PROTECTION MADE SIMPLE.

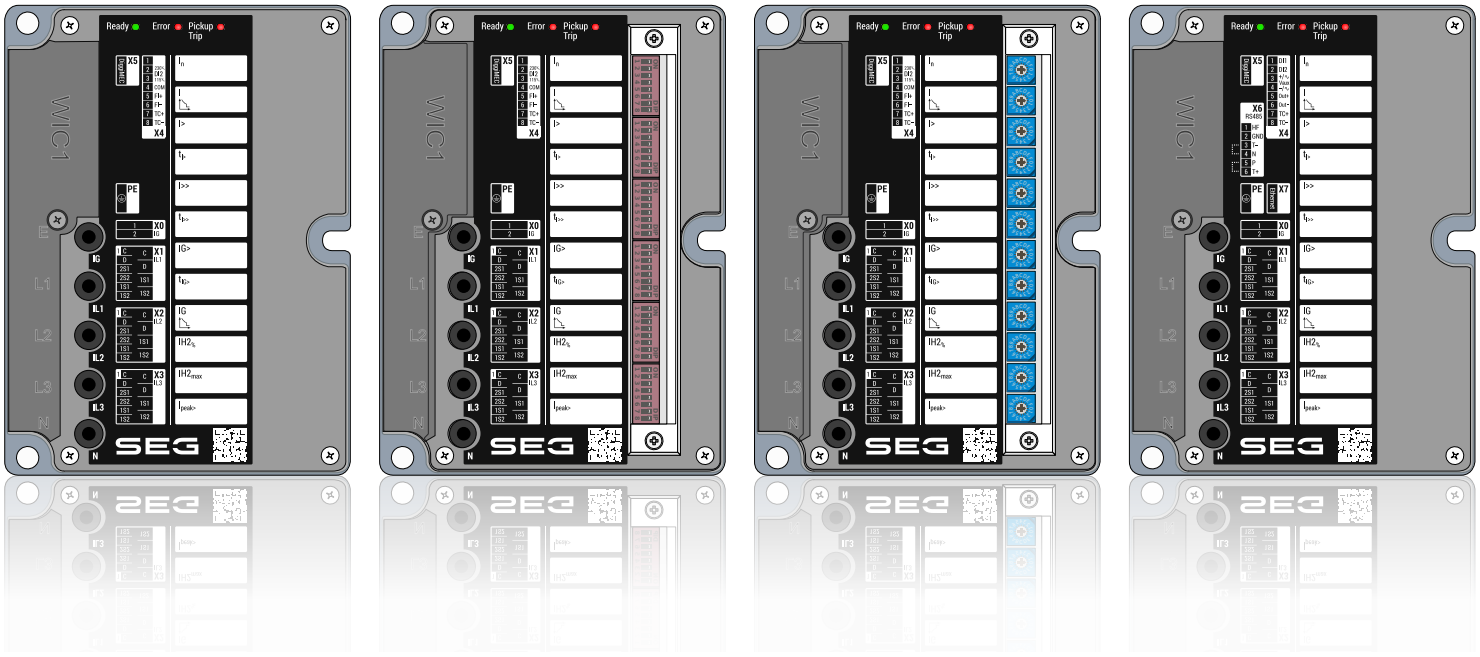
SEG electronics

WI Line

WIC1

SELF-/DUAL-POWERED PROTECTION DEVICE

WIC1-1	Self-powered device, parameter settings via DiggiMEC / Smart view
WIC1-2	Self-powered device, parameter settings via DIP switches and/or DiggiMEC / Smart view
WIC1-3	Self-powered device, parameter settings via HEX switches and/or DiggiMEC / Smart view
WIC1-4	Dual-powered device, parameter settings via DiggiMEC / Smart view



SELF-/DUAL-POWERED PROTECTION DEVICE

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REFERENCE MANUAL WIC1-1.1-EN-REF

Build 57861

Revision B

Reference manual

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Table of Contents

1 About This Reference Manual

This document is a reference of all the Setting Values, Direct Commands and Signals of the WIC1. In other words, it lists all parameters that are available (or can be made available) with the (optionally) full featured versions of the WIC1 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 WIC1.

Every WI Line 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 WI Line 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 WI Line 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 WI Line 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 For some parameters: • Availability restrictions	Value Range	
Type	*Short descriptive text explaining the functionality of this parameter.*	

“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.

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	
🔧	*general operation mode*	

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.

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 WIC1 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.

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 Hardware

2.1 Device Configuration

Self-/Dual-Powered Protection Device										
WIC1	**-2**	**#**	**#**	**#**	**#**	**#**	**#**	**#**	**#**	**#**
Device Variant										
Self-powered device, parameter settings via DiggiMEC / Smart view		**1**								
Self-powered device, parameter settings via DIP switches and/or DiggiMEC / Smart view		**2**								
Self-powered device, parameter settings via HEX switches and/or DiggiMEC / Smart view		**3**								
Dual-powered device, parameter settings via DiggiMEC / Smart view		**4**								
CT Type										
The WIC1-compatible CTs (WIC1WE1AS1 ... WIC1W6AS1) are used for the phase current measuring inputs.			**S**							
Special Broad-Range CTs (2 secondary windings) shall be connected to the phase current measuring inputs.			**B**							
Ground Current Method										
The ground (earth) current is calculated out of the measured phase currents.				**N**						
The ground (earth) current can be measured at a dedicated 4th CT input. However, the device can also be set (via DiggiMEC / Smart view) to operate using calculated ground (earth) current.				**G**						
Nominal Frequency										
The nominal frequency can be set to 50 Hz or 60 Hz (via DiggiMEC / Smart view).					**0**					
The factory preset for the nominal frequency is 50 Hz, but can also be set to 60 Hz (via DiggiMEC / Smart view).					**5**					
The factory preset for the nominal frequency is 60 Hz, but can also be set to 50 Hz (via DiggiMEC / Smart view).					**6**					
Outputs										
The Trip Command is assigned to the “TC” (Trip Coil pulse) output. (This assignment is pre-defined and fixed.)						**N**				

Self-/Dual-Powered Protection Device										
WIC1	**-2**	**#**	**#**	**#**	**#**	**#**	**#**	**#**	**#**	**#**
The Trip Command is assigned to both the “TC” (Trip Coil pulse) output and to the “FI” (Flag Indicator) output. (These assignments are pre-defined and fixed.)						**F**				
The Trip Command is fixed and assigned to the “TC” (Trip Coil pulse) output. The “FI” (Flag Indicator) output is configurable, i.e. can be set to any output signal.						**C**				
Inputs										
Without Digital Inputs							**N**			
Digital Input (115 VAC or 230 VAC) for external trip.							**F**			
Digital Input (115 VAC or 230 VAC), configurable.							**C**			
Without Digital Inputs							**M**			
Digital Inputs for external trip and external reset.							**G**			
The Digital Inputs are configurable.							**D**			
Backup Protection										
The integrated backup protection starts to operate as soon as there is enough electrical energy for a trip impulse.								**1**		
The integrated backup protection starts to operate at 20 In,max.								**2**		
Protection Packages										
ANSI 50, 51, 50G/N, 51G/N, inrush, 50BF, 74TC									**S**	
ANSI 50, 51, 50G/N, 51G/N, inrush, 50BF, 74TC, 46, 51Q, 49									**A**	
ANSI 50, 51, 50G/N, 51G/N, inrush, 50BF, 74TC, 46, 51Q, 49, SOTF, ultra-fast overcurrent protection									**P**	
Communication										
Without										**A**
RS 485: Modbus RTU										**B**
Ethernet: Modbus TCP										**C**
Ethernet/Fiber Optics: Modbus TCP										**L**

2.2 DiggiMEC

2.2.1 DiggiMEC: Device Planning Parameters

DiggiMEC . **Mode**	[Device planning / WIC1 + DiggiMEC]	
	"-", DiggiMEC-A, DiggiMEC-B ↳ Device planning	P.1
DiggiMEC, general operation mode		

2.2.2 DiggiMEC: Settings

DiggiMEC . **Preference for Operation**	[Device Para / DiggiMEC / General Settings]	
Precise meas.	Precise meas., Early wake-up ↳ Preference for Operation	P.1
If set to "Early wake-up", the DiggiMEC is fully available at smaller primary currents, but at the cost of more inaccurate WIC1 measurement values. If set to "Precise meas.", the DiggiMEC gets fully available only with higher primary currents, but the WIC1 measurement values will be more precise. In general, it is recommended to keep the default "Precise meas.".		

DiggiMEC . **FI / BO 1 assign.**	[Device Para / DiggiMEC / FI / BO]	
Prot . TripCmd *Only available if:* • DiggiMEC . Mode = DiggiMEC-B	"-" . . . Prot . Pos OFF ↳	P.1
Assignment of the Flag Indicator / bistable output relay		

DiggiMEC . **FI / BO 1 latching**	[Device Para / DiggiMEC / FI / BO]	
Latching w. Auto-Reset *Only available if:* • DiggiMEC . Mode = DiggiMEC-B	No latching, With latching, Latching w. Auto-Reset ↳ Latching	P.1
Defines whether the Flag Indicator/output relay will be latched when it is set. In case it is set as latched then you also have a choice between several automatical reset modes.		

DiggiMEC . **FI / BO 2 assign.**	[Device Para / DiggiMEC / FI / BO]	
Prot . Trip IPh	"-" . . . Prot . Pos OFF ↳	P.1
Assignment of the Flag Indicator / bistable output relay		

DiggiMEC . **FI / BO 2 latching**	[Device Para / DiggiMEC / FI / BO]	
Latching w. Auto-Reset	No latching, With latching, Latching w. Auto-Reset ↳ Latching	P.1
Defines whether the Flag Indicator/output relay will be latched when it is set. In case it is set as latched then you also have a choice between several automatical reset modes.		

DiggiMEC . **FI / BO 3 assign.**	[Device Para / DiggiMEC / FI / BO]	
Prot . Trip IG *Only available if:* • DiggiMEC . Mode = DiggiMEC-B	"-" . . . Prot . Pos OFF ↳	P.1
Assignment of the Flag Indicator / bistable output relay		

DiggiMEC . **FI / BO 3 latching**	[Device Para / DiggiMEC / FI / BO]	
Latching w. Auto-Reset *Only available if:* • DiggiMEC . Mode = DiggiMEC-B	No latching, With latching, Latching w. Auto-Reset ↳ Latching	P.1
Defines whether the Flag Indicator/output relay will be latched when it is set. In case it is set as latched then you also have a choice between several automatical reset modes.		

DiggiMEC . **LED2 assign.**	[Device Para / DiggiMEC / LEDs]	
TCM . Alarm	"-" . . . Prot . Pos OFF ↳	P.1
Assignment of the LED 2		

DiggiMEC . **LED2 Color** DiggiMEC . **LED3 Color**	[Device Para / DiggiMEC / LEDs]	
Red	Red, Green, Green / Red ↳ Color	P.1
Select the "active" color (if the assigned signal is active) and the "inactive" color (if the assigned signal is inactive)		

DiggiMEC . **LED2 latching**	[Device Para / DiggiMEC / LEDs]	
With latching	No latching, With latching, Latching w. Auto-Reset ↳ Latching	P.1
Defines whether the LED will be latched when it is set. In case it is set as latched then you also have a choice between several automatical reset modes.		

DiggiMEC . **LED3 assign.**	[Device Para / DiggiMEC / LEDs]	
Prot . Trip	“-” . . . Prot . Pos OFF	P.1
Assignment of the LED 3		

DiggiMEC . **LED3 latching**	[Device Para / DiggiMEC / LEDs]	
Latching w. Auto-Reset	No latching, With latching, Latching w. Auto-Reset Latching	P.1
Defines whether the LED will be latched when it is set. In case it is set as latched then you also have a choice between several automatical reset modes.		

3 Security

Password	[Device Para / Security / Password]
	This item represents a special dialog. (See the Technical Manual for details.) *Changing the password*

4 Field settings

4.1 CT – Current Transformer

4.1.1 CT: Settings

CT . **Phase Sequence**	[Field Para / General Settings]	
ABC	ABC, ACB ↳ Phase Sequence	P.1
Phase Sequence		

CT . **f**	[Field Para / General Settings]	
	50 Hz, 60 Hz ↳ fN	P.1
Nominal frequency		

CT . **Measuring method**	[Field Para / General Settings]	
Fundamental	Fundamental, True RMS ↳ Measuring method	P.1
Measuring method for the protection stages I>, I>>, I>>>, IG>, IG>>: Fundamental or RMS		

CT . **IG Source**	[Field Para / General Settings]	
	If: Device Variant with Ground Current Inputs = True • calculated, measured If: Device Variant with Ground Current Inputs = False • calculated ↳ IG Source	P.1
Selection if measured or calculated ground current should be used.		

CT . **Display of Meas. Values**	[Field Para / CT]	
Based on In,relative *Only available if:* • Prot . Settings valid = Software	If: CT . CT Type = Relative • Based on In,relative If: CT . CT Type ≠ Relative • Based on In,relative, Primary current values ↳ Display of Meas. Values	P.1
Select the preferred scaling/unit for the display of measurement values.		

CT . **CT Type**	[Field Para / CT]	
Relative *Only available if:* • Prot . Settings valid = Software	Relative ... Standard CT Type	P.1
Select the connected CT Type (for the display of primary or relative phase current values).		

CT . **In,relative**	[Field Para / CT]	
1.000In.min *Only available if:* • CT . CT Type = Relative	1.000In.min ... 3.500In.min	P.1
Relative primary rated current. (This is the rated current divided by the CT ratio, i.e. a value that has been made independent of the CT type.)		

CT . **CT pri**	[Field Para / CT]	
0A *Only available if:* • Prot . Settings valid = Software	If: CT . CT Type = Relative • 0A ... 0A • 0A ... 56.0A • 0A ... 56.0A • 0A ... 112.0A • 0A ... 224.0A • 0A ... 448.0A • 0A ... 896.0A • 0A ... 10000.0A • 16.0A ... 0A If: CT . CT Type = WE2 : 16 A ... 56 A • 16.0A ... 56.0A • 16.0A ... 56.0A • 16.0A ... 112.0A • 16.0A ... 224.0A • 16.0A ... 448.0A • 16.0A ... 896.0A • 16.0A ... 10000.0A • 16.0A ... 0A • 16.0A ... 56.0A If: CT . CT Type = W2 : 16 A ... 56 A • 16.0A ... 56.0A • 16.0A ... 112.0A • 16.0A ... 224.0A • 16.0A ... 448.0A	P.1

CT . **CT pri**	[Field Para / CT]
	• 16.0A ... 896.0A • 16.0A ... 10000.0A • 32.0A ... 0A • 32.0A ... 56.0A • 32.0A ... 56.0A If: CT . CT Type = W3 : 32 A ... 112 A • 32.0A ... 112.0A • 32.0A ... 224.0A • 32.0A ... 448.0A • 32.0A ... 896.0A • 32.0A ... 10000.0A • 64.0A ... 0A • 64.0A ... 56.0A • 64.0A ... 56.0A • 64.0A ... 112.0A If: CT . CT Type = W4 : 64 A ... 224 A • 64.0A ... 224.0A • 64.0A ... 448.0A • 64.0A ... 896.0A • 64.0A ... 10000.0A • 128.0A ... 0A • 128.0A ... 56.0A • 128.0A ... 56.0A • 128.0A ... 112.0A • 128.0A ... 224.0A If: CT . CT Type = W5 : 128 A ... 448 A • 128.0A ... 448.0A • 128.0A ... 896.0A • 128.0A ... 10000.0A • 256.0A ... 0A • 256.0A ... 56.0A • 256.0A ... 56.0A • 256.0A ... 112.0A • 256.0A ... 224.0A • 256.0A ... 448.0A If: CT . CT Type = W6 : 256 A ... 896 A • 256.0A ... 896.0A • 256.0A ... 10000.0A

CT . **CT pri**	[Field Para / CT]	
	• 1A ... 0A • 1A ... 56.0A • 1A ... 56.0A • 1A ... 112.0A • 1A ... 224.0A • 1A ... 448.0A • 1A ... 896.0A If: CT . CT Type = Standard • 1A ... 10000.0A	
Nominal current of the primary side of the current transformers.		

CT . **ECT pri**	[Field Para / CT]	
60A *Only available if:* • Prot . Settings valid = Software	1A ... 10000.0A	P.1
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.		

CT . **CT Shift by 0°/180°**	[Field Para / CT]	
0 °	0 °, 180 ° Polarity	P.1
If this is set to 180° the phase current vectors are shifted by 180 degrees (change of sign), by device-internal calculation, i.e. without modification of the wiring.		

CT . **ECT Shift by 0°/180°**	[Field Para / CT]	
0 ° *Avail. depends on device type.*	0 °, 180 ° Polarity	P.1
If this is set to 180° the ground current vector is shifted by 180 degrees (change of sign), by device-internal calculation, i.e. without modification of the wiring.		

4.1.2 CT: Direct Controls

CT . **CT Type**	[Field Para / CT]	
Relative *Only available if:* • Prot . Settings valid = Switches	Relative ... Standard CT Type	P.1
Select the connected CT Type (for the display of primary or relative phase current values).		

CT . **CT pri**	[Field Para / CT]	
0A *Only available if:* • Prot . Settings valid = Switches	If: CT . CT Type = Relative • 0A . . . 0A • 0A . . . 56.0A • 0A . . . 56.0A • 0A . . . 112.0A • 0A . . . 224.0A • 0A . . . 448.0A • 0A . . . 896.0A • 0A . . . 10000.0A • 16.0A . . . 0A If: CT . CT Type = WE2 : 16 A ... 56 A • 16.0A . . . 56.0A • 16.0A . . . 56.0A • 16.0A . . . 112.0A • 16.0A . . . 224.0A • 16.0A . . . 448.0A • 16.0A . . . 896.0A • 16.0A . . . 10000.0A • 16.0A . . . 0A • 16.0A . . . 56.0A If: CT . CT Type = W2 : 16 A ... 56 A • 16.0A . . . 56.0A • 16.0A . . . 112.0A • 16.0A . . . 224.0A • 16.0A . . . 448.0A • 16.0A . . . 896.0A • 16.0A . . . 10000.0A • 32.0A . . . 0A • 32.0A . . . 56.0A • 32.0A . . . 56.0A If: CT . CT Type = W3 : 32 A ... 112 A • 32.0A . . . 112.0A • 32.0A . . . 224.0A • 32.0A . . . 448.0A • 32.0A . . . 896.0A • 32.0A . . . 10000.0A • 64.0A . . . 0A	P.1

CT . **CT pri**	[Field Para / CT]
	• 64.0A ... 56.0A • 64.0A ... 56.0A • 64.0A ... 112.0A If: CT . CT Type = W4 : 64 A ... 224 A • 64.0A ... 224.0A • 64.0A ... 448.0A • 64.0A ... 896.0A • 64.0A ... 10000.0A • 128.0A ... 0A • 128.0A ... 56.0A • 128.0A ... 56.0A • 128.0A ... 112.0A • 128.0A ... 224.0A If: CT . CT Type = W5 : 128 A ... 448 A • 128.0A ... 448.0A • 128.0A ... 896.0A • 128.0A ... 10000.0A • 256.0A ... 0A • 256.0A ... 56.0A • 256.0A ... 56.0A • 256.0A ... 112.0A • 256.0A ... 224.0A • 256.0A ... 448.0A If: CT . CT Type = W6 : 256 A ... 896 A • 256.0A ... 896.0A • 256.0A ... 10000.0A • 1A ... 0A • 1A ... 56.0A • 1A ... 56.0A • 1A ... 112.0A • 1A ... 224.0A • 1A ... 448.0A • 1A ... 896.0A If: CT . CT Type = Standard • 1A ... 10000.0A
◉	*Nominal current of the primary side of the current transformers.*

CT . **ECT pri**	[Field Para / CT]	
60A *Only available if:* • Prot . Settings valid = Switches	1A . . . 10000.0A	P.1

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.

4.1.3 CT: Values

CT . **IL1**	[Operation / Measured Values / Current]
Measured value: Phase current (fundamental)	

CT . **IL2**	[Operation / Measured Values / Current]
Measured value: Phase current (fundamental)	

CT . **IL3**	[Operation / Measured Values / Current]
Measured value: Phase current (fundamental)	

CT . **IG meas**	[Operation / Measured Values / Current]
Avail. depends on device type. *Measured value (measured): IG (fundamental)*	

CT . **IG calc**	[Operation / Measured Values / Current]
Measured value (calculated): IG (fundamental)	

CT . **phi IL1**	[Operation / Measured Values / Current]
Measured value (calculated): Angle of Phasor IL1	

CT . **phi IL2**	[Operation / Measured Values / Current]
Measured value (calculated): Angle of Phasor IL2	

CT . **phi IL3**	[Operation / Measured Values / Current]
Measured value (calculated): Angle of Phasor IL3	

CT . **phi IG meas**	[Operation / Measured Values / Current]
Avail. depends on device type. *Measured value (calculated): Angle of Phasor IG meas*	

CT . **phi IG calc**	[Operation / Measured Values / Current]
	Measured value (calculated): Angle of Phasor IG calc

CT . **IL1 H2**	[Operation / Measured Values / Current]
	Measured value: 2nd harmonic/1st harmonic of IL1

CT . **IL2 H2**	[Operation / Measured Values / Current]
	Measured value: 2nd harmonic/1st harmonic of IL2

CT . **IL3 H2**	[Operation / Measured Values / Current]
	Measured value: 2nd harmonic/1st harmonic of IL3

CT . **I0**	[Operation / Measured Values / Current]
	Measured value (calculated): Zero current (fundamental)

CT . **I1**	[Operation / Measured Values / Current]
	Measured value (calculated): Positive phase sequence current (fundamental)

CT . **I2**	[Operation / Measured Values / Current]
	Measured value (calculated): Unbalanced load current (fundamental)

CT . **%(I2/I1)**	[Operation / Measured Values / Current]
	Measured value (calculated): I2/I1, phase sequence will be taken into account automatically.

CT . **IL1 RMS**	[Operation / Measured Values / Current RMS]
	Measured value: Phase current (RMS)

CT . **IL2 RMS**	[Operation / Measured Values / Current RMS]
	Measured value: Phase current (RMS)

CT . **IL3 RMS**	[Operation / Measured Values / Current RMS]
	Measured value: Phase current (RMS)

CT . **IG meas RMS**	[Operation / Measured Values / Current RMS]
	Avail. depends on device type. *Measured value (measured): IG (RMS)*

CT . **IG calc RMS**	[Operation / Measured Values / Current RMS]
	Measured value (calculated): IG (RMS)

CT . **%IL1 THD**	[Operation / Measured Values / Current RMS]
✎	*Measured value (calculated): IL1 Total Harmonic Distortion*

CT . **%IL2 THD**	[Operation / Measured Values / Current RMS]
✎	*Measured value (calculated): IL2 Total Harmonic Distortion*

CT . **%IL3 THD**	[Operation / Measured Values / Current RMS]
✎	*Measured value (calculated): IL3 Total Harmonic Distortion*

5 System

5.1 Time

Uptime	[Operation / Time / Uptime]
	This item represents a special dialog. (See the Technical Manual for details.) *Display the operation time of the device*

5.2 System

5.2.1 System: Direct Controls

System . **Reset ERROR LED**	[Operation / Reset]	
False	False, True ↳ True or not true	P.1
◉	*Direct Command to acknowledge a (device-internal) error. This also resets the System (READY/ERROR) LED.*	

System . **User Restart**	[Service / General]	
False	False, True ↳ True or not true	P.1
◉	*Direct Command to manually initiate a warm restart of the device.*	

System . **Factory Reset**	[Service / General]	
False	False, True ↳ True or not true	P.1
◉	*Direct Command to reset all settings of the device to their respective default.*	

System . **Force Backup Prot.**	[Service / General]	
False	False, True ↳ True or not true	P.1
◉	*Direct Command to manually force the device into the Backup Protection mode. This disables all other protection, supervision and communication functions, so that it makes sense only for testing purposes (e.g. for testing Backup Protection during commissioning).*	

5.2.2 System: Values

System . **Operation Hours**	[Operation / Count and RevData / WIC1]
⟍	*Device operation hours counter, that shows for how long the device has been operating since the last restart.*

System . **Build**	[Device Para / Version / WIC1] [Device Para / Version / DiggiMEC]
⟍	*Build Number*

System . **DM version**	[Device Para / Version / WIC1]
⟍	*Version of the device model*

System . **SW version**	[Device Para / Version / WIC1]
	Version of the device firmware

System . **CAT No.**	[Device Para / Version / WIC1]
	»CAT No.«, Order Code as printed on the nameplate of the device.

System . **REV.**	[Device Para / Version / WIC1]
	Revision (as printed on the nameplate of the device).

System . **S/N**	[Device Para / Version / WIC1]
	The serial number of the device.

System . **DM version**	[Device Para / Version / DiggiMEC]
	Version of the device model

System . **SW version**	[Device Para / Version / DiggiMEC]
	Version of the device firmware

System . **CAT No.**	[Device Para / Version / DiggiMEC]
	»CAT No.«, Order Code as printed on the nameplate of the device.

System . **REV.**	[Device Para / Version / DiggiMEC]
	Revision (as printed on the nameplate of the device).

System . **S/N**	[Device Para / Version / DiggiMEC]
	The serial number of the device.

6 Measured Values

- CT – Current Transformer: “4.1.3 CT: Values”
- System: “5.2.2 System: Values”
- ThR – Thermal replica module: “7.14.6 ThR: Values”

7 Protection Parameter

7.1 Prot: Device Planning Parameters

Prot . **Settings valid**	[Device planning / WIC1 + DiggiMEC]	
	If: Device Variant with DIP/HEX Switches = 50 Hz / 60 Hz • Software • Software • Switches, Software If: Device Variant with DIP/HEX Switches ≠ 50 Hz / 60 Hz • Switches, Software ↳ Settings valid	P.1

Select which settings shall be valid: the settings made via Smart view/DiggiMEC or the switches on the housing.

(If set to “Switches”, then the respective default values are always used for all settings that are not associated with any switch.)

Note that getting back from “Software” to “Switches” is not possible with this parameter, you have to execute a Reset to Factory Defaults instead!

7.2 Prot: Settings

Prot . **Out. Mode**	[Device Para / WIC1 / Output]	
Impulse Output	If: Dual-Powered Device Variant = True • Impulse Output, Syst. O.K. & Ext.Suppl. • Impulse Output • Impulse Output, Syst. O.K. & Ext.Suppl. If: Dual-Powered Device Variant = False • Impulse Output ↳ Out. Mode	P.1

Select whether the output shall operate as an impulse output (for connecting a flag indicator with full compatibility to the 1st generation WIC1), or as a relay output (with a fixed, pre-defined usage as a self-supervision contact).

(The usage as a self-supervision contact is only possible with an externally supplied WIC1-4, and connecting a flag indicator is not permissible with this setting.)

Prot . **Out. assign.**	[Device Para / WIC1 / Output]	
Only available if: • Prot . Out. Mode ≠ Syst. O.K. & Ext.Suppl.	If: Device Variant/Outputs = TC: TripCmd • “-” • “-” . . . Prot . TripCmd • “-” . . . Prot . Pos OFF If: Device Variant/Outputs = TC: TripCmd, FI: TripCmd • Prot . TripCmd • Prot . TripCmd . . . Prot . Pos OFF • “-” • “-” . . . Prot . TripCmd If: Device Variant/Outputs = TC: TripCmd, FI: configurable • “-” . . . Prot . Pos OFF ↳	P.1
Assign the signal that shall activate the output. *(If the output is set as impulse output the signal triggers the impulses for the connected Flag Indicator. If it is set as relay output the signal sets it to the “active” state.)*		

Prot . **Out. Inverting**	[Device Para / WIC1 / Output]	
Inactive *Only available if:* • Prot . Out. Mode ≠ Syst. O.K. & Ext.Suppl.	Inactive, Active ↳ Mode	P.1
Inverting of the signal that has been assigned to the output.		

Prot . **Nom voltage**	[Device Para / WIC1 / Digital Inputs]	
	If: Dual-Powered Device Variant = True • 24 VDC, 48 VDC ... 60 VDC, 110 VDC, 230 VDC, 110 VAC, 230 VAC • 24 VDC, 48 VDC ... 60 VDC, 110 VDC, 230 VDC, 110 VAC, 230 VAC, 115 VAC / 230 VAC If: Dual-Powered Device Variant = False • 115 VAC / 230 VAC ↳ Nom voltage	P.1
Nominal voltage of the digital inputs		

Prot . **Assign Ext. Reset**	[Device Para / Reset]	
	If: Device Variant/Inputs = Without Inputs • “-” • “-” • “-”	P.1

Prot . **Assign Ext. Reset**	[Device Para / Reset]
	• “-”, Prot . DI 1 • “-”, Prot . DI 1, Prot . DI 2 • “-”, Prot . DI 1, Prot . DI 2 • “-” If: Device Variant/Inputs = Without Inputs • “-” • “-” • “-”, Prot . DI 1 • “-”, Prot . DI 1, Prot . DI 2 • “-”, Prot . DI 1, Prot . DI 2 • “-” • “-” If: Device Variant/Inputs = Ext. Trip • “-” • “-”, Prot . DI 1 • “-”, Prot . DI 1, Prot . DI 2 • “-”, Prot . DI 1, Prot . DI 2 If: Device Variant/Inputs = Ext. Trip, Ext. Reset • Prot . DI 1 • Prot . DI 1, Prot . DI 2 • Prot . DI 1, Prot . DI 2 • “-” • “-” • “-” • “-”, Prot . DI 1 If: Device Variant/Inputs = Configurable • “-”, Prot . DI 1, Prot . DI 2 • “-”, Prot . DI 1, Prot . DI 2 • “-” • “-” • “-” • “-”, Prot . DI 1 • “-”, Prot . DI 1, Prot . DI 2 If: Device Variant/Inputs = Configurable Inputs • “-”, Prot . DI 1, Prot . DI 2 ↳
Assign an digital input signal that, when it becomes true, will reset all latched LEDs, all DiggiMEC Flag Indicators, and a fault/trip info that might be visible on the DiggiMEC display.	

Prot . **Def. Autom. Reset**	[Device Para / Reset]	
New Pickup or After 8 h	OFF (=No Autom. Reset) . . . New Pickup or After 10 s ↳ Def. Autom. Reset	P.1

The automatic reset will reset all latched LEDs, all DiggiMEC Flag Indicators, and a fault/trip info that might be visible on the DiggiMEC display. This is done depending on this setting, when a new protection pickup occurs or after a particular time has elapsed.

Prot . **Meth.Detect.Bkr.Pos.**	[Protection Para / Breaker & Trip]	
Current-Based	If: Device Variant/Inputs = Without Inputs • Current-Based If: Device Variant/Inputs = Without Inputs • Current-Based If: Device Variant/Inputs = Ext. Trip • Current-Based If: Device Variant/Inputs = Ext. Trip, Ext. Reset • Current-Based If: Device Variant/Inputs = Configurable • Current-Based If: Device Variant/Inputs = Configurable Inputs • Current-Based, Aux-Based, Current and Aux ↳ Meth.Detect.Bkr.Pos.	P.1

Select the method to be used to determine the connected breaker position.

Prot . **I ON**	[Protection Para / Breaker & Trip]	
0.10In *Only available if:* • Prot . Meth.Detect.Bkr.Pos. = Current-Based • Prot . Meth.Detect.Bkr.Pos. = Current and Aux	0.05In . . . 0.20In	P.1

The breaker is determined as ON (closed) based on current measurement if any phase current is greater than this value (for at least the settable duration »t ON/OFF«).

Prot . **Aux ON**	[Protection Para / Breaker & Trip]	
Only available if: • Prot . Meth.Detect.Bkr.Pos. = Aux-Based • Prot . Meth.Detect.Bkr.Pos. = Current and Aux	If: Device Variant/Inputs = Without Inputs • “-” • “-” • “-” • “-” • “-” • “-”, Prot . DI 1, Prot . DI 2	P.1

Prot . **Aux ON**	[Protection Para / Breaker & Trip]
	• “-” If: Device Variant/Inputs = Without Inputs • “-” • “-” • “-” • “-” • “-”, Prot . DI 1, Prot . DI 2 • “-” • “-” If: Device Variant/Inputs = Ext. Trip • “-” • “-” • “-” • “-”, Prot . DI 1, Prot . DI 2 • “-” • “-” • “-” If: Device Variant/Inputs = Ext. Trip, Ext. Reset • “-” • “-” • “-”, Prot . DI 1, Prot . DI 2 • “-” • “-” • “-” • “-” If: Device Variant/Inputs = Configurable • “-” • “-”, Prot . DI 1, Prot . DI 2 • “-” • “-” • “-” • “-” • “-” If: Device Variant/Inputs = Configurable Inputs • “-”, Prot . DI 1, Prot . DI 2 ↳
	The CB is in ON-position if the state of the assigned signal is true (52a).

Prot . **Aux OFF**	[Protection Para / Breaker & Trip]	
Only available if: • Prot . Meth.Detect.Bkr.Pos. = Aux-Based • Prot . Meth.Detect.Bkr.Pos. = Current and Aux	If: Device Variant/Inputs = Without Inputs • “-” • “-” • “-” • “-” • “-” • “-”, Prot . DI 1, Prot . DI 2 • “-” If: Device Variant/Inputs = Without Inputs • “-” • “-” • “-” • “-” • “-”, Prot . DI 1, Prot . DI 2 • “-” • “-” If: Device Variant/Inputs = Ext. Trip • “-” • “-” • “-” • “-”, Prot . DI 1, Prot . DI 2 • “-” • “-” • “-” If: Device Variant/Inputs = Ext. Trip, Ext. Reset • “-” • “-” • “-”, Prot . DI 1, Prot . DI 2 • “-” • “-” • “-” • “-” If: Device Variant/Inputs = Configurable • “-” • “-”, Prot . DI 1, Prot . DI 2 • “-” • “-”	P.1

Prot . **Aux OFF**	[Protection Para / Breaker & Trip]	
	• “-” • “-” • “-” If: Device Variant/Inputs = Configurable Inputs • “-”, Prot . DI 1, Prot . DI 2 ↳	
The CB is in OFF-position if the state of the assigned signal is true (52b).		

Prot . **SCmd ON**	[Protection Para / Breaker & Trip]	
	If: Device Variant/Inputs = Without Inputs • “-” • “-” • “-” • “-” • “-”, Prot . DI 1, Prot . DI 2 • “-”, Prot . DI 1, Prot . DI 2 • “-” If: Device Variant/Inputs = Without Inputs • “-” • “-” • “-” • “-”, Prot . DI 1, Prot . DI 2 • “-”, Prot . DI 1, Prot . DI 2 • “-” • “-” If: Device Variant/Inputs = Ext. Trip • “-” • “-” • “-”, Prot . DI 1, Prot . DI 2 • “-”, Prot . DI 1, Prot . DI 2 • “-” • “-” • “-” If: Device Variant/Inputs = Ext. Trip, Ext. Reset • “-” • “-”, Prot . DI 1, Prot . DI 2 • “-”, Prot . DI 1, Prot . DI 2 • “-”	P.1

Prot . **SCmd ON**	[Protection Para / Breaker & Trip]	
	• “-” • “-” • “-” If: Device Variant/Inputs = Configurable • “-”, Prot . DI 1, Prot . DI 2 • “-”, Prot . DI 1, Prot . DI 2 • “-” • “-” • “-” • “-” • “-”, Prot . DI 1, Prot . DI 2 If: Device Variant/Inputs = Configurable Inputs • “-”, Prot . DI 1, Prot . DI 2 ↳	
	Switching ON Command, e.g. the state of the digital input	

Prot . **ExBlo TripCmd**	[Protection Para / Breaker & Trip]	
“-”	“-” . . . Prot . Pos OFF ↳	P.1
	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.	

7.3 Prot: Direct Controls

Prot . **Rst. LEDs, FIs, Flt.Scr.**	[Operation / Reset]	
False	False, True ↳ True or not true	P.1
	Direct Command to immediately reset all latched LEDs, all DiggiMEC Flag Indicators, and the Fault Info Screen that might be visible on the DiggiMEC display.	

Prot . **Delete Fault Records**	[Operation / Reset]	
False	False, True ↳ True or not true	P.1
	Direct Command to immediately delete all entries from the Fault Recorder.	

Prot . **Force Trip Cmd**	[Service / Prot]	
Inactive	Inactive, Active Mode	P.1

Direct Command to force the device to issue a trip command (for testing purposes). This has the following additional effects:

- The signals »Prot . Pickup«, »Prot . Trip« and »Prot . TripCmd« are set.

- A fault record is created.

- The breaker failure protection is triggered.

- An automatic reset is executed.

7.4 Prot: Input States

Prot . **ExBlo TripCmd-I**	[Operation / Status Display / Prot]

Module input state: External Blocking of the Trip Command

7.5 Prot: Signals (Output States)

Prot . **Active**	[Operation / Status Display / All Actives] [Operation / Status Display / Prot]

Signal: active

Prot . **Trip**	[Operation / Status Display / Trips] [Operation / Status Display / Prot]

Signal: General Trip

Prot . **TripCmd**	[Operation / Status Display / Trips] [Operation / Status Display / Prot]

Signal: Trip Command

Prot . **Alarm**	[Operation / Status Display / Alarms] [Operation / Status Display / Prot]

Signal: General Alarm

Prot . **Pickup**	[Operation / Status Display / Pickups] [Operation / Status Display / Prot]

Signal: General Pickup

Prot . **Trip IPh**	[Operation / Status Display / Prot]
⇧	*Signal: General Trip due to a phase current fault*

Prot . **Trip IG**	[Operation / Status Display / Prot]
⇧	*Signal: General Trip due to a ground current fault*

Prot . **Trip Ext.**	[Operation / Status Display / Prot]
⇧	*Avail. depends on device type.* *Signal: General Trip due to an external signal*

Prot . **Trip IL1**	[Operation / Status Display / Prot]
⇧	*Signal: General Trip due to a fault in phase L1*

Prot . **Trip IL2**	[Operation / Status Display / Prot]
⇧	*Signal: General Trip due to a fault in phase L2*

Prot . **Trip IL3**	[Operation / Status Display / Prot]
⇧	*Signal: General Trip due to a fault in phase L3*

Prot . **Pickup I Ph**	[Operation / Status Display / Prot]
⇧	*Signal: General Pickup due to a phase current fault*

Prot . **Pickup IG**	[Operation / Status Display / Prot]
⇧	*Signal: General Pickup due to a ground current fault*

Prot . **Pickup Ext.**	[Operation / Status Display / Prot]
⇧	*Avail. depends on device type.* *Signal: General Pickup due to an external signal*

Prot . **Pickup IL1**	[Operation / Status Display / Prot]
⇧	*Signal: General Pickup due to a fault in phase L1*

Prot . **Pickup IL2**	[Operation / Status Display / Prot]
⇧	*Signal: General Pickup due to a fault in phase L2*

Prot . **Pickup IL3**	[Operation / Status Display / Prot]
⇧	*Signal: General Pickup due to a fault in phase L3*

Prot . **Pos ON**	[Operation / Status Display / Prot]
⇧	*Signal: Circuit Breaker is in ON-Position*

Prot . **Pos OFF**	[Operation / Status Display / Prot]
⇧	*Signal: Circuit Breaker is in OFF-Position*

Prot . **ON Cmd**	[Operation / Status Display / Prot]
⇧	*Signal: ON command issued to the breaker*

Prot . **Syst. O.K. & Ext.Suppl.**	[Operation / Status Display / Prot]
⇧	*Avail. depends on device type.* *Signal: The WIC1 is running and is supplied by external auxiliary power and has loaded sufficient electrical energy for triggering the trip impulse output.*

Prot . **-**	**Not in menu tree, only: Event recorder**
⇧	*none*

Prot . **DI 1** Prot . **DI 2**	[Operation / Status Display / Prot]
⇧	*Avail. depends on device type.* *Signal: Digital Input*

7.6 IH2 – Module Inrush

7.6.1 IH2: Device Planning Parameters

IH2 . **Mode**	[Device planning / Projected Elements]	
use	"-", use Device planning	P.1
Module Inrush, general operation mode		

7.6.2 IH2: Settings

IH2 . **Function**	[Protection Para / IH2]	
Active	Inactive, Active Mode	P.1
Permanent activation or deactivation of module/stage.		

IH2 . **IH2 / IH1**	[Protection Para / IH2]	
20%	15% ... 40%	P.1
Maximum permissible percentage of the 2nd harmonic of the 1st harmonic.		

IH2 . **Imax**	[Protection Para / IH2]	
6.00In	1.0In ... 20.0In	P.1
Inrush limit value: If the phase current is above this value the inrush blocking is cancelled.		

IH2 . **tmax**	[Protection Para / IH2]	
0.3s	0.1s ... 999.99s	P.1
Maximum duration (phase-selective) of an inrush blocking		

IH2 . **3-ph Blo**	[Protection Para / IH2]	
Inactive	Inactive, Active Mode	P.1
Activation of 3-phase inrush blocking: If an inrush is detected in (at least) one phase all three phases get blocked. (If this is inactive then only the Inrush-affected phase gets blocked.)		

7.6.3 IH2: Input States

IH2 . **ExBlo-I**	[Operation / Status Display / IH2]
⇩	*Module input state: External blocking*

7.6.4 IH2: Signals (Output States)

IH2 . **Active**	[Operation / Status Display / All Actives] [Operation / Status Display / IH2]
⇧	*Signal: active*

IH2 . **Block. L1**	[Operation / Status Display / IH2]
⇧	*Signal: Inrush blocking of phase L1 of the phase overcurrent protection*

IH2 . **Block. L2**	[Operation / Status Display / IH2]
⇧	*Signal: Inrush blocking of phase L2 of the phase overcurrent protection*

IH2 . **Block. L3**	[Operation / Status Display / IH2]
⇧	*Signal: Inrush blocking of phase L3 of the phase overcurrent protection*

IH2 . **Block. Ph.**	[Operation / Status Display / IH2]
⇧	*Signal: Inrush blocking of a phase of the phase overcurrent protection*

IH2 . **Block. 3-ph**	[Operation / Status Display / IH2]
⇧	*Signal: 3-phase Inrush blocking: An inrush has been detected in (at least) one phase, so that all three phases are blocked.*

IH2 . **Imax exceeded**	[Operation / Status Display / IH2]
⇧	*Signal: The Inrush limit value has been exceeded, so that the inrush blocking has been cancelled.*

IH2 . **tmax elapsed**	[Operation / Status Display / IH2]
⇧	*Signal: The (phase-selective) maximum duration of an inrush blocking has been reached, so that the inrush blocking has been stopped.*

7.7 I> – Phase Overcurrent Stage

7.7.1 I>: Device Planning Parameters

I> . **Mode**	[Device planning / Projected Elements]	
use	“-”, use ↳ Device planning	P.1
Phase Overcurrent Stage, general operation mode		

I> . **Definition**	[Device planning / Definition]	
Trip	Trip, Alarm ↳ Definition	P.1
Phase Overcurrent Stage: If set to “Alarm”: The function operates as a supervision function, i.e. a fault generates neither alarm nor trip, but an »Alarm« signal gets issued instead. If set to “Trip”: The function operates as a protection function, i.e. trips the breaker in case of a fault.		

7.7.2 I>: Settings

I> . **Function**	[Protection Para / I>]	
Active	Inactive, Active ↳ Mode	P.1
Permanent activation or deactivation of module/stage.		

I> . **I**	[Protection Para / I>]	
1.00In	If: I> . Char = DEFT • 0.35In ... 20.00In If: I> . Char = IEC NINV • 0.35In ... 2.50In If: I> . Char = IEC VINV • 0.35In ... 2.50In If: I> . Char = IEC EINV • 0.35In ... 2.50In If: I> . Char = IEC LINV • 0.35In ... 2.50In If: I> . Char = RINV • 0.35In ... 2.50In If: I> . Char = HV Fuse • 0.35In ... 2.50In If: I> . Char = FR Fuse • 0.35In ... 2.50In If: I> . Char = IEEE MINV • 0.35In ... 2.50In If: I> . Char = IEEE VINV • 0.35In ... 2.50In If: I> . Char = IEEE EINV • 0.35In ... 2.50In If: I> . Char = EF Curve • 0.35In ... 2.50In	P.1

If the pickup value is exceeded, the protection stage starts to time out to trip.

WARNING: Check the Technical Data and ensure that the actual overcurrent settings for this pickup threshold and the 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 / I>]	
DEFT	DEFT ... EF Curve ↳ Char	P.1

Characteristic

I> . **t**	[Protection Para / I>]	
0.1s *Only available if:* • I> . Char = DEFT	0.00s ... 300.00s	P.1
Time delay for trip or alarm		

I> . **tChar**	[Protection Para / I>]	
0.1 *Only available if:* • I> . Char = IEC NINV • I> . Char = IEC VINV • I> . Char = IEC EINV • I> . Char = IEC LINV • I> . Char = RINV • I> . Char = HV Fuse • I> . Char = FR Fuse • I> . Char = IEEE MINV • I> . Char = IEEE VINV • I> . Char = IEEE EINV • I> . Char = EF Curve	0.05 ... 10.00	P.1
Time multiplier/tripping characteristic factor. The setting range depends on the selected tripping curve.		

I> . **tMin**	[Protection Para / I>]	
0.00s *Only available if:* • I> . Char = IEC NINV • I> . Char = IEC VINV • I> . Char = IEC EINV • I> . Char = IEC LINV • I> . Char = RINV • I> . Char = HV Fuse • I> . Char = FR Fuse • I> . Char = IEEE MINV • I> . Char = IEEE VINV • I> . Char = IEEE EINV • I> . Char = EF Curve	0.00s ... 20.00s	P.1
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> . **Reset Mode**	[Protection Para / I>]	
instantaneous	If: I> . Char = DEFT • instantaneous, definite time If: I> . Char = IEC NINV • instantaneous, definite time, inverse time If: I> . Char = IEC VINV • instantaneous, definite time, inverse time If: I> . Char = IEC EINV • instantaneous, definite time, inverse time If: I> . Char = IEC LINV • instantaneous, definite time, inverse time If: I> . Char = RINV • instantaneous, definite time, inverse time If: I> . Char = HV Fuse • instantaneous, definite time If: I> . Char = FR Fuse • instantaneous, definite time If: I> . Char = IEEE MINV • instantaneous, definite time, inverse time If: I> . Char = IEEE VINV • instantaneous, definite time, inverse time If: I> . Char = IEEE EINV • instantaneous, definite time, inverse time If: I> . Char = EF Curve • instantaneous, definite time ↳ Reset Mode	P.1
Reset Mode		

I> . **tReset**	[Protection Para / I>]	
0.1s *Only available if:* • I> . Reset Mode = definite time	0.00s . . . 60.00s	P.1
Reset delay for intermittent phase failures (INV characteristics only)		

I> . **IH2 Blo**	[Protection Para / I>]	
Active	If: IH2 . Mode = use • Inactive, Active If: IH2 . Mode = “-” • Inactive ↳ Mode	P.1
Blocking the trip command, if an inrush is detected.		

I> . **ExBlo**	[Protection Para / I>]	
“-”	“-” . . . Prot . Pos OFF ↳	P.1
External blocking of the module if the state of the assigned signal is true.		

7.7.3 I>: Input States

I> . **ExBlo-I**	[Operation / Status Display / I>]
Module input state: External blocking	

7.7.4 I>: Signals (Output States)

I> . **Active**	[Operation / Status Display / All Actives] [Operation / Status Display / I>]
Signal: active	

I> . **Trip**	[Operation / Status Display / Trips] [Operation / Status Display / I>]
Only available if: • I> . Definition = Trip *Signal: Trip*	

I> . **Alarm**	[Operation / Status Display / Alarms] [Operation / Status Display / I>]
Only available if: • I> . Definition = Alarm *Signal: Alarm*	

I> . **Pickup**	[Operation / Status Display / Pickups] [Operation / Status Display / I>]
⇧	*Signal: Pickup*

I> . **Trip IL1**	[Operation / Status Display / I>]
⇧	*Only available if:* • I> . Definition = Trip *Signal: Trip due to a fault in phase L1*

I> . **Trip IL2**	[Operation / Status Display / I>]
⇧	*Only available if:* • I> . Definition = Trip *Signal: Trip due to a fault in phase L2*

I> . **Trip IL3**	[Operation / Status Display / I>]
⇧	*Only available if:* • I> . Definition = Trip *Signal: Trip due to a fault in phase L3*

I> . **Alarm IL1**	[Operation / Status Display / I>]
⇧	*Only available if:* • I> . Definition = Alarm *Signal: Alarm due to a fault in phase L1*

I> . **Alarm IL2**	[Operation / Status Display / I>]
⇧	*Only available if:* • I> . Definition = Alarm *Signal: Alarm due to a fault in phase L2*

I> . **Alarm IL3**	[Operation / Status Display / I>]
⇧	*Only available if:* • I> . Definition = Alarm *Signal: Alarm due to a fault in phase L3*

I> . **Pickup IL1**	[Operation / Status Display / I>]
⇧	*Signal: Pickup in phase L1*

I> . **Pickup IL2**	[Operation / Status Display / I>]
⇧	*Signal: Pickup in phase L2*

I> . **Pickup IL3**	[Operation / Status Display / I>]
⇧	*Signal: Pickup in phase L3*

I> . **IH2 Blo**	[Operation / Status Display / I>]
⇧	*Signal: Blocking the trip command by an inrush*

7.8 I>> – Phase Overcurrent Stage

7.8.1 I>>: Device Planning Parameters

I>> . **Mode**	[Device planning / Projected Elements]	
use	“-”, use ↳ Device planning	P.1
Phase Overcurrent Stage, general operation mode		

I>> . **Definition**	[Device planning / Definition]	
Trip	Trip, Alarm ↳ Definition	P.1
Phase Overcurrent Stage: If set to “Alarm”: The function operates as a supervision function, i.e. a fault generates neither alarm nor trip, but an »Alarm« signal gets issued instead. If set to “Trip”: The function operates as a protection function, i.e. trips the breaker in case of a fault.		

7.8.2 I>>: Settings

I>> . **Function**	[Protection Para / I>>]	
Active	Inactive, Active ↳ Mode	P.1
Permanent activation or deactivation of module/stage.		

I>> . **I**	[Protection Para / I>>]	
1.00In	If: I>> . Char = DEFT • 0.35In ... 20.00In If: I>> . Char = IEC NINV • 0.35In ... 2.50In If: I>> . Char = IEC VINV • 0.35In ... 2.50In If: I>> . Char = IEC EINV • 0.35In ... 2.50In If: I>> . Char = IEC LINV • 0.35In ... 2.50In If: I>> . Char = RINV • 0.35In ... 2.50In If: I>> . Char = HV Fuse • 0.35In ... 2.50In If: I>> . Char = FR Fuse • 0.35In ... 2.50In If: I>> . Char = IEEE MINV • 0.35In ... 2.50In If: I>> . Char = IEEE VINV • 0.35In ... 2.50In If: I>> . Char = IEEE EINV • 0.35In ... 2.50In If: I>> . Char = EF Curve • 0.35In ... 2.50In	P.1

If the pickup value is exceeded, the protection stage starts to time out to trip.

WARNING: Check the Technical Data and ensure that the actual overcurrent settings for this pickup threshold and the 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 / I>>]	
DEFT	DEFT ... EF Curve ↳ Char	P.1

Characteristic

I>> . **t**	[Protection Para / I>>]	
0.1s *Only available if:* • I>> . Char = DEFT	0.00s ... 300.00s	P.1
Time delay for trip or alarm		

I>> . **tChar**	[Protection Para / I>>]	
0.1 *Only available if:* • I>> . Char = IEC NINV • I>> . Char = IEC VINV • I>> . Char = IEC EINV • I>> . Char = IEC LINV • I>> . Char = RINV • I>> . Char = HV Fuse • I>> . Char = FR Fuse • I>> . Char = IEEE MINV • I>> . Char = IEEE VINV • I>> . Char = IEEE EINV • I>> . Char = EF Curve	0.05 ... 10.00	P.1
Time multiplier/tripping characteristic factor. The setting range depends on the selected tripping curve.		

I>> . **tMin**	[Protection Para / I>>]	
0.00s *Only available if:* • I>> . Char = IEC NINV • I>> . Char = IEC VINV • I>> . Char = IEC EINV • I>> . Char = IEC LINV • I>> . Char = RINV • I>> . Char = HV Fuse • I>> . Char = FR Fuse • I>> . Char = IEEE MINV • I>> . Char = IEEE VINV • I>> . Char = IEEE EINV • I>> . Char = EF Curve	0.00s ... 20.00s	P.1
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>> . **Reset Mode**	[Protection Para / I>>]	
instantaneous	If: I>> . Char = DEFT • instantaneous, definite time If: I>> . Char = IEC NINV • instantaneous, definite time, inverse time If: I>> . Char = IEC VINV • instantaneous, definite time, inverse time If: I>> . Char = IEC EINV • instantaneous, definite time, inverse time If: I>> . Char = IEC LINV • instantaneous, definite time, inverse time If: I>> . Char = RINV • instantaneous, definite time, inverse time If: I>> . Char = HV Fuse • instantaneous, definite time If: I>> . Char = FR Fuse • instantaneous, definite time If: I>> . Char = IEEE MINV • instantaneous, definite time, inverse time If: I>> . Char = IEEE VINV • instantaneous, definite time, inverse time If: I>> . Char = IEEE EINV • instantaneous, definite time, inverse time If: I>> . Char = EF Curve • instantaneous, definite time ↳ Reset Mode	P.1
Reset Mode		

I>> . **tReset**	[Protection Para / I>>]	
0.1s *Only available if:* • I>> . Reset Mode = definite time	0.00s . . . 60.00s	P.1
Reset delay for intermittent phase failures (INV characteristics only)		

I>> . **IH2 Blo**	[Protection Para / I>>]	
Active	If: IH2 . Mode = use • Inactive, Active If: IH2 . Mode = “-” • Inactive ↳ Mode	P.1
Blocking the trip command, if an inrush is detected.		

I>> . **ExBlo**	[Protection Para / I>>]	
“-”	“-” . . . Prot . Pos OFF ↳	P.1
External blocking of the module if the state of the assigned signal is true.		

7.8.3 I>>: Input States

I>> . **ExBlo-I**	[Operation / Status Display / I>>]
Module input state: External blocking	

7.8.4 I>>: Signals (Output States)

I>> . **Active**	[Operation / Status Display / All Actives] [Operation / Status Display / I>>]
Signal: active	

I>> . **Trip**	[Operation / Status Display / Trips] [Operation / Status Display / I>>]
Only available if: • I>> . Definition = Trip *Signal: Trip*	

I>> . **Alarm**	[Operation / Status Display / Alarms] [Operation / Status Display / I>>]
Only available if: • I>> . Definition = Alarm *Signal: Alarm*	

I>> . **Pickup**	[Operation / Status Display / Pickups] [Operation / Status Display / I>>]
⇧	*Signal: Pickup*

I>> . **Trip IL1**	[Operation / Status Display / I>>]
⇧	*Only available if:* • I>> . Definition = Trip *Signal: Trip due to a fault in phase L1*

I>> . **Trip IL2**	[Operation / Status Display / I>>]
⇧	*Only available if:* • I>> . Definition = Trip *Signal: Trip due to a fault in phase L2*

I>> . **Trip IL3**	[Operation / Status Display / I>>]
⇧	*Only available if:* • I>> . Definition = Trip *Signal: Trip due to a fault in phase L3*

I>> . **Alarm IL1**	[Operation / Status Display / I>>]
⇧	*Only available if:* • I>> . Definition = Alarm *Signal: Alarm due to a fault in phase L1*

I>> . **Alarm IL2**	[Operation / Status Display / I>>]
⇧	*Only available if:* • I>> . Definition = Alarm *Signal: Alarm due to a fault in phase L2*

I>> . **Alarm IL3**	[Operation / Status Display / I>>]
⇧	*Only available if:* • I>> . Definition = Alarm *Signal: Alarm due to a fault in phase L3*

I>> . **Pickup IL1**	[Operation / Status Display / I>>]
⇧	*Signal: Pickup in phase L1*

I>> . **Pickup IL2**	[Operation / Status Display / I>>]
⇧	*Signal: Pickup in phase L2*

I>> . **Pickup IL3**	[Operation / Status Display / I>>]
⇧	*Signal: Pickup in phase L3*

I>> . **IH2 Blo**	[Operation / Status Display / I>>]
⇧	*Signal: Blocking the trip command by an inrush*

7.9 I>>> – Phase Overcurrent Stage

7.9.1 I>>>: Device Planning Parameters

I>>> . **Mode**	[Device planning / Projected Elements]	
“-” *Only available if:* • Prot . Settings valid = Software	“-”, use ↳ Device planning	P.1
Phase Overcurrent Stage, general operation mode		

I>>> . **Definition**	[Device planning / Definition]	
Trip *Only available if:* • Prot . Settings valid = Software	Trip, Alarm ↳ Definition	P.1
Phase Overcurrent Stage: If set to “Alarm”: The function operates as a supervision function, i.e. a fault generates neither alarm nor trip, but an »Alarm« signal gets issued instead. If set to “Trip”: The function operates as a protection function, i.e. trips the breaker in case of a fault.		

7.9.2 I>>>: Settings

I>>> . **Function**	[Protection Para / I>>>]	
Active	Inactive, Active ↳ Mode	P.1
Permanent activation or deactivation of module/stage.		

I>>> . **I**	[Protection Para / I>>>]	
1.00In	If: I>>> . Char = DEFT • 0.35In ... 20.00In If: I>>> . Char = IEC NINV • 0.35In ... 2.50In If: I>>> . Char = IEC VINV • 0.35In ... 2.50In If: I>>> . Char = IEC EINV • 0.35In ... 2.50In If: I>>> . Char = IEC LINV • 0.35In ... 2.50In If: I>>> . Char = RINV • 0.35In ... 2.50In If: I>>> . Char = HV Fuse • 0.35In ... 2.50In If: I>>> . Char = FR Fuse • 0.35In ... 2.50In If: I>>> . Char = IEEE MINV • 0.35In ... 2.50In If: I>>> . Char = IEEE VINV • 0.35In ... 2.50In If: I>>> . Char = IEEE EINV • 0.35In ... 2.50In If: I>>> . Char = EF Curve • 0.35In ... 2.50In	P.1

If the pickup value is exceeded, the protection stage starts to time out to trip.

WARNING: Check the Technical Data and ensure that the actual overcurrent settings for this pickup threshold and the 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 / I>>>]	
DEFT	DEFT ... EF Curve Char	P.1

Characteristic

I>>> . **t**	[Protection Para / I>>>]	
0.1s *Only available if:* • I>>> . Char = DEFT	0.00s ... 300.00s	P.1
Time delay for trip or alarm		

I>>> . **tChar**	[Protection Para / I>>>]	
0.1 *Only available if:* • I>>> . Char = IEC NINV • I>>> . Char = IEC VINV • I>>> . Char = IEC EINV • I>>> . Char = IEC LINV • I>>> . Char = RINV • I>>> . Char = HV Fuse • I>>> . Char = FR Fuse • I>>> . Char = IEEE MINV • I>>> . Char = IEEE VINV • I>>> . Char = IEEE EINV • I>>> . Char = EF Curve	0.05 ... 10.00	P.1
Time multiplier/tripping characteristic factor. The setting range depends on the selected tripping curve.		

I>>> . **tMin**	[Protection Para / I>>>]	
0.00s *Only available if:* • I>>> . Char = IEC NINV • I>>> . Char = IEC VINV • I>>> . Char = IEC EINV • I>>> . Char = IEC LINV • I>>> . Char = RINV • I>>> . Char = HV Fuse • I>>> . Char = FR Fuse • I>>> . Char = IEEE MINV • I>>> . Char = IEEE VINV • I>>> . Char = IEEE EINV • I>>> . Char = EF Curve	0.00s ... 20.00s	P.1
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>>> . **Reset Mode**	[Protection Para / I>>>]	
instantaneous	If: I>>> . Char = DEFT • instantaneous, definite time If: I>>> . Char = IEC NINV • instantaneous, definite time, inverse time If: I>>> . Char = IEC VINV • instantaneous, definite time, inverse time If: I>>> . Char = IEC EINV • instantaneous, definite time, inverse time If: I>>> . Char = IEC LINV • instantaneous, definite time, inverse time If: I>>> . Char = RINV • instantaneous, definite time, inverse time If: I>>> . Char = HV Fuse • instantaneous, definite time If: I>>> . Char = FR Fuse • instantaneous, definite time If: I>>> . Char = IEEE MINV • instantaneous, definite time, inverse time If: I>>> . Char = IEEE VINV • instantaneous, definite time, inverse time If: I>>> . Char = IEEE EINV • instantaneous, definite time, inverse time If: I>>> . Char = EF Curve • instantaneous, definite time ↳ Reset Mode	P.1
Reset Mode		

I>>> . **tReset**	[Protection Para / I>>>]	
0.1s *Only available if:* • I>>> . Reset Mode = definite time	0.00s . . . 60.00s	P.1
Reset delay for intermittent phase failures (INV characteristics only)		

I>>> . **IH2 Blo**	[Protection Para / I>>>]	
Active	If: IH2 . Mode = use • Inactive, Active If: IH2 . Mode = “-” • Inactive ↳ Mode	P.1
Blocking the trip command, if an inrush is detected.		

I>>> . **ExBlo**	[Protection Para / I>>>]	
“-”	“-” . . . Prot . Pos OFF ↳	P.1
External blocking of the module if the state of the assigned signal is true.		

7.9.3 I>>>: Input States

I>>> . **ExBlo-I**	[Operation / Status Display / I>>>]
Module input state: External blocking	

7.9.4 I>>>: Signals (Output States)

I>>> . **Active**	[Operation / Status Display / All Actives] [Operation / Status Display / I>>>]
Signal: active	

I>>> . **Trip**	[Operation / Status Display / Trips] [Operation / Status Display / I>>>]
Only available if: • I>>> . Definition = Trip *Signal: Trip*	

I>>> . **Alarm**	[Operation / Status Display / Alarms] [Operation / Status Display / I>>>]
Only available if: • I>>> . Definition = Alarm *Signal: Alarm*	

I>>> . **Pickup**	[Operation / Status Display / Pickups] [Operation / Status Display / I>>>]
⇧	*Signal: Pickup*

I>>> . **Trip IL1**	[Operation / Status Display / I>>>]
⇧	*Only available if:* • I>>> . Definition = Trip *Signal: Trip due to a fault in phase L1*

I>>> . **Trip IL2**	[Operation / Status Display / I>>>]
⇧	*Only available if:* • I>>> . Definition = Trip *Signal: Trip due to a fault in phase L2*

I>>> . **Trip IL3**	[Operation / Status Display / I>>>]
⇧	*Only available if:* • I>>> . Definition = Trip *Signal: Trip due to a fault in phase L3*

I>>> . **Alarm IL1**	[Operation / Status Display / I>>>]
⇧	*Only available if:* • I>>> . Definition = Alarm *Signal: Alarm due to a fault in phase L1*

I>>> . **Alarm IL2**	[Operation / Status Display / I>>>]
⇧	*Only available if:* • I>>> . Definition = Alarm *Signal: Alarm due to a fault in phase L2*

I>>> . **Alarm IL3**	[Operation / Status Display / I>>>]
⇧	*Only available if:* • I>>> . Definition = Alarm *Signal: Alarm due to a fault in phase L3*

I>>> . **Pickup IL1**	[Operation / Status Display / I>>>]
⇧	*Signal: Pickup in phase L1*

I>>> . **Pickup IL2**	[Operation / Status Display / I>>>]
⇧	*Signal: Pickup in phase L2*

I>>> . **Pickup IL3**	[Operation / Status Display / I>>>]
⇧	*Signal: Pickup in phase L3*

I>>> . **IH2 Blo**	[Operation / Status Display / I>>>]
⇧	*Signal: Blocking the trip command by an inrush*

7.10 IG> – Ground (earth) current protection stage

7.10.1 IG>: Device Planning Parameters

IG> . **Mode**	[Device planning / Projected Elements]	
use	“-”, use ↳ Device planning	P.1
Earth current protection stage, general operation mode		

IG> . **Definition**	[Device planning / Definition]	
Trip	Trip, Alarm ↳ Definition	P.1
Earth current protection stage: If set to “Alarm”: The function operates as a supervision function, i.e. a fault generates neither alarm nor trip, but an »Alarm« signal gets issued instead. If set to “Trip”: The function operates as a protection function, i.e. trips the breaker in case of a fault.		

7.10.2 IG>: Settings

IG> . **Function**	[Protection Para / IG>]	
Active	Inactive, Active ↳ Mode	P.1
Permanent activation or deactivation of module/stage.		

IG> . **IG**	[Protection Para / IG>]	
1.00In	If: CT . IG Source = calculated AND IG> . Char = DEFT • 0.20In ... 10.00In If: CT . IG Source = calculated AND IG> . Char = IEC NINV • 0.20In ... 2.50In If: CT . IG Source = calculated AND IG> . Char = IEC VINV • 0.20In ... 2.50In If: CT . IG Source = calculated AND IG> . Char = IEC EINV • 0.20In ... 2.50In If: CT . IG Source = calculated AND IG> . Char = IEC LINV • 0.20In ... 2.50In If: CT . IG Source = calculated AND IG> . Char = RINV • 0.20In ... 2.50In If: CT . IG Source = calculated AND IG> . Char = HV Fuse • 0.20In ... 2.50In If: CT . IG Source = calculated AND IG> . Char = FR Fuse • 0.20In ... 2.50In If: CT . IG Source = calculated AND IG> . Char = IEEE MINV • 0.20In ... 2.50In If: CT . IG Source = calculated AND IG> . Char = IEEE VINV • 0.20In ... 2.50In If: CT . IG Source = calculated AND IG> . Char = IEEE EINV • 0.20In ... 2.50In If: CT . IG Source = calculated AND IG> . Char = EF Curve • 0.20In ... 2.50In If: CT . IG Source = calculated AND IG> . Char = RXIDG • 0.20In ... 2.50In If: CT . IG Source = measured AND IG> . Char = DEFT • 0.02In ... 10.00In If: CT . IG Source = measured AND IG> . Char = IEC NINV • 0.02In ... 2.50In If: CT . IG Source = measured AND IG> . Char = IEC VINV • 0.02In ... 2.50In If: CT . IG Source = measured AND IG> . Char = IEC EINV • 0.02In ... 2.50In If: CT . IG Source = measured AND IG> . Char = IEC LINV • 0.02In ... 2.50In If: CT . IG Source = measured AND IG> . Char = RINV • 0.02In ... 2.50In If: CT . IG Source = measured AND IG> . Char = HV Fuse • 0.02In ... 2.50In If: CT . IG Source = measured AND IG> . Char = FR Fuse	P.1

IG> . **Char**	[Protection Para / IG>]	
DEFT	DEFT ... RXIDG ↳ Char	P.1
Characteristic		

IG> . **t**	[Protection Para / IG>]	
0.1s *Only available if:* • IG> . Char = DEFT	0.00s ... 300.00s	P.1
Time delay for trip or alarm		

IG> . **tChar**	[Protection Para / IG>]	
0.1 *Only available if:* • IG> . Char = IEC NINV • IG> . Char = IEC VINV • IG> . Char = IEC EINV • IG> . Char = IEC LINV • IG> . Char = RINV • IG> . Char = HV Fuse • IG> . Char = FR Fuse • IG> . Char = IEEE MINV • IG> . Char = IEEE VINV • IG> . Char = IEEE EINV • IG> . Char = EF Curve • IG> . Char = RXIDG	0.05 ... 10.00	P.1
Time multiplier/tripping characteristic factor. The setting range depends on the selected tripping curve.		

IG> . **tMin**	[Protection Para / IG>]	
0.00s *Only available if:* • IG> . Char = IEC NINV • IG> . Char = IEC VINV • IG> . Char = IEC EINV • IG> . Char = IEC LINV • IG> . Char = RINV • IG> . Char = HV Fuse • IG> . Char = FR Fuse • IG> . Char = IEEE MINV • IG> . Char = IEEE VINV • IG> . Char = IEEE EINV • IG> . Char = EF Curve • IG> . Char = RXIDG	0.00s . . . 20.00s	P.1
Minimum trip delay time. Independent of the measured current values, the trip delay time does never fall below the minimum that is set here.		

IG> . **Reset Mode**	[Protection Para / IG>]	
instantaneous	If: IG> . Char = DEFT • instantaneous, definite time If: IG> . Char = IEC NINV • instantaneous, definite time, inverse time If: IG> . Char = IEC VINV • instantaneous, definite time, inverse time If: IG> . Char = IEC EINV • instantaneous, definite time, inverse time If: IG> . Char = IEC LINV • instantaneous, definite time, inverse time If: IG> . Char = RINV • instantaneous, definite time, inverse time If: IG> . Char = HV Fuse • instantaneous, definite time If: IG> . Char = FR Fuse • instantaneous, definite time If: IG> . Char = IEEE MINV • instantaneous, definite time, inverse time If: IG> . Char = IEEE VINV • instantaneous, definite time, inverse time If: IG> . Char = IEEE EINV • instantaneous, definite time, inverse time If: IG> . Char = EF Curve • instantaneous, definite time If: IG> . Char = RXIDG • instantaneous, definite time ↳ Reset Mode	P.1
Reset Mode		

IG> . **tReset**	[Protection Para / IG>]	
0.1s *Only available if:* • IG> . Reset Mode = definite time	0.00s . . . 60.00s	P.1
Reset delay for intermittent phase failures (INV characteristics only)		

IG> . **IH2 Blo**	[Protection Para / IG>]	
	If: IH2 . Mode = use • Inactive, Active If: IH2 . Mode = “-” • Inactive Mode	P.1
Blocking the trip command, if an inrush is detected.		

IG> . **ExBlo**	[Protection Para / IG>]	
“-”	“-” . . . Prot . Pos OFF	P.1
External blocking of the module if the state of the assigned signal is true.		

7.10.3 IG>: Input States

IG> . **ExBlo-I**	[Operation / Status Display / IG>]
Module input state: External blocking	

7.10.4 IG>: Signals (Output States)

IG> . **Active**	[Operation / Status Display / All Actives] [Operation / Status Display / IG>]
Signal: active	

IG> . **Trip**	[Operation / Status Display / Trips] [Operation / Status Display / IG>]
Only available if: • IG> . Definition = Trip *Signal: Trip*	

IG> . **Alarm**	[Operation / Status Display / Alarms] [Operation / Status Display / IG>]
Only available if: • IG> . Definition = Alarm *Signal: Alarm*	

IG> . **Pickup**	[Operation / Status Display / Pickups] [Operation / Status Display / IG>]
⇧	*Signal: Pickup*

IG> . **IH2 Blo**	[Operation / Status Display / IG>]
⇧	*Signal: Blocking the trip command by an inrush*

7.11 IG>> – Ground (earth) current protection stage

7.11.1 IG>>: Device Planning Parameters

IG>> . **Mode**	[Device planning / Projected Elements]	
"-" *Only available if:* • Prot . Settings valid = Software	"-", use ↳ Device planning	P.1
Earth current protection stage, general operation mode		

IG>> . **Definition**	[Device planning / Definition]	
Trip *Only available if:* • Prot . Settings valid = Software	Trip, Alarm ↳ Definition	P.1
Earth current protection stage: If set to "Alarm": The function operates as a supervision function, i.e. a fault generates neither alarm nor trip, but an »Alarm« signal gets issued instead. If set to "Trip": The function operates as a protection function, i.e. trips the breaker in case of a fault.		

7.11.2 IG>>: Settings

IG>> . **Function**	[Protection Para / IG>>]	
Active	Inactive, Active ↳ Mode	P.1
Permanent activation or deactivation of module/stage.		

IG>> . **IG**	[Protection Para / IG>>]	
1.00In	If: CT . IG Source = calculated AND IG>> . Char = DEFT • 0.20In ... 10.00In If: CT . IG Source = calculated AND IG>> . Char = IEC NINV • 0.20In ... 2.50In If: CT . IG Source = calculated AND IG>> . Char = IEC VINV • 0.20In ... 2.50In If: CT . IG Source = calculated AND IG>> . Char = IEC EINV • 0.20In ... 2.50In If: CT . IG Source = calculated AND IG>> . Char = IEC LINV • 0.20In ... 2.50In If: CT . IG Source = calculated AND IG>> . Char = RINV • 0.20In ... 2.50In If: CT . IG Source = calculated AND IG>> . Char = HV Fuse • 0.20In ... 2.50In If: CT . IG Source = calculated AND IG>> . Char = FR Fuse • 0.20In ... 2.50In If: CT . IG Source = calculated AND IG>> . Char = IEEE MINV • 0.20In ... 2.50In If: CT . IG Source = calculated AND IG>> . Char = IEEE VINV • 0.20In ... 2.50In If: CT . IG Source = calculated AND IG>> . Char = IEEE EINV • 0.20In ... 2.50In If: CT . IG Source = calculated AND IG>> . Char = EF Curve • 0.20In ... 2.50In If: CT . IG Source = calculated AND IG>> . Char = RXIDG • 0.20In ... 2.50In If: CT . IG Source = measured AND IG>> . Char = DEFT • 0.02In ... 10.00In If: CT . IG Source = measured AND IG>> . Char = IEC NINV • 0.02In ... 2.50In If: CT . IG Source = measured AND IG>> . Char = IEC VINV • 0.02In ... 2.50In If: CT . IG Source = measured AND IG>> . Char = IEC EINV • 0.02In ... 2.50In If: CT . IG Source = measured AND IG>> . Char = IEC LINV • 0.02In ... 2.50In If: CT . IG Source = measured AND IG>> . Char = RINV • 0.02In ... 2.50In If: CT . IG Source = measured AND IG>> . Char = HV Fuse • 0.02In ... 2.50In If: CT . IG Source = measured AND IG>> . Char = FR Fuse	P.1

IG>> . **Char**	[Protection Para / IG>>]	
DEFT	DEFT ... RXIDG Char	P.1
Characteristic		

IG>> . **t**	[Protection Para / IG>>]	
0.1s *Only available if:* • IG>> . Char = DEFT	0.00s ... 300.00s	P.1
Time delay for trip or alarm		

IG>> . **tChar**	[Protection Para / IG>>]	
0.1 *Only available if:* • IG>> . Char = IEC NINV • IG>> . Char = IEC VINV • IG>> . Char = IEC EINV • IG>> . Char = IEC LINV • IG>> . Char = RINV • IG>> . Char = HV Fuse • IG>> . Char = FR Fuse • IG>> . Char = IEEE MINV • IG>> . Char = IEEE VINV • IG>> . Char = IEEE EINV • IG>> . Char = EF Curve • IG>> . Char = RXIDG	0.05 ... 10.00	P.1
Time multiplier/tripping characteristic factor. The setting range depends on the selected tripping curve.		

IG>> . **tMin**	[Protection Para / IG>>]	
0.00s *Only available if:* • IG>> . Char = IEC NINV • IG>> . Char = IEC VINV • IG>> . Char = IEC EINV • IG>> . Char = IEC LINV • IG>> . Char = RINV • IG>> . Char = HV Fuse • IG>> . Char = FR Fuse • IG>> . Char = IEEE MINV • IG>> . Char = IEEE VINV • IG>> . Char = IEEE EINV • IG>> . Char = EF Curve • IG>> . Char = RXIDG	0.00s . . . 20.00s	P.1
Minimum trip delay time. Independent of the measured current values, the trip delay time does never fall below the minimum that is set here.		

IG>> . **Reset Mode**	[Protection Para / IG>>]	
instantaneous	If: IG>> . Char = DEFT • instantaneous, definite time If: IG>> . Char = IEC NINV • instantaneous, definite time, inverse time If: IG>> . Char = IEC VINV • instantaneous, definite time, inverse time If: IG>> . Char = IEC EINV • instantaneous, definite time, inverse time If: IG>> . Char = IEC LINV • instantaneous, definite time, inverse time If: IG>> . Char = RINV • instantaneous, definite time, inverse time If: IG>> . Char = HV Fuse • instantaneous, definite time If: IG>> . Char = FR Fuse • instantaneous, definite time If: IG>> . Char = IEEE MINV • instantaneous, definite time, inverse time If: IG>> . Char = IEEE VINV • instantaneous, definite time, inverse time If: IG>> . Char = IEEE EINV • instantaneous, definite time, inverse time If: IG>> . Char = EF Curve • instantaneous, definite time If: IG>> . Char = RXIDG • instantaneous, definite time ↳ Reset Mode	P.1
Reset Mode		

IG>> . **tReset**	[Protection Para / IG>>]	
0.1s *Only available if:* • IG>> . Reset Mode = definite time	0.00s . . . 60.00s	P.1
Reset delay for intermittent phase failures (INV characteristics only)		

IG>> . **IH2 Blo**	[Protection Para / IG>>]	
	If: IH2 . Mode = use • Inactive, Active If: IH2 . Mode = “-” • Inactive Mode	P.1
Blocking the trip command, if an inrush is detected.		

IG>> . **ExBlo**	[Protection Para / IG>>]	
“-”	“-” . . . Prot . Pos OFF	P.1
External blocking of the module if the state of the assigned signal is true.		

7.11.3 IG>>: Input States

IG>> . **ExBlo-I**	[Operation / Status Display / IG>>]
Module input state: External blocking	

7.11.4 IG>>: Signals (Output States)

IG>> . **Active**	[Operation / Status Display / All Actives] [Operation / Status Display / IG>>]
Signal: active	

IG>> . **Trip**	[Operation / Status Display / Trips] [Operation / Status Display / IG>>]
Only available if: • IG>> . Definition = Trip *Signal: Trip*	

IG>> . **Alarm**	[Operation / Status Display / Alarms] [Operation / Status Display / IG>>]
Only available if: • IG>> . Definition = Alarm *Signal: Alarm*	

IG>> . **Pickup**	[Operation / Status Display / Pickups] [Operation / Status Display / IG>>]
⇧	*Signal: Pickup*

IG>> . **IH2 Blo**	[Operation / Status Display / IG>>]
⇧	*Signal: Blocking the trip command by an inrush*

7.12 I2/I1> – Unbalanced Load Protection

7.12.1 I2/I1>: Device Planning Parameters

I2/I1> . **Mode**	[Device planning / Projected Elements]	
"-" *Only available if:* • Prot . Settings valid = Software	"-", use ↳ Device planning	P.1
Unbalanced Load-Stage, general operation mode		

I2/I1> . **Definition**	[Device planning / Definition]	
Trip *Only available if:* • Prot . Settings valid = Software	Trip, Alarm ↳ Definition	P.1
Unbalanced Load-Stage: If set to "Alarm": The function operates as a supervision function, i.e. a fault generates neither alarm nor trip, but an »Alarm« signal gets issued instead. If set to "Trip": The function operates as a protection function, i.e. trips the breaker in case of a fault.		

7.12.2 I2/I1>: Settings

I2/I1> . **Function**	[Protection Para / I2/I1>]	
Active	Inactive, Active ↳ Mode	P.1
Permanent activation or deactivation of module/stage.		

I2/I1> . **I2/I1**	[Protection Para / I2/I1>]	
20%	10% ... 40%	P.1
I2/I1 unbalance trip pickup setting (in percent), i.e. the ratio of negative sequence current I2 to the positive sequence current I1.		

I2/I1> . **t**	[Protection Para / I2/I1>]	
0.1s	0.00s ... 300.00s	P.1
Time delay for trip or alarm		

I2/I1> . **IH2 Blo**	[Protection Para / I2/I1>]	
Active	If: IH2 . Mode = use • Inactive, Active If: IH2 . Mode = “-” • Inactive ↳ Mode	P.1
Blocking the trip command, if an inrush is detected.		

I2/I1> . **ExBlo**	[Protection Para / I2/I1>]	
“-”	“-” . . . Prot . Pos OFF ↳	P.1
External blocking of the module if the state of the assigned signal is true.		

7.12.3 I2/I1>: Input States

I2/I1> . **ExBlo-I**	[Operation / Status Display / I2/I1>]
Module input state: External blocking	

7.12.4 I2/I1>: Signals (Output States)

I2/I1> . **Active**	[Operation / Status Display / All Actives] [Operation / Status Display / I2/I1>]
Signal: active	

I2/I1> . **Trip**	[Operation / Status Display / Trips] [Operation / Status Display / I2/I1>]
Only available if: • I2/I1> . Definition = Trip *Signal: Trip*	

I2/I1> . **Alarm**	[Operation / Status Display / Alarms] [Operation / Status Display / I2/I1>]
Only available if: • I2/I1> . Definition = Alarm *Signal: Alarm*	

I2/I1> . **Pickup**	[Operation / Status Display / Pickups] [Operation / Status Display / I2/I1>]
⇧	*Signal: Pickup*

I2/I1> . **IH2 Blo**	[Operation / Status Display / I2/I1>]
⇧	*Signal: Blocking the trip command by an inrush*

7.13 I2> – Negative-Sequence Current Protection

7.13.1 I2>: Device Planning Parameters

I2> . **Mode**	[Device planning / Projected Elements]	
"-" *Only available if:* • Prot . Settings valid = Software	"-", use ↳ Device planning	P.1
Unbalanced Load-Stage, general operation mode		

I2> . **Definition**	[Device planning / Definition]	
Trip *Only available if:* • Prot . Settings valid = Software	Trip, Alarm ↳ Definition	P.1
Unbalanced Load-Stage: If set to "Alarm": The function operates as a supervision function, i.e. a fault generates neither alarm nor trip, but an »Alarm« signal gets issued instead. If set to "Trip": The function operates as a protection function, i.e. trips the breaker in case of a fault.		

7.13.2 I2>: Settings

I2> . **Function**	[Protection Para / I2>]	
Active	Inactive, Active ↳ Mode	P.1
Permanent activation or deactivation of module/stage.		

I2> . **I2**	[Protection Para / I2>]	
0.2In	0.2In . . . 2.5In	P.1
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> . **Char**	[Protection Para / I2>]	
DEFT	DEFT . . . EF Curve ↳ Char	P.1
Characteristic		

I2> . **t**	[Protection Para / I2>]	
0.1s *Only available if:* • I2> . Char = DEFT	0.00s ... 300.00s	P.1
Time delay for trip or alarm		

I2> . **tChar**	[Protection Para / I2>]	
0.1 *Only available if:* • I2> . Char = IEC NINV • I2> . Char = IEC VINV • I2> . Char = IEC EINV • I2> . Char = IEC LINV • I2> . Char = RINV • I2> . Char = HV Fuse • I2> . Char = FR Fuse • I2> . Char = IEEE MINV • I2> . Char = IEEE VINV • I2> . Char = IEEE EINV • I2> . Char = EF Curve	0.05 ... 10.00	P.1
Time multiplier/tripping characteristic factor. The setting range depends on the selected tripping curve.		

I2> . **tMin**	[Protection Para / I2>]	
0.00s *Only available if:* • I2> . Char = IEC NINV • I2> . Char = IEC VINV • I2> . Char = IEC EINV • I2> . Char = IEC LINV • I2> . Char = RINV • I2> . Char = HV Fuse • I2> . Char = FR Fuse • I2> . Char = IEEE MINV • I2> . Char = IEEE VINV • I2> . Char = IEEE EINV • I2> . Char = EF Curve	0.00s ... 20.00s	P.1
Minimum trip delay time. Independent of the measured current values, the trip delay time does never fall below the minimum that is set here.		

I2> . **Reset Mode**	[Protection Para / I2>]	
instantaneous	If: I2> . Char = DEFT • instantaneous, definite time If: I2> . Char = IEC NINV • instantaneous, definite time, inverse time If: I2> . Char = IEC VINV • instantaneous, definite time, inverse time If: I2> . Char = IEC EINV • instantaneous, definite time, inverse time If: I2> . Char = IEC LINV • instantaneous, definite time, inverse time If: I2> . Char = RINV • instantaneous, definite time, inverse time If: I2> . Char = HV Fuse • instantaneous, definite time If: I2> . Char = FR Fuse • instantaneous, definite time If: I2> . Char = IEEE MINV • instantaneous, definite time, inverse time If: I2> . Char = IEEE VINV • instantaneous, definite time, inverse time If: I2> . Char = IEEE EINV • instantaneous, definite time, inverse time If: I2> . Char = EF Curve • instantaneous, definite time ↳ Reset Mode	P.1
Reset Mode		

I2> . **tReset**	[Protection Para / I2>]	
0.1s *Only available if:* • I2> . Reset Mode = definite time	0.00s . . . 60.00s	P.1
Reset delay for intermittent phase failures (INV characteristics only)		

I2> . **IH2 Blo**	[Protection Para / I2>]	
Active	If: IH2 . Mode = use • Inactive, Active If: IH2 . Mode = “-” • Inactive ↳ Mode	P.1
Blocking the trip command, if an inrush is detected.		

I2> . **ExBlo**	[Protection Para / I2>]	
“-”	“-” . . . Prot . Pos OFF ↳	P.1
External blocking of the module if the state of the assigned signal is true.		

7.13.3 I2>: Input States

I2> . **ExBlo-I**	[Operation / Status Display / I2>]
Module input state: External blocking	

7.13.4 I2>: Signals (Output States)

I2> . **Active**	[Operation / Status Display / All Actives] [Operation / Status Display / I2>]
Signal: active	

I2> . **Trip**	[Operation / Status Display / Trips] [Operation / Status Display / I2>]
Only available if: • I2> . Definition = Trip *Signal: Trip*	

I2> . **Alarm**	[Operation / Status Display / Alarms] [Operation / Status Display / I2>]
Only available if: • I2> . Definition = Alarm *Signal: Alarm*	

I2> . **Pickup**	[Operation / Status Display / Pickups] [Operation / Status Display / I2>]
⇧	*Signal: Pickup*

I2> . **IH2 Blo**	[Operation / Status Display / I2>]
⇧	*Signal: Blocking the trip command by an inrush*

7.14 ThR – Thermal replica module

7.14.1 ThR: Device Planning Parameters

ThR . **Mode**	[Device planning / Projected Elements]	
"-" *Only available if:* • Prot . Settings valid = Software	"-", use ↳ Device planning	P.1
Thermal replica module, general operation mode		

ThR . **Definition**	[Device planning / Definition]	
Trip *Only available if:* • Prot . Settings valid = Software	Trip, Alarm ↳ Definition	P.1
Thermal replica module: If set to "Alarm": The function operates as a supervision function, i.e. a fault generates neither alarm nor trip, but an »Alarm« signal gets issued instead. If set to "Trip": The function operates as a protection function, i.e. trips the breaker in case of a fault.		

7.14.2 ThR: Settings

ThR . **Function**	[Protection Para / ThR]	
Active	Inactive, Active ↳ Mode	P.1
Permanent activation or deactivation of module/stage.		

ThR . **Ib**	[Protection Para / ThR]	
1.00In	0.5In ... 2.00In	P.1
Base current: Maximum permissible thermal continuous current.		

ThR . **K**	[Protection Para / ThR]	
1.00	0.80 ... 1.50	P.1
*Overload Factor: The maximum thermal limit is defined as k*IB, the product of the overload factor and the base current.*		

ThR . **Pre-Alarm Lev.**	[Protection Para / ThR]	
80%	50% ... 100%	P.1
Threshold value for the Thermal Level. If the thermal level exceeds this setting the signal »ThR . Pre-Alarm« is issued.		

ThR . **τ-warm**	[Protection Para / ThR]	
300s	10s ... 30000s	P.1
Warming-up time constant		

ThR . **τ-cool**	[Protection Para / ThR]	
300s	10s ... 30000s	P.1
Cooling time constant		

ThR . **Initial Thermal Level**	[Protection Para / ThR]	
Zero	Zero, Last Stored Value Initial Thermal Level	P.1
Select the criterion for setting the initial thermal level after a restart of the device.		

ThR . **ExBlo**	[Protection Para / ThR]	
"-"	"-" ... Prot . Pos OFF	P.1
External blocking of the module if the state of the assigned signal is true.		

7.14.3 ThR: Direct Controls

ThR . **Reset Thermal Level**	[Operation / Reset]	
Inactive	Inactive, Active Mode	P.1
Reset the thermal level		

7.14.4 ThR: Input States

ThR . **ExBlo-I**	[Operation / Status Display / ThR]
Module input state: External blocking	

7.14.5 ThR: Signals (Output States)

ThR . **Active**	[Operation / Status Display / All Actives] [Operation / Status Display / ThR]
Signal: active	

ThR . **Trip**	[Operation / Status Display / Trips] [Operation / Status Display / ThR]
⇧	*Only available if:* • ThR . Definition = Trip *Signal: Trip*

ThR . **Alarm**	[Operation / Status Display / Alarms] [Operation / Status Display / ThR]
⇧	*Only available if:* • ThR . Definition = Alarm *Signal: Alarm*

ThR . **Pickup**	[Operation / Status Display / Pickups] [Operation / Status Display / ThR]
⇧	*Signal: Pickup*

ThR . **Pre-Alarm**	[Operation / Status Display / ThR]
⇧	*Signal: The set value for the Θ Threshold has been exceeded.*

7.14.6 ThR: Values

ThR . **Thermal Level**	[Operation / Measured Values / ThR]
⟍	*Measured value: Ongoing thermal level*

7.15 Ipeak> – Peak-Value Overcurrent

7.15.1 Ipeak>: Device Planning Parameters

Ipeak> . **Mode**	[Device planning / Projected Elements]	
use	“-”, use ↳ Device planning	P.1
Peak-Value Overcurrent, general operation mode		

Ipeak> . **Definition**	[Device planning / Definition]	
Trip	Trip, Alarm ↳ Definition	P.1
Peak-Value Overcurrent: If set to “Alarm”: The function operates as a supervision function, i.e. a fault generates neither alarm nor trip, but an »Alarm« signal gets issued instead. If set to “Trip”: The function operates as a protection function, i.e. trips the breaker in case of a fault.		

7.15.2 Ipeak>: Settings

Ipeak> . **Function**	[Protection Para / Ipeak>]	
Active	Inactive, Active ↳ Mode	P.1
Permanent activation or deactivation of module/stage.		

Ipeak> . **I**	[Protection Para / Ipeak>]	
8.0In	4.0In ... 20.00In	P.1
Pickup threshold, defined as RMS value (i.e. peak current value divided by √2). If the pickup value is exceeded, the module/element starts to time out to trip.		

Ipeak> . **t**	[Protection Para / Ipeak>]	
0.0s	0.00s ... 5.00s	P.1
Time delay for trip or alarm		

Ipeak> . **ExBlo**	[Protection Para / Ipeak>]	
“-”	“-” ... Prot . Pos OFF ↳	P.1
External blocking of the module if the state of the assigned signal is true.		

7.15.3 Ipeak>: Input States

Ipeak> . **ExBlo-I**	[Operation / Status Display / Ipeak>]
⇩	*Module input state: External blocking*

7.15.4 Ipeak>: Signals (Output States)

Ipeak> . **Active**	[Operation / Status Display / All Actives] [Operation / Status Display / Ipeak>]
⇧	*Signal: active*

Ipeak> . **Trip**	[Operation / Status Display / Trips] [Operation / Status Display / Ipeak>]
⇧	*Only available if:* • Ipeak> . Definition = Trip *Signal: Trip*

Ipeak> . **Alarm**	[Operation / Status Display / Alarms] [Operation / Status Display / Ipeak>]
⇧	*Only available if:* • Ipeak> . Definition = Alarm *Signal: Alarm*

Ipeak> . **Pickup**	[Operation / Status Display / Pickups] [Operation / Status Display / Ipeak>]
⇧	*Signal: Pickup*

Ipeak> . **Trip IL1**	[Operation / Status Display / Ipeak>]
⇧	*Only available if:* • Ipeak> . Definition = Trip *Signal: Trip due to a fault in phase L1*

Ipeak> . **Trip IL2**	[Operation / Status Display / Ipeak>]
⇧	*Only available if:* • Ipeak> . Definition = Trip *Signal: Trip due to a fault in phase L2*

Ipeak> . **Trip IL3**	[Operation / Status Display / Ipeak>]
⇧	*Only available if:* • Ipeak> . Definition = Trip *Signal: Trip due to a fault in phase L3*

Ipeak> . **Alarm IL1**	[Operation / Status Display / Ipeak>]
⇧	*Only available if:* • Ipeak> . Definition = Alarm *Signal: Alarm due to a fault in phase L1*

Ipeak> . **Alarm IL2**	[Operation / Status Display / Ipeak>]
⇧	*Only available if:* • Ipeak> . Definition = Alarm *Signal: Alarm due to a fault in phase L2*

Ipeak> . **Alarm IL3**	[Operation / Status Display / Ipeak>]
⇧	*Only available if:* • Ipeak> . Definition = Alarm *Signal: Alarm due to a fault in phase L3*

Ipeak> . **Pickup IL1**	[Operation / Status Display / Ipeak>]
⇧	*Signal: Pickup in phase L1*

Ipeak> . **Pickup IL2**	[Operation / Status Display / Ipeak>]
⇧	*Signal: Pickup in phase L2*

Ipeak> . **Pickup IL3**	[Operation / Status Display / Ipeak>]
⇧	*Signal: Pickup in phase L3*

7.16 SOTF – Switch Onto Fault - Module

7.16.1 SOTF: Device Planning Parameters

SOTF . **Mode**	[Device planning / Projected Elements]	
use	"-", use ↳ Device planning	P.1
Switch Onto Fault - Module, general operation mode		

SOTF . **Definition**	[Device planning / Definition]	
Trip	Trip, Alarm ↳ Definition	P.1
Switch Onto Fault - Module: If set to "Alarm": The function operates as a supervision function, i.e. a fault generates neither alarm nor trip, but an »Alarm« signal gets issued instead. If set to "Trip": The function operates as a protection function, i.e. trips the breaker in case of a fault.		

7.16.2 SOTF: Settings

SOTF . **Function**	[Protection Para / SOTF]	
Active	Inactive, Active ↳ Mode	P.1
Permanent activation or deactivation of module/stage.		

SOTF . **Enabling**	[Protection Para / SOTF]	
Breaker Pos.	Breaker Pos., Close Command ↳ Enabling	P.1
Select the criterion for determining a manual CLOSE of the breaker. (After this, the »SOTF« module gets enabled for a particular settable time.)		

SOTF . **t-enable**	[Protection Para / SOTF]	
0.2s	0.10s . . . 10.00s	P.1
While this timer is running, and while the module is not blocked, the Switch Onto Fault Module is effective (SOTF is armed).		

SOTF . **t**	[Protection Para / SOTF]	
0.0s	0.00s . . . 10.00s	P.1
Time delay for trip or alarm. (For the »SOTF« module, an instantaneous tripping is typical, i.e. the setting value 0 s.)		

SOTF . **Trigger**	[Protection Para / SOTF]	
Ipeak> . Pickup	"-", I> . Pickup, I>> . Pickup, I>>> . Pickup, Ipeak> . Pickup, Prot . Pickup	P.1
Assign the type of pickup signal that triggers the SOTF module. If the assigned pickup signal is issued, the SOTF module itself picks up.		

SOTF . **ExBlo**	[Protection Para / SOTF]	
"-"	"-" . . . Prot . Pos OFF	P.1
External blocking of the module if the state of the assigned signal is true.		

7.16.3 SOTF: Input States

SOTF . **ExBlo-I**	[Operation / Status Display / SOTF]
Module input state: External blocking	

SOTF . **Trigger-I**	[Operation / Status Display / SOTF]
State of the module input: Assign the type of pickup signal that triggers the SOTF module. If the assigned pickup signal is issued, the SOTF module itself picks up.	

7.16.4 SOTF: Signals (Output States)

SOTF . **Active**	[Operation / Status Display / All Actives] [Operation / Status Display / SOTF]
Signal: active	

SOTF . **Trip**	[Operation / Status Display / Trips] [Operation / Status Display / SOTF]
Only available if: • SOTF . Definition = Trip *Signal: Trip*	

SOTF . **Alarm**	[Operation / Status Display / Alarms] [Operation / Status Display / SOTF]
Only available if: • SOTF . Definition = Alarm *Signal: Alarm*	

SOTF . **Pickup**	[Operation / Status Display / Pickups] [Operation / Status Display / SOTF]
⇧	*Signal: Pickup*

7.17 ExP[1] – External Protection - Module

7.17.1 ExP[1]: Device Planning Parameters

ExP[1] . **Mode**	[Device planning / Projected Elements]	
use	“-”, use ↳ Device planning	P.1
External Protection - Module, general operation mode		

ExP[1] . **Definition**	[Device planning / Definition]	
Trip	Trip, Alarm ↳ Definition	P.1
External Protection - Module: If set to “Alarm”: The function operates as a supervision function, i.e. a fault generates neither alarm nor trip, but an »Alarm« signal gets issued instead. If set to “Trip”: The function operates as a protection function, i.e. trips the breaker in case of a fault.		

7.17.2 ExP[1]: Settings

ExP[1] . **Function**	[Protection Para / ExP[1]]	
Active	Inactive, Active ↳ Mode	P.1
Permanent activation or deactivation of module/stage.		

ExP[1] . **t**	[Protection Para / ExP[1]]	
0.00s	0.00s . . . 60.00s	P.1
Time delay for trip or alarm		

ExP[1] . **Trigger Signal**	[Protection Para / ExP[1]]	
	If: Device Variant/Inputs = Without Inputs • “-” • “-” • “-”, Prot . DI 1, Prot . DI 2 • “-”, Prot . DI 1, Prot . DI 2 • “-”, Prot . DI 1, Prot . DI 2 • “-”, Prot . DI 1, Prot . DI 2 • “-” If: Device Variant/Inputs = Without Inputs • “-” • “-”, Prot . DI 1, Prot . DI 2	P.1

ExP[1] . **Trigger Signal**	[Protection Para / ExP[1]]	
	• “-”, Prot . DI 1, Prot . DI 2 • “-”, Prot . DI 1, Prot . DI 2 • “-”, Prot . DI 1, Prot . DI 2 If: Device Variant/Inputs = Ext. Trip • Prot . DI 2 • Prot . DI 2 • Prot . DI 2 • Prot . DI 2 • Prot . DI 2 If: Device Variant/Inputs = Ext. Trip, Ext. Reset • Prot . DI 2 • Prot . DI 2 • Prot . DI 2 • “-” • “-” • “-”, Prot . DI 1, Prot . DI 2 • “-”, Prot . DI 1, Prot . DI 2 If: Device Variant/Inputs = Configurable • “-”, Prot . DI 1, Prot . DI 2 • “-”, Prot . DI 1, Prot . DI 2 • “-” • “-” • “-”, Prot . DI 1, Prot . DI 2 • “-”, Prot . DI 1, Prot . DI 2 • “-”, Prot . DI 1, Prot . DI 2 If: Device Variant/Inputs = Configurable Inputs • “-”, Prot . DI 1, Prot . DI 2 	
Assign the trigger signal that will make the »ExP« module start (pickup).		

ExP[1] . **ExBlo**	[Protection Para / ExP[1]]	
“-”	“-” . . . Prot . Pos OFF 	P.1
External blocking of the module if the state of the assigned signal is true.		

7.17.3 ExP[1]: Input States

ExP[1] . **ExBlo-I**	[Operation / Status Display / ExP[1]]
⇩	*Module input state: External blocking*

ExP[1] . **Trigger Signal-I**	[Operation / Status Display / ExP[1]]
⇩	*State of the module input: External trigger signal*

7.17.4 ExP[1]: Signals (Output States)

ExP[1] . **Active**	[Operation / Status Display / All Actives] [Operation / Status Display / ExP[1]]
⇧	*Signal: active*

ExP[1] . **Trip**	[Operation / Status Display / Trips] [Operation / Status Display / ExP[1]]
⇧	*Only available if:* • ExP[1] . Definition = Trip *Signal: Trip*

ExP[1] . **Alarm**	[Operation / Status Display / Alarms] [Operation / Status Display / ExP[1]]
⇧	*Only available if:* • ExP[1] . Definition = Alarm *Alarm*

ExP[1] . **Pickup**	[Operation / Status Display / Pickups] [Operation / Status Display / ExP[1]]
⇧	*Signal: Pickup*

7.18 ExP[2] – External Protection - Module

7.18.1 ExP[2]: Device Planning Parameters

ExP[2] . **Mode**	[Device planning / Projected Elements]	
use	“-”, use ↳ Device planning	P.1
External Protection - Module, general operation mode		

ExP[2] . **Definition**	[Device planning / Definition]	
Trip	Trip, Alarm ↳ Definition	P.1
External Protection - Module: If set to “Alarm”: The function operates as a supervision function, i.e. a fault generates neither alarm nor trip, but an »Alarm« signal gets issued instead. If set to “Trip”: The function operates as a protection function, i.e. trips the breaker in case of a fault.		

7.18.2 ExP[2]: Settings

ExP[2] . **Function**	[Protection Para / ExP[2]]	
Active	Inactive, Active ↳ Mode	P.1
Permanent activation or deactivation of module/stage.		

ExP[2] . **t**	[Protection Para / ExP[2]]	
0.00s	0.00s . . . 60.00s	P.1
Time delay for trip or alarm		

ExP[2] . **Trigger Signal**	[Protection Para / ExP[2]]	
	If: Device Variant/Inputs = Without Inputs • “-” • “-” • “-” • “-” • “-” • “-”, Prot . DI 1, Prot . DI 2 • “-” If: Device Variant/Inputs = Without Inputs • “-” • “-”	P.1

ExP[2] . **Trigger Signal**	[Protection Para / ExP[2]]
	• “-” • “-” • “-”, Prot . DI 1, Prot . DI 2 • “-” • “-” If: Device Variant/Inputs = Ext. Trip • “-” • “-” • “-” • “-”, Prot . DI 1, Prot . DI 2 • “-” • “-” • “-” If: Device Variant/Inputs = Ext. Trip, Ext. Reset • “-” • “-” • “-”, Prot . DI 1, Prot . DI 2 • “-” • “-” • “-” • “-” If: Device Variant/Inputs = Configurable • “-” • “-”, Prot . DI 1, Prot . DI 2 • “-” • “-” • “-” • “-” • “-” If: Device Variant/Inputs = Configurable Inputs • “-”, Prot . DI 1, Prot . DI 2 ↳
	Assign the trigger signal that will make the »ExP« module start (pickup).

ExP[2] . **Condition**	[Protection Para / ExP[2]]	
"-"	"-", I> . Pickup, I>> . Pickup, I>>> . Pickup, Ipeak> . Pickup, Prot . Pickup	P.1

Assign a signal that must be active in additon to the external signal for making the »ExP« module start (pickup). (If no signal has been assigned here then the »ExP« module always picks up as soon as the external signal becomes active.)

ExP[2] . **ExBlo**	[Protection Para / ExP[2]]	
"-"	"-" . . . Prot . Pos OFF	P.1

External blocking of the module if the state of the assigned signal is true.

7.18.3 ExP[2]: Input States

ExP[2] . **ExBlo-I**	[Operation / Status Display / ExP[2]]

Module input state: External blocking

ExP[2] . **Trigger Signal-I**	[Operation / Status Display / ExP[2]]

State of the module input: External trigger signal

ExP[2] . **Condition-I**	[Operation / Status Display / ExP[2]]

State of the module input: Condition for External Protection

7.18.4 ExP[2]: Signals (Output States)

ExP[2] . **Active**	[Operation / Status Display / All Actives] [Operation / Status Display / ExP[2]]

Signal: active

ExP[2] . **Trip**	[Operation / Status Display / Trips] [Operation / Status Display / ExP[2]]

Only available if:

- ExP[2] . Definition = Trip

Signal: Trip

ExP[2] . **Alarm**	[Operation / Status Display / Alarms] [Operation / Status Display / ExP[2]]
⇧	*Only available if:* • ExP[2] . Definition = Alarm *Alarm*

ExP[2] . **Pickup**	[Operation / Status Display / Pickups] [Operation / Status Display / ExP[2]]
⇧	*Signal: Pickup*

7.19 CBF – Circuit breaker failure protection module

7.19.1 CBF: Device Planning Parameters

CBF . **Mode**	[Device planning / Projected Elements]	
"-" *Only available if:* • Prot . Settings valid = Software	"-", use ↳ Device planning	P.1
Module Circuit Breaker Failure protection, general operation mode		

7.19.2 CBF: Settings

CBF . **Function**	[Protection Para / CBF]	
Active	Inactive, Active ↳ Mode	P.1
Permanent activation or deactivation of module/stage.		

CBF . **t-CBF**	[Protection Para / CBF]	
0.20s	0.00s . . . 1.00s	P.1
If the delay time is expired, a CBF alarm is issued.		

CBF . **ExBlo**	[Protection Para / CBF]	
"-"	"-" . . . Prot . Pos OFF ↳	P.1
External blocking of the module if the state of the assigned signal is true.		

7.19.3 CBF: Input States

CBF . **ExBlo-I**	[Operation / Status Display / CBF]
Module input state: External blocking	

7.19.4 CBF: Signals (Output States)

CBF . **Active**	[Operation / Status Display / All Actives] [Operation / Status Display / CBF]
Signal: active	

CBF . **Alarm**	[Operation / Status Display / Alarms] [Operation / Status Display / CBF]
⇧	*Signal: Alarm*

7.20 Supervision

7.20.1 TCM – Trip Circuit Monitoring

7.20.1.1 TCM: Device Planning Parameters

TCM . **Mode**	[Device planning / Projected Elements]	
use	“-”, use Device planning	P.1
Trip Circuit Supervision, general operation mode		

7.20.1.2 TCM: Settings

TCM . **Function**	[Protection Para / TCM]	
	Inactive, Active Mode	P.1
Permanent activation or deactivation of module/stage.		

TCM . **ExBlo**	[Protection Para / TCM]	
“-”	“-” . . . Prot . Pos OFF	P.1
External blocking of the module if the state of the assigned signal is true.		

7.20.1.3 TCM: Input States

TCM . **ExBlo-I**	[Operation / Status Display / TCM]
Module input state: External blocking	

7.20.1.4 TCM: Signals (Output States)

TCM . **Active**	[Operation / Status Display / All Actives] [Operation / Status Display / TCM]
Signal: active	

TCM . **Alarm**	[Operation / Status Display / Alarms] [Operation / Status Display / TCM]
⇧	*Signal: Alarm*

8 Records

8.1 Fault recorder

Fault rec	[Operation / Recorders / Fault rec]
	This item represents a special dialog. (See the Technical Manual for details.) *The values measured at the time of tripping are saved by the Fault Recorder.*

9 Self-Supervision

9.1 Self-Supervision

Messages	[Operation / Self-Supervision / Messages]
	This item represents a special dialog. (See the Technical Manual for details.) *Internal messages*

10 Service

- System . User Restart: Table
- System . Factory Reset: Table
- System . Force Backup Prot.: Table

11 Selection Lists

True or not true

Selection list referenced by the following parameters:

- ⮡ System . Reset ERROR LED
- ⮡ System . User Restart
- ⮡ System . Factory Reset
- ⮡ System . Force Backup Prot.
- ⮡ Prot . Rst. LEDs, FIs, Flt.Scr.
- ⮡ Prot . Delete Fault Records
- *[. . .]*

True or not true	Description
False	*False*
True	*True*

Mode

general operation mode

Selection list referenced by the following parameters:

- ⮡ Prot . Out. Inverting
- ⮡ Prot . Force Trip Cmd
- ⮡ IH2 . Function
- ⮡ IH2 . 3-ph Blo
- ⮡ I> . Function
- ⮡ I> . IH2 Blo
- *[. . .]*

Mode	Description
Inactive	*Inactive*
Active	*Active*

Device planning

Selection list referenced by the following parameters:

- ⮡ DiggiMEC . Mode

Device planning	Description
“-”	*Do not use*
DiggiMEC-A	*DiggiMEC variant A (1 flag indicator/output relay)*
DiggiMEC-B	*DiggiMEC variant B (3 flag indicators/output relays)*

Settings valid

Select which settings shall be valid: the settings made via Smart view/DiggiMEC or the switches on the housing. \n(If set to “Switches”, then the respective default values are always used for all settings that are not associated with any switch.) \nNote that getting back from “Software” to “Switches” is not possible with this parameter, you have to execute a Reset to Factory Defaults instead!

Selection list referenced by the following parameters:

- ⮡ Prot . Settings valid

Settings valid	Description
Switches	*The settings made via the switches are used.*
Software	*The settings made via Smart view/DiggiMEC are used.*

Device planning

Selection list referenced by the following parameters:

- ⮡ IH2 . Mode

Device planning	Description
“-”	*Do not use*
use	*use*

Device planning

Selection list referenced by the following parameters:

- ⮡ I> . Mode

Device planning	Description
“-”	*Do not use*
use	*use*

Device planning

Selection list referenced by the following parameters:

- ⮡ I>> . Mode

Device planning	Description
“-”	*Do not use*
use	*use*

Device planning

Selection list referenced by the following parameters:

- ⮡ I>>> . Mode

Device planning	Description
“-”	*Do not use*
use	*use*

Device planning

Selection list referenced by the following parameters:

- ⮡ IG> . Mode

Device planning	Description
“-”	*Do not use*
use	*use*

Device planning

Selection list referenced by the following parameters:

- ⮡ IG>> . Mode

Device planning	Description
“-”	*Do not use*
use	*use*

Device planning

Selection list referenced by the following parameters:

- ⮡ I2/I1> . Mode

Device planning	Description
“-”	*Do not use*
use	*use*

Device planning

Selection list referenced by the following parameters:

- ⮡ I2> . Mode

Device planning	Description
“-”	*Do not use*
use	*use*

Device planning

Selection list referenced by the following parameters:

- ⮡ ThR . Mode

Device planning	Description
“-”	*Do not use*
use	*use*

Device planning

Selection list referenced by the following parameters:

- ⮡ Ipeak> . Mode

Device planning	Description
“-”	*Do not use*
use	*use*

Device planning

Selection list referenced by the following parameters:

- ⮡ SOTF . Mode

Device planning	Description
“-”	*Do not use*
use	*use*

Device planning

Selection list referenced by the following parameters:

- ⮡ ExP[1] . Mode

Device planning	Description
“-”	*Do not use*
use	*use*

Device planning

Selection list referenced by the following parameters:

- ⮡ ExP[2] . Mode

Device planning	Description
“-”	*Do not use*
use	*use*

Device planning

Selection list referenced by the following parameters:

- ⮡ TCM . Mode

Device planning	Description
“-”	*Do not use*
use	*use*

Device planning

Selection list referenced by the following parameters:

- ⮡ CBF . Mode

Device planning	Description
“-”	*Do not use*
use	*use*

Definition

If set to “Alarm”: The function operates as a supervision function, i.e. a fault generates neither alarm nor trip, but an »Alarm« signal gets issued instead. If set to “Trip”: The function operates as a protection function, i.e. trips the breaker in case of a fault.

Selection list referenced by the following parameters:

- ⮡ I> . Definition
- ⮡ I>> . Definition
- ⮡ I>>> . Definition
- ⮡ IG> . Definition
- ⮡ IG>> . Definition
- ⮡ I2/I1> . Definition
- *[. . .]*

Definition	Description
Trip	*The function operates as a protection function, i.e. trips the breaker in case of a fault.*

Definition	Description
Alarm	*The function operates as a supervision function, i.e. a fault generates neither alarm nor trip, but an »Alarm« signal gets issued instead.*

Out. Mode

Select whether the output shall operate as an impulse output (for connecting a flag indicator with full compatibility to the 1st generation WIC1), or as a relay output (with a fixed, pre-defined usage as a self-supervision contact). \n(The usage as a self-supervision contact is only possible with an externally supplied WIC1-4, and connecting a flag indicator is not permissible with this setting.)

Selection list referenced by the following parameters:

- ↳ Prot . Out. Mode

Out. Mode	Description
Impulse Output	*The output shall operate as an impulse output (for connecting a flag indicator with full compatibility to the 1st generation WIC1).*
Syst. O.K. & Ext.Suppl.	*The output shall operate as as a self-supervision output, together with an external output relay. (See the User Manual chapter “Technical Data” for the specification of a compatible output relay).* *The signal at this output indicates that the WIC1 is running and is supplied by external auxiliary power and has loaded sufficient electrical energy for triggering the trip impulse output.*
Relay Output	*The output shall operate as as a relay output (for connecting an output relay).*

Selection list referenced by the following parameters:

- ↳ DiggiMEC . FI / BO 1 assign.
- ↳ DiggiMEC . FI / BO 2 assign.
- ↳ DiggiMEC . FI / BO 3 assign.
- ↳ DiggiMEC . LED2 assign.
- ↳ DiggiMEC . LED3 assign.
- ↳ Prot . Out. assign.
- *[. . .]*

	Description
“-”	
IH2 . **Block. L1**	*Signal: Inrush blocking of phase L1 of the phase overcurrent protection*
IH2 . **Block. L2**	*Signal: Inrush blocking of phase L2 of the phase overcurrent protection*

	Description
IH2 . **Block. L3**	*Signal: Inrush blocking of phase L3 of the phase overcurrent protection*
IH2 . **Block. Ph.**	*Signal: Inrush blocking of a phase of the phase overcurrent protection*
IH2 . **Block. 3-ph**	*Signal: 3-phase Inrush blocking: An inrush has been detected in (at least) one phase, so that all three phases are blocked.*
I> . **Trip**	*Signal: Trip*
I> . **Alarm**	*Signal: Alarm*
I> . **Pickup**	*Signal: Pickup*
I>> . **Trip**	*Signal: Trip*
I>> . **Alarm**	*Signal: Alarm*
I>> . **Pickup**	*Signal: Pickup*
I>>> . **Trip**	*Signal: Trip*
I>>> . **Alarm**	*Signal: Alarm*
I>>> . **Pickup**	*Signal: Pickup*
IG> . **Trip**	*Signal: Trip*
IG> . **Alarm**	*Signal: Alarm*
IG> . **Pickup**	*Signal: Pickup*
IG> . **IH2 Blo**	*Signal: Blocking the trip command by an inrush*
IG>> . **Trip**	*Signal: Trip*
IG>> . **Alarm**	*Signal: Alarm*
IG>> . **Pickup**	*Signal: Pickup*
IG>> . **IH2 Blo**	*Signal: Blocking the trip command by an inrush*
I2/I1> . **Trip**	*Signal: Trip*
I2/I1> . **Alarm**	*Signal: Alarm*
I2/I1> . **Pickup**	*Signal: Pickup*
I2/I1> . **IH2 Blo**	*Signal: Blocking the trip command by an inrush*
I2> . **Trip**	*Signal: Trip*
I2> . **Alarm**	*Signal: Alarm*
I2> . **Pickup**	*Signal: Pickup*
I2> . **IH2 Blo**	*Signal: Blocking the trip command by an inrush*
ThR . **Trip**	*Signal: Trip*
ThR . **Alarm**	*Signal: Alarm*
ThR . **Pickup**	*Signal: Pickup*
ThR . **Pre-Alarm**	*Signal: The set value for the Θ Threshold has been exceeded.*
Ipeak> . **Trip**	*Signal: Trip*
Ipeak> . **Alarm**	*Signal: Alarm*
Ipeak> . **Pickup**	*Signal: Pickup*
SOTF . **Trip**	*Signal: Trip*
SOTF . **Alarm**	*Signