fla Demand | RMS current of all 3 phases calculated in a fixed demand window as percentages of Ib |
| I2T Used | Thermal capacity used. |
| I2T Remained | Thermal capacity remained. |
| Windg1 | Winding 1 |
| Windg2 | Winding 2 |
| Windg3 | Winding 3 |
| Windg4 | Winding 4 |
| Windg5 | Winding 5 |
| Windg6 | Winding 6 |
| MotBear1 | Motor Bearing 1 |
| MotBear2 | Motor Bearing 2 |
| LoadBear1 | Load Bearing 1 |
| LoadBear2 | Load Bearing 2 |
| Aux1 | Auxiliary1 |
| Aux2 | Auxiliary2 |
| RTD Max | Maximum temperature of all channels. |
| HottestWindingTemp | The actual value for the hottest winding temperature. |
| Hottest MotBearTemp | The actual value for the hottest motor bearing temperature. |

17.172 1..n, TrendRecList

Selection list referenced by the following parameters:

- [Trend rec . Trend1](#)
- [Trend rec . Trend2](#)
- [Trend rec . Trend3](#)
- [Trend rec . Trend4](#)
- [Trend rec . Trend5](#)
- [Trend rec . Trend6](#)
- [\[... \]](#)

| 1..n, TrendRecList | Description |
|--------------------|---|
| - | No assignment |
| IL1 | Measured value: Phase current (fundamental) |
| IL2 | Measured value: Phase current (fundamental) |
| IL3 | Measured value: Phase current (fundamental) |
| IG meas | Measured value (measured): IG (fundamental) |

| 1..n, TrendRecList | Description |
|--------------------|---|
| IG calc | Measured value (calculated): IG (fundamental) |
| IL1 RMS | Measured value: Phase current (RMS) |
| IL2 RMS | Measured value: Phase current (RMS) |
| IL3 RMS | Measured value: Phase current (RMS) |
| IG meas RMS | Measured value (measured): IG (RMS) |
| IG calc RMS | Measured value (calculated): IG (RMS) |
| I0 | Measured value (calculated): Zero current (fundamental) |
| I1 | Measured value (calculated): Positive phase sequence current (fundamental) |
| I2 | Measured value (calculated): Unbalanced load current (fundamental) |
| %(I2/I1) | Measured value (calculated): I2/I1, phase sequence will be taken into account automatically. |
| %(I2/I1) max | Measured value (calculated): I2/I1 maximum value, phase sequence will be taken into account automatically |
| IL1 avg RMS | IL1 average value (RMS) |
| IL2 avg RMS | IL2 average value (RMS) |
| IL3 avg RMS | IL3 average value (RMS) |
| IL1 THD | Measured value (calculated): IL1 Total Harmonic Current |
| IL2 THD | Measured value (calculated): IL2 Total Harmonic Current |
| IL3 THD | Measured value (calculated): IL3 Total Harmonic Current |
| IL1 Ib | Measured value: Phase current as multiple of Ib |
| I2T Used | Thermal capacity used. |
| Windg1 | Winding 1 |
| Windg1 max | Winding1 Maximum Value |
| Windg2 | Winding 2 |
| Windg2 max | Winding2 Maximum Value |
| Windg3 | Winding 3 |
| Windg3 max | Winding3 Maximum Value |
| Windg4 | Winding 4 |
| Windg4 max | Winding4 Maximum Value |
| Windg5 | Winding 5 |
| Windg5 max | Winding5 Maximum Value |
| Windg6 | Winding 6 |
| Windg6 max | Winding6 Maximum Value |
| MotBear1 | Motor Bearing 1 |
| MotBear1 max | Motor Bearing1 Maximum Value |
| MotBear2 | Motor Bearing 2 |
| MotBear2 max | Motor Bearing2 Maximum Value |
| LoadBear1 | Load Bearing 1 |
| LoadBear1 max | Load Bearing1 Maximum Value |

| 1..n, TrendRecList | Description |
|---------------------------|---|
| LoadBear2 | Load Bearing 2 |
| LoadBear2 max | Load Bearing2 Maximum Value |
| Aux1 | Auxiliary1 |
| Aux1 max | Auxiliary1 Maximum Value |
| Aux2 | Auxiliary2 |
| Aux2 max | Auxiliary2 Maximum Value |
| RTD Max | Maximum temperature of all channels. |
| HottestWindingTemp | The actual value for the hottest winding temperature. |
| Hottest MotBearTemp | The actual value for the hottest motor bearing temperature. |
| Hottest LoadBearTemp | The actual value for the hottest load bearing temperature. |
| Hottest Aux Temp | The actual value for the hottest Auxiliary temperature. |

17.173 Selection

Referenced by:

- [HMI . Menu language](#)

| Selection | Description |
|------------------|--------------------|
| English | English |
| German | German |
| Russian | Russian |
| Polish | Polish |
| French | French |
| Portuguese | Portuguese |
| Spanish | Spanish |
| Romanian | Romanian |

17.174 Options

Referenced by:

- [Sys . DM version](#)

| | Description |
|--------|--------------------|
| 3.10.a | Version |

17.175 1..n, PSS

Referenced by:

- [Sys . PS1: activated by](#)

| 1..n, PSS | Description |
|------------------|---|
| - | No assignment |
| Alarm | Signal: Alarm Current Transformer Measuring Circuit Supervision |
| DI 1 | Signal: Digital Input |
| DI 2 | Signal: Digital Input |
| DI 3 | Signal: Digital Input |
| DI 4 | Signal: Digital Input |
| DI 5 | Signal: Digital Input |
| DI 6 | Signal: Digital Input |
| DI 7 | Signal: Digital Input |
| DI 8 | Signal: Digital Input |
| DI 1 | Signal: Digital Input |
| DI 2 | Signal: Digital Input |
| DI 3 | Signal: Digital Input |
| DI 4 | Signal: Digital Input |
| LE1.Gate Out | Signal: Output of the logic gate |
| LE1.Timer Out | Signal: Timer Output |
| LE1.Out | Signal: Latched Output (Q) |
| LE1.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE2.Gate Out | Signal: Output of the logic gate |
| LE2.Timer Out | Signal: Timer Output |
| LE2.Out | Signal: Latched Output (Q) |
| LE2.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE3.Gate Out | Signal: Output of the logic gate |
| LE3.Timer Out | Signal: Timer Output |
| LE3.Out | Signal: Latched Output (Q) |
| LE3.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE4.Gate Out | Signal: Output of the logic gate |
| LE4.Timer Out | Signal: Timer Output |
| LE4.Out | Signal: Latched Output (Q) |
| LE4.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE5.Gate Out | Signal: Output of the logic gate |
| LE5.Timer Out | Signal: Timer Output |
| LE5.Out | Signal: Latched Output (Q) |
| LE5.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE6.Gate Out | Signal: Output of the logic gate |
| LE6.Timer Out | Signal: Timer Output |

17 Selection Lists

17.175 1..n, PSS

| 1..n, PSS | Description |
|-------------------|--|
| LE6.Out | Signal: Latched Output (Q) |
| LE6.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE7.Gate Out | Signal: Output of the logic gate |
| LE7.Timer Out | Signal: Timer Output |
| LE7.Out | Signal: Latched Output (Q) |
| LE7.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE8.Gate Out | Signal: Output of the logic gate |
| LE8.Timer Out | Signal: Timer Output |
| LE8.Out | Signal: Latched Output (Q) |
| LE8.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE9.Gate Out | Signal: Output of the logic gate |
| LE9.Timer Out | Signal: Timer Output |
| LE9.Out | Signal: Latched Output (Q) |
| LE9.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE10.Gate Out | Signal: Output of the logic gate |
| LE10.Timer Out | Signal: Timer Output |
| LE10.Out | Signal: Latched Output (Q) |
| LE10.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE11.Gate Out | Signal: Output of the logic gate |
| LE11.Timer Out | Signal: Timer Output |
| LE11.Out | Signal: Latched Output (Q) |
| LE11.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE12.Gate Out | Signal: Output of the logic gate |
| LE12.Timer Out | Signal: Timer Output |
| LE12.Out | Signal: Latched Output (Q) |
| LE12.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE13.Gate Out | Signal: Output of the logic gate |
| LE13.Timer Out | Signal: Timer Output |
| LE13.Out | Signal: Latched Output (Q) |
| LE13.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE14.Gate Out | Signal: Output of the logic gate |
| LE14.Timer Out | Signal: Timer Output |
| LE14.Out | Signal: Latched Output (Q) |
| LE14.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE15.Gate Out | Signal: Output of the logic gate |
| LE15.Timer Out | Signal: Timer Output |
| LE15.Out | Signal: Latched Output (Q) |
| LE15.Out inverted | Signal: Negated Latched Output (Q NOT) |

| 1..n, PSS | Description |
|-------------------|--|
| LE16.Gate Out | Signal: Output of the logic gate |
| LE16.Timer Out | Signal: Timer Output |
| LE16.Out | Signal: Latched Output (Q) |
| LE16.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE17.Gate Out | Signal: Output of the logic gate |
| LE17.Timer Out | Signal: Timer Output |
| LE17.Out | Signal: Latched Output (Q) |
| LE17.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE18.Gate Out | Signal: Output of the logic gate |
| LE18.Timer Out | Signal: Timer Output |
| LE18.Out | Signal: Latched Output (Q) |
| LE18.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE19.Gate Out | Signal: Output of the logic gate |
| LE19.Timer Out | Signal: Timer Output |
| LE19.Out | Signal: Latched Output (Q) |
| LE19.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE20.Gate Out | Signal: Output of the logic gate |
| LE20.Timer Out | Signal: Timer Output |
| LE20.Out | Signal: Latched Output (Q) |
| LE20.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE21.Gate Out | Signal: Output of the logic gate |
| LE21.Timer Out | Signal: Timer Output |
| LE21.Out | Signal: Latched Output (Q) |
| LE21.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE22.Gate Out | Signal: Output of the logic gate |
| LE22.Timer Out | Signal: Timer Output |
| LE22.Out | Signal: Latched Output (Q) |
| LE22.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE23.Gate Out | Signal: Output of the logic gate |
| LE23.Timer Out | Signal: Timer Output |
| LE23.Out | Signal: Latched Output (Q) |
| LE23.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE24.Gate Out | Signal: Output of the logic gate |
| LE24.Timer Out | Signal: Timer Output |
| LE24.Out | Signal: Latched Output (Q) |
| LE24.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE25.Gate Out | Signal: Output of the logic gate |
| LE25.Timer Out | Signal: Timer Output |

17 Selection Lists

17.175 1..n, PSS

| 1..n, PSS | Description |
|-------------------|--|
| LE25.Out | Signal: Latched Output (Q) |
| LE25.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE26.Gate Out | Signal: Output of the logic gate |
| LE26.Timer Out | Signal: Timer Output |
| LE26.Out | Signal: Latched Output (Q) |
| LE26.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE27.Gate Out | Signal: Output of the logic gate |
| LE27.Timer Out | Signal: Timer Output |
| LE27.Out | Signal: Latched Output (Q) |
| LE27.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE28.Gate Out | Signal: Output of the logic gate |
| LE28.Timer Out | Signal: Timer Output |
| LE28.Out | Signal: Latched Output (Q) |
| LE28.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE29.Gate Out | Signal: Output of the logic gate |
| LE29.Timer Out | Signal: Timer Output |
| LE29.Out | Signal: Latched Output (Q) |
| LE29.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE30.Gate Out | Signal: Output of the logic gate |
| LE30.Timer Out | Signal: Timer Output |
| LE30.Out | Signal: Latched Output (Q) |
| LE30.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE31.Gate Out | Signal: Output of the logic gate |
| LE31.Timer Out | Signal: Timer Output |
| LE31.Out | Signal: Latched Output (Q) |
| LE31.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE32.Gate Out | Signal: Output of the logic gate |
| LE32.Timer Out | Signal: Timer Output |
| LE32.Out | Signal: Latched Output (Q) |
| LE32.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE33.Gate Out | Signal: Output of the logic gate |
| LE33.Timer Out | Signal: Timer Output |
| LE33.Out | Signal: Latched Output (Q) |
| LE33.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE34.Gate Out | Signal: Output of the logic gate |
| LE34.Timer Out | Signal: Timer Output |
| LE34.Out | Signal: Latched Output (Q) |
| LE34.Out inverted | Signal: Negated Latched Output (Q NOT) |

| 1..n, PSS | Description |
|-------------------|--|
| LE35.Gate Out | Signal: Output of the logic gate |
| LE35.Timer Out | Signal: Timer Output |
| LE35.Out | Signal: Latched Output (Q) |
| LE35.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE36.Gate Out | Signal: Output of the logic gate |
| LE36.Timer Out | Signal: Timer Output |
| LE36.Out | Signal: Latched Output (Q) |
| LE36.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE37.Gate Out | Signal: Output of the logic gate |
| LE37.Timer Out | Signal: Timer Output |
| LE37.Out | Signal: Latched Output (Q) |
| LE37.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE38.Gate Out | Signal: Output of the logic gate |
| LE38.Timer Out | Signal: Timer Output |
| LE38.Out | Signal: Latched Output (Q) |
| LE38.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE39.Gate Out | Signal: Output of the logic gate |
| LE39.Timer Out | Signal: Timer Output |
| LE39.Out | Signal: Latched Output (Q) |
| LE39.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE40.Gate Out | Signal: Output of the logic gate |
| LE40.Timer Out | Signal: Timer Output |
| LE40.Out | Signal: Latched Output (Q) |
| LE40.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE41.Gate Out | Signal: Output of the logic gate |
| LE41.Timer Out | Signal: Timer Output |
| LE41.Out | Signal: Latched Output (Q) |
| LE41.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE42.Gate Out | Signal: Output of the logic gate |
| LE42.Timer Out | Signal: Timer Output |
| LE42.Out | Signal: Latched Output (Q) |
| LE42.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE43.Gate Out | Signal: Output of the logic gate |
| LE43.Timer Out | Signal: Timer Output |
| LE43.Out | Signal: Latched Output (Q) |
| LE43.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE44.Gate Out | Signal: Output of the logic gate |
| LE44.Timer Out | Signal: Timer Output |

17 Selection Lists

17.175 1..n, PSS

| 1..n, PSS | Description |
|-------------------|--|
| LE44.Out | Signal: Latched Output (Q) |
| LE44.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE45.Gate Out | Signal: Output of the logic gate |
| LE45.Timer Out | Signal: Timer Output |
| LE45.Out | Signal: Latched Output (Q) |
| LE45.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE46.Gate Out | Signal: Output of the logic gate |
| LE46.Timer Out | Signal: Timer Output |
| LE46.Out | Signal: Latched Output (Q) |
| LE46.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE47.Gate Out | Signal: Output of the logic gate |
| LE47.Timer Out | Signal: Timer Output |
| LE47.Out | Signal: Latched Output (Q) |
| LE47.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE48.Gate Out | Signal: Output of the logic gate |
| LE48.Timer Out | Signal: Timer Output |
| LE48.Out | Signal: Latched Output (Q) |
| LE48.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE49.Gate Out | Signal: Output of the logic gate |
| LE49.Timer Out | Signal: Timer Output |
| LE49.Out | Signal: Latched Output (Q) |
| LE49.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE50.Gate Out | Signal: Output of the logic gate |
| LE50.Timer Out | Signal: Timer Output |
| LE50.Out | Signal: Latched Output (Q) |
| LE50.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE51.Gate Out | Signal: Output of the logic gate |
| LE51.Timer Out | Signal: Timer Output |
| LE51.Out | Signal: Latched Output (Q) |
| LE51.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE52.Gate Out | Signal: Output of the logic gate |
| LE52.Timer Out | Signal: Timer Output |
| LE52.Out | Signal: Latched Output (Q) |
| LE52.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE53.Gate Out | Signal: Output of the logic gate |
| LE53.Timer Out | Signal: Timer Output |
| LE53.Out | Signal: Latched Output (Q) |
| LE53.Out inverted | Signal: Negated Latched Output (Q NOT) |

| 1..n, PSS | Description |
|-------------------|--|
| LE54.Gate Out | Signal: Output of the logic gate |
| LE54.Timer Out | Signal: Timer Output |
| LE54.Out | Signal: Latched Output (Q) |
| LE54.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE55.Gate Out | Signal: Output of the logic gate |
| LE55.Timer Out | Signal: Timer Output |
| LE55.Out | Signal: Latched Output (Q) |
| LE55.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE56.Gate Out | Signal: Output of the logic gate |
| LE56.Timer Out | Signal: Timer Output |
| LE56.Out | Signal: Latched Output (Q) |
| LE56.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE57.Gate Out | Signal: Output of the logic gate |
| LE57.Timer Out | Signal: Timer Output |
| LE57.Out | Signal: Latched Output (Q) |
| LE57.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE58.Gate Out | Signal: Output of the logic gate |
| LE58.Timer Out | Signal: Timer Output |
| LE58.Out | Signal: Latched Output (Q) |
| LE58.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE59.Gate Out | Signal: Output of the logic gate |
| LE59.Timer Out | Signal: Timer Output |
| LE59.Out | Signal: Latched Output (Q) |
| LE59.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE60.Gate Out | Signal: Output of the logic gate |
| LE60.Timer Out | Signal: Timer Output |
| LE60.Out | Signal: Latched Output (Q) |
| LE60.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE61.Gate Out | Signal: Output of the logic gate |
| LE61.Timer Out | Signal: Timer Output |
| LE61.Out | Signal: Latched Output (Q) |
| LE61.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE62.Gate Out | Signal: Output of the logic gate |
| LE62.Timer Out | Signal: Timer Output |
| LE62.Out | Signal: Latched Output (Q) |
| LE62.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE63.Gate Out | Signal: Output of the logic gate |
| LE63.Timer Out | Signal: Timer Output |

17 Selection Lists

17.175 1..n, PSS

| 1..n, PSS | Description |
|-------------------|--|
| LE63.Out | Signal: Latched Output (Q) |
| LE63.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE64.Gate Out | Signal: Output of the logic gate |
| LE64.Timer Out | Signal: Timer Output |
| LE64.Out | Signal: Latched Output (Q) |
| LE64.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE65.Gate Out | Signal: Output of the logic gate |
| LE65.Timer Out | Signal: Timer Output |
| LE65.Out | Signal: Latched Output (Q) |
| LE65.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE66.Gate Out | Signal: Output of the logic gate |
| LE66.Timer Out | Signal: Timer Output |
| LE66.Out | Signal: Latched Output (Q) |
| LE66.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE67.Gate Out | Signal: Output of the logic gate |
| LE67.Timer Out | Signal: Timer Output |
| LE67.Out | Signal: Latched Output (Q) |
| LE67.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE68.Gate Out | Signal: Output of the logic gate |
| LE68.Timer Out | Signal: Timer Output |
| LE68.Out | Signal: Latched Output (Q) |
| LE68.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE69.Gate Out | Signal: Output of the logic gate |
| LE69.Timer Out | Signal: Timer Output |
| LE69.Out | Signal: Latched Output (Q) |
| LE69.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE70.Gate Out | Signal: Output of the logic gate |
| LE70.Timer Out | Signal: Timer Output |
| LE70.Out | Signal: Latched Output (Q) |
| LE70.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE71.Gate Out | Signal: Output of the logic gate |
| LE71.Timer Out | Signal: Timer Output |
| LE71.Out | Signal: Latched Output (Q) |
| LE71.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE72.Gate Out | Signal: Output of the logic gate |
| LE72.Timer Out | Signal: Timer Output |
| LE72.Out | Signal: Latched Output (Q) |
| LE72.Out inverted | Signal: Negated Latched Output (Q NOT) |

| 1..n, PSS | Description |
|---------------------|--|
| LE73.Gate Out | Signal: Output of the logic gate |
| LE73.Timer Out | Signal: Timer Output |
| LE73.Out | Signal: Latched Output (Q) |
| LE73.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE74.Gate Out | Signal: Output of the logic gate |
| LE74.Timer Out | Signal: Timer Output |
| LE74.Out | Signal: Latched Output (Q) |
| LE74.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE75.Gate Out | Signal: Output of the logic gate |
| LE75.Timer Out | Signal: Timer Output |
| LE75.Out | Signal: Latched Output (Q) |
| LE75.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE76.Gate Out | Signal: Output of the logic gate |
| LE76.Timer Out | Signal: Timer Output |
| LE76.Out | Signal: Latched Output (Q) |
| LE76.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE77.Gate Out | Signal: Output of the logic gate |
| LE77.Timer Out | Signal: Timer Output |
| LE77.Out | Signal: Latched Output (Q) |
| LE77.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE78.Gate Out | Signal: Output of the logic gate |
| LE78.Timer Out | Signal: Timer Output |
| LE78.Out | Signal: Latched Output (Q) |
| LE78.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE79.Gate Out | Signal: Output of the logic gate |
| LE79.Timer Out | Signal: Timer Output |
| LE79.Out | Signal: Latched Output (Q) |
| LE79.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE80.Gate Out | Signal: Output of the logic gate |
| LE80.Timer Out | Signal: Timer Output |
| LE80.Out | Signal: Latched Output (Q) |
| LE80.Out inverted | Signal: Negated Latched Output (Q NOT) |
| Maint Mode Active | Signal: Arc Flash Reduction Maintenance Active |
| Maint Mode Inactive | Signal: Arc Flash Reduction Maintenance Inactive |

| Trigger | Description |
|------------------|--|
| TripCmd | Signal: Trip Command |
| DI 1 | Signal: Digital Input |
| DI 2 | Signal: Digital Input |
| DI 3 | Signal: Digital Input |
| DI 4 | Signal: Digital Input |
| DI 5 | Signal: Digital Input |
| DI 6 | Signal: Digital Input |
| DI 7 | Signal: Digital Input |
| DI 8 | Signal: Digital Input |
| DI 1 | Signal: Digital Input |
| DI 2 | Signal: Digital Input |
| DI 3 | Signal: Digital Input |
| DI 4 | Signal: Digital Input |
| LE1.Gate Out | Signal: Output of the logic gate |
| LE1.Timer Out | Signal: Timer Output |
| LE1.Out | Signal: Latched Output (Q) |
| LE1.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE2.Gate Out | Signal: Output of the logic gate |
| LE2.Timer Out | Signal: Timer Output |
| LE2.Out | Signal: Latched Output (Q) |
| LE2.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE3.Gate Out | Signal: Output of the logic gate |
| LE3.Timer Out | Signal: Timer Output |
| LE3.Out | Signal: Latched Output (Q) |
| LE3.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE4.Gate Out | Signal: Output of the logic gate |
| LE4.Timer Out | Signal: Timer Output |
| LE4.Out | Signal: Latched Output (Q) |
| LE4.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE5.Gate Out | Signal: Output of the logic gate |
| LE5.Timer Out | Signal: Timer Output |
| LE5.Out | Signal: Latched Output (Q) |
| LE5.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE6.Gate Out | Signal: Output of the logic gate |
| LE6.Timer Out | Signal: Timer Output |
| LE6.Out | Signal: Latched Output (Q) |
| LE6.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE7.Gate Out | Signal: Output of the logic gate |

17 Selection Lists

17.177 Trigger

| Trigger | Description |
|-------------------|--|
| LE7.Timer Out | Signal: Timer Output |
| LE7.Out | Signal: Latched Output (Q) |
| LE7.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE8.Gate Out | Signal: Output of the logic gate |
| LE8.Timer Out | Signal: Timer Output |
| LE8.Out | Signal: Latched Output (Q) |
| LE8.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE9.Gate Out | Signal: Output of the logic gate |
| LE9.Timer Out | Signal: Timer Output |
| LE9.Out | Signal: Latched Output (Q) |
| LE9.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE10.Gate Out | Signal: Output of the logic gate |
| LE10.Timer Out | Signal: Timer Output |
| LE10.Out | Signal: Latched Output (Q) |
| LE10.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE11.Gate Out | Signal: Output of the logic gate |
| LE11.Timer Out | Signal: Timer Output |
| LE11.Out | Signal: Latched Output (Q) |
| LE11.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE12.Gate Out | Signal: Output of the logic gate |
| LE12.Timer Out | Signal: Timer Output |
| LE12.Out | Signal: Latched Output (Q) |
| LE12.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE13.Gate Out | Signal: Output of the logic gate |
| LE13.Timer Out | Signal: Timer Output |
| LE13.Out | Signal: Latched Output (Q) |
| LE13.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE14.Gate Out | Signal: Output of the logic gate |
| LE14.Timer Out | Signal: Timer Output |
| LE14.Out | Signal: Latched Output (Q) |
| LE14.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE15.Gate Out | Signal: Output of the logic gate |
| LE15.Timer Out | Signal: Timer Output |
| LE15.Out | Signal: Latched Output (Q) |
| LE15.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE16.Gate Out | Signal: Output of the logic gate |
| LE16.Timer Out | Signal: Timer Output |
| LE16.Out | Signal: Latched Output (Q) |

| Trigger | Description |
|-------------------|--|
| LE16.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE17.Gate Out | Signal: Output of the logic gate |
| LE17.Timer Out | Signal: Timer Output |
| LE17.Out | Signal: Latched Output (Q) |
| LE17.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE18.Gate Out | Signal: Output of the logic gate |
| LE18.Timer Out | Signal: Timer Output |
| LE18.Out | Signal: Latched Output (Q) |
| LE18.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE19.Gate Out | Signal: Output of the logic gate |
| LE19.Timer Out | Signal: Timer Output |
| LE19.Out | Signal: Latched Output (Q) |
| LE19.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE20.Gate Out | Signal: Output of the logic gate |
| LE20.Timer Out | Signal: Timer Output |
| LE20.Out | Signal: Latched Output (Q) |
| LE20.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE21.Gate Out | Signal: Output of the logic gate |
| LE21.Timer Out | Signal: Timer Output |
| LE21.Out | Signal: Latched Output (Q) |
| LE21.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE22.Gate Out | Signal: Output of the logic gate |
| LE22.Timer Out | Signal: Timer Output |
| LE22.Out | Signal: Latched Output (Q) |
| LE22.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE23.Gate Out | Signal: Output of the logic gate |
| LE23.Timer Out | Signal: Timer Output |
| LE23.Out | Signal: Latched Output (Q) |
| LE23.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE24.Gate Out | Signal: Output of the logic gate |
| LE24.Timer Out | Signal: Timer Output |
| LE24.Out | Signal: Latched Output (Q) |
| LE24.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE25.Gate Out | Signal: Output of the logic gate |
| LE25.Timer Out | Signal: Timer Output |
| LE25.Out | Signal: Latched Output (Q) |
| LE25.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE26.Gate Out | Signal: Output of the logic gate |

17 Selection Lists

17.177 Trigger

| Trigger | Description |
|-------------------|--|
| LE26.Timer Out | Signal: Timer Output |
| LE26.Out | Signal: Latched Output (Q) |
| LE26.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE27.Gate Out | Signal: Output of the logic gate |
| LE27.Timer Out | Signal: Timer Output |
| LE27.Out | Signal: Latched Output (Q) |
| LE27.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE28.Gate Out | Signal: Output of the logic gate |
| LE28.Timer Out | Signal: Timer Output |
| LE28.Out | Signal: Latched Output (Q) |
| LE28.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE29.Gate Out | Signal: Output of the logic gate |
| LE29.Timer Out | Signal: Timer Output |
| LE29.Out | Signal: Latched Output (Q) |
| LE29.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE30.Gate Out | Signal: Output of the logic gate |
| LE30.Timer Out | Signal: Timer Output |
| LE30.Out | Signal: Latched Output (Q) |
| LE30.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE31.Gate Out | Signal: Output of the logic gate |
| LE31.Timer Out | Signal: Timer Output |
| LE31.Out | Signal: Latched Output (Q) |
| LE31.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE32.Gate Out | Signal: Output of the logic gate |
| LE32.Timer Out | Signal: Timer Output |
| LE32.Out | Signal: Latched Output (Q) |
| LE32.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE33.Gate Out | Signal: Output of the logic gate |
| LE33.Timer Out | Signal: Timer Output |
| LE33.Out | Signal: Latched Output (Q) |
| LE33.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE34.Gate Out | Signal: Output of the logic gate |
| LE34.Timer Out | Signal: Timer Output |
| LE34.Out | Signal: Latched Output (Q) |
| LE34.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE35.Gate Out | Signal: Output of the logic gate |
| LE35.Timer Out | Signal: Timer Output |
| LE35.Out | Signal: Latched Output (Q) |

| Trigger | Description |
|-------------------|--|
| LE35.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE36.Gate Out | Signal: Output of the logic gate |
| LE36.Timer Out | Signal: Timer Output |
| LE36.Out | Signal: Latched Output (Q) |
| LE36.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE37.Gate Out | Signal: Output of the logic gate |
| LE37.Timer Out | Signal: Timer Output |
| LE37.Out | Signal: Latched Output (Q) |
| LE37.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE38.Gate Out | Signal: Output of the logic gate |
| LE38.Timer Out | Signal: Timer Output |
| LE38.Out | Signal: Latched Output (Q) |
| LE38.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE39.Gate Out | Signal: Output of the logic gate |
| LE39.Timer Out | Signal: Timer Output |
| LE39.Out | Signal: Latched Output (Q) |
| LE39.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE40.Gate Out | Signal: Output of the logic gate |
| LE40.Timer Out | Signal: Timer Output |
| LE40.Out | Signal: Latched Output (Q) |
| LE40.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE41.Gate Out | Signal: Output of the logic gate |
| LE41.Timer Out | Signal: Timer Output |
| LE41.Out | Signal: Latched Output (Q) |
| LE41.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE42.Gate Out | Signal: Output of the logic gate |
| LE42.Timer Out | Signal: Timer Output |
| LE42.Out | Signal: Latched Output (Q) |
| LE42.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE43.Gate Out | Signal: Output of the logic gate |
| LE43.Timer Out | Signal: Timer Output |
| LE43.Out | Signal: Latched Output (Q) |
| LE43.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE44.Gate Out | Signal: Output of the logic gate |
| LE44.Timer Out | Signal: Timer Output |
| LE44.Out | Signal: Latched Output (Q) |
| LE44.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE45.Gate Out | Signal: Output of the logic gate |

17 Selection Lists

17.177 Trigger

| Trigger | Description |
|-------------------|--|
| LE45.Timer Out | Signal: Timer Output |
| LE45.Out | Signal: Latched Output (Q) |
| LE45.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE46.Gate Out | Signal: Output of the logic gate |
| LE46.Timer Out | Signal: Timer Output |
| LE46.Out | Signal: Latched Output (Q) |
| LE46.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE47.Gate Out | Signal: Output of the logic gate |
| LE47.Timer Out | Signal: Timer Output |
| LE47.Out | Signal: Latched Output (Q) |
| LE47.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE48.Gate Out | Signal: Output of the logic gate |
| LE48.Timer Out | Signal: Timer Output |
| LE48.Out | Signal: Latched Output (Q) |
| LE48.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE49.Gate Out | Signal: Output of the logic gate |
| LE49.Timer Out | Signal: Timer Output |
| LE49.Out | Signal: Latched Output (Q) |
| LE49.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE50.Gate Out | Signal: Output of the logic gate |
| LE50.Timer Out | Signal: Timer Output |
| LE50.Out | Signal: Latched Output (Q) |
| LE50.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE51.Gate Out | Signal: Output of the logic gate |
| LE51.Timer Out | Signal: Timer Output |
| LE51.Out | Signal: Latched Output (Q) |
| LE51.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE52.Gate Out | Signal: Output of the logic gate |
| LE52.Timer Out | Signal: Timer Output |
| LE52.Out | Signal: Latched Output (Q) |
| LE52.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE53.Gate Out | Signal: Output of the logic gate |
| LE53.Timer Out | Signal: Timer Output |
| LE53.Out | Signal: Latched Output (Q) |
| LE53.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE54.Gate Out | Signal: Output of the logic gate |
| LE54.Timer Out | Signal: Timer Output |
| LE54.Out | Signal: Latched Output (Q) |

| Trigger | Description |
|-------------------|--|
| LE54.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE55.Gate Out | Signal: Output of the logic gate |
| LE55.Timer Out | Signal: Timer Output |
| LE55.Out | Signal: Latched Output (Q) |
| LE55.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE56.Gate Out | Signal: Output of the logic gate |
| LE56.Timer Out | Signal: Timer Output |
| LE56.Out | Signal: Latched Output (Q) |
| LE56.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE57.Gate Out | Signal: Output of the logic gate |
| LE57.Timer Out | Signal: Timer Output |
| LE57.Out | Signal: Latched Output (Q) |
| LE57.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE58.Gate Out | Signal: Output of the logic gate |
| LE58.Timer Out | Signal: Timer Output |
| LE58.Out | Signal: Latched Output (Q) |
| LE58.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE59.Gate Out | Signal: Output of the logic gate |
| LE59.Timer Out | Signal: Timer Output |
| LE59.Out | Signal: Latched Output (Q) |
| LE59.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE60.Gate Out | Signal: Output of the logic gate |
| LE60.Timer Out | Signal: Timer Output |
| LE60.Out | Signal: Latched Output (Q) |
| LE60.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE61.Gate Out | Signal: Output of the logic gate |
| LE61.Timer Out | Signal: Timer Output |
| LE61.Out | Signal: Latched Output (Q) |
| LE61.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE62.Gate Out | Signal: Output of the logic gate |
| LE62.Timer Out | Signal: Timer Output |
| LE62.Out | Signal: Latched Output (Q) |
| LE62.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE63.Gate Out | Signal: Output of the logic gate |
| LE63.Timer Out | Signal: Timer Output |
| LE63.Out | Signal: Latched Output (Q) |
| LE63.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE64.Gate Out | Signal: Output of the logic gate |

17 Selection Lists

17.177 Trigger

| Trigger | Description |
|-------------------|--|
| LE64.Timer Out | Signal: Timer Output |
| LE64.Out | Signal: Latched Output (Q) |
| LE64.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE65.Gate Out | Signal: Output of the logic gate |
| LE65.Timer Out | Signal: Timer Output |
| LE65.Out | Signal: Latched Output (Q) |
| LE65.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE66.Gate Out | Signal: Output of the logic gate |
| LE66.Timer Out | Signal: Timer Output |
| LE66.Out | Signal: Latched Output (Q) |
| LE66.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE67.Gate Out | Signal: Output of the logic gate |
| LE67.Timer Out | Signal: Timer Output |
| LE67.Out | Signal: Latched Output (Q) |
| LE67.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE68.Gate Out | Signal: Output of the logic gate |
| LE68.Timer Out | Signal: Timer Output |
| LE68.Out | Signal: Latched Output (Q) |
| LE68.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE69.Gate Out | Signal: Output of the logic gate |
| LE69.Timer Out | Signal: Timer Output |
| LE69.Out | Signal: Latched Output (Q) |
| LE69.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE70.Gate Out | Signal: Output of the logic gate |
| LE70.Timer Out | Signal: Timer Output |
| LE70.Out | Signal: Latched Output (Q) |
| LE70.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE71.Gate Out | Signal: Output of the logic gate |
| LE71.Timer Out | Signal: Timer Output |
| LE71.Out | Signal: Latched Output (Q) |
| LE71.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE72.Gate Out | Signal: Output of the logic gate |
| LE72.Timer Out | Signal: Timer Output |
| LE72.Out | Signal: Latched Output (Q) |
| LE72.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE73.Gate Out | Signal: Output of the logic gate |
| LE73.Timer Out | Signal: Timer Output |
| LE73.Out | Signal: Latched Output (Q) |

| Trigger | Description |
|-------------------|--|
| LE73.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE74.Gate Out | Signal: Output of the logic gate |
| LE74.Timer Out | Signal: Timer Output |
| LE74.Out | Signal: Latched Output (Q) |
| LE74.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE75.Gate Out | Signal: Output of the logic gate |
| LE75.Timer Out | Signal: Timer Output |
| LE75.Out | Signal: Latched Output (Q) |
| LE75.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE76.Gate Out | Signal: Output of the logic gate |
| LE76.Timer Out | Signal: Timer Output |
| LE76.Out | Signal: Latched Output (Q) |
| LE76.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE77.Gate Out | Signal: Output of the logic gate |
| LE77.Timer Out | Signal: Timer Output |
| LE77.Out | Signal: Latched Output (Q) |
| LE77.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE78.Gate Out | Signal: Output of the logic gate |
| LE78.Timer Out | Signal: Timer Output |
| LE78.Out | Signal: Latched Output (Q) |
| LE78.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE79.Gate Out | Signal: Output of the logic gate |
| LE79.Timer Out | Signal: Timer Output |
| LE79.Out | Signal: Latched Output (Q) |
| LE79.Out inverted | Signal: Negated Latched Output (Q NOT) |
| LE80.Gate Out | Signal: Output of the logic gate |
| LE80.Timer Out | Signal: Timer Output |
| LE80.Out | Signal: Latched Output (Q) |
| LE80.Out inverted | Signal: Negated Latched Output (Q NOT) |

17.178 1..n, Trip Cmds

Selection list referenced by the following parameters:

- [SG\[1\] . Off Cmd1](#)
- [SG\[1\] . Off Cmd2](#)
- [SG\[1\] . Off Cmd3](#)
- [SG\[1\] . Off Cmd4](#)

| 1..n, Trip Cmds | Description |
|------------------|---|
| Blo-IOCStart | Signal: Phase Instantaneous Overcurrent Start Delay. IOC (Instantaneous Overcurrent) elements are blocked for the time programmed under this parameter |
| Blo-GOCStart | Signal: Ground Instantaneous Overcurrent Start Delay. GOC (Instantaneous Overcurrent) elements are blocked for the time programmed under this parameter |
| Blo-I<Start | Signal: Underload Start Delay. Underload(Instantaneous Overcurrent) elements are blocked for the time programmed under this parameter |
| Blo-I2>Start | Signal: Motor start block current unbalance signal |
| Blo-JamStart | Signal: JAM Start Delay. JAM(Instantaneous Overcurrent) elements are blocked for the time programmed under this parameter |
| Blo-Generic1 | Generic Start Delay. This value can be used to block any protective element.1 |
| Blo-Generic2 | Generic Start Delay. This value can be used to block any protective element.2 |
| Blo-Generic3 | Generic Start Delay. This value can be used to block any protective element.3 |
| Blo-Generic4 | Generic Start Delay. This value can be used to block any protective element.4 |
| Blo-Generic5 | Generic Start Delay. This value can be used to block any protective element.5 |
| Blo-U2> | Signal: Motor start block voltage unbalance signal. |
| Blo-UnderV Start | Signal: Undervoltage Start Delay. Undervoltage elements are blocked for the time programmed under this parameter |
| Block-OverVStart | Signal: Overvoltage Start Delay. Overvoltage elements are blocked for the time programmed under this parameter |
| Blo-PowerStart | Signal: Power Start Delay. Power elements are blocked for the time programmed under this parameter |
| Blo-PFacStart | Signal: Power Factor Start Delay. Power Factor elements are blocked for the time programmed under this parameter |
| Blo-FrqStart | Signal: Frequency Start Delay. Frequency elements are blocked for the time programmed under this parameter |

17.180 Used Protocol

Referenced by:

- [TimeSync](#) . [TimeSync](#)

| Used Protocol | Description |
|-----------------|-------------------------------|
| - | - |
| IRIG-B | IRIG-B-Module |
| SNTP | SNTP-Module |
| Modbus | Modbus Protocol |
| IEC 60870-5-103 | IEC 60870-5-103 Protocol |
| IEC104 | IEC 60870-5-104 communication |
| DNP3 | Distributed Network Protocol |

17.181 1..n, Assignment List

Referenced by:

- [DNP3 . BinaryCounter 0](#)
- [\[...\]](#)

| 1..n, Assignment List | Description |
|-----------------------|--|
| - | No assignment |
| Fault No. | Fault number |
| No. of Grid Faults | Number of grid faults: This is a counter for all faults (i.e. General Alarms »Prot . Alarm«), but except faults during a running cycle of the Automatic Reclosure module (signal »AR . running«). (Remark: The »Fault No.« counts every new fault independent of AR cycles. This means that for protective devices without AR module these two counters are equivalent.) |
| TripCmd Cr | Counter: Total number of trips of the switchgear. |
| SPH Remaining | SPH Remaining |
| SPH Rem.Block.Time | In case that the Motor is blocked by an SPH blocking, the remaining blocking time is shown until the next motor start is permitted. |
| NOCS Remaining | This counter shows the number of remaining permitted cold starts. |
| OCNT | Motor Operation count since last reset. Resettable with »Sys . Res OperationsCr« or »Sys . Res All«. |
| RunTime | Motor Operation time since last reset. Resettable with »Sys . Res OperationsCr« or »Sys . Res All«. |
| nEmrgOvr | Number of emergency overrides since last reset. Resettable with »Sys . Res OperationsCr« or »Sys . Res All«. |
| TRunTime | Motor Operation (Motor run time) time since last reset. Resettable with »Sys . Res TotalCr« or »Sys . Res All«. |
| TOCS | Total Motor Operation count since last reset. Resettable with »Sys . Res TotalCr« or »Sys . Res All«. |
| nTRNTrips | Number of transition trips since last reset. Resettable with »Sys . Res TripCr« or »Sys . Res All«. |
| nRevTrips | Number of reverse spinning trips since last reset. Resettable with »Sys . Res TripCr« or »Sys . Res All«. |
| nZSWTrips | Number of zero speed switch trips since last reset. Resettable with »Sys . Res TripCr« or »Sys . Res All«. |
| nInSqTrips | Number of incomplete sequence trips since last reset. Resettable with »Sys . Res TripCr« or »Sys . Res All«. |
| nSPHBlocks | Number of start per hour blocks since last reset. Resettable with »Sys . Res TripCr« or »Sys . Res All«. |
| nTBSBlocks | Number of time between start blocks since last reset. Resettable with »Sys . Res TripCr« or »Sys . Res All«. |
| Operating hours Cr | Operating hours counter of the protective device |
| Hours Counter | Resettable device operation hours counter. Resettable with »Sys . Res TotalCr« or »Sys . Res All«. |

17.182 1..n, Assignment List

Referenced by:

- [DNP3 . DoubleBitInput 0](#)

| 1..n, Assignment List | Description |
|-----------------------|--|
| - | No assignment |
| Pos | Signal: Circuit Breaker Position (0 = Indeterminate, 1 = OFF, 2 = ON, 3 = Disturbed) |

17.183 Used Protocol

Referenced by:

- [Scada . Protocol](#)

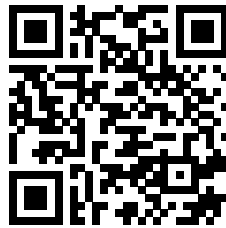
| Used Protocol | Description |
|-----------------|----------------------------------|
| - | Do not use |
| Modbus RTU | Modbus Protocol RTU |
| Modbus TCP | Modbus Protocol TCP |
| Modbus TCP/RTU | Modbus Protocol TCP/RTU |
| DNP3 RTU | Distributed Network Protocol RTU |
| DNP3 TCP | Distributed Network Protocol TCP |
| DNP3 UDP | Distributed Network Protocol UDP |
| IEC 60870-5-103 | IEC 60870-5-103 Protocol |
| IEC 60870-5-104 | IEC 60870-5-104 Protocol |
| IEC 61850 | IEC 61850 communication |
| Profibus | Profibus Module |

High **PROTEC**

MRM4

REFERENCE MANUAL

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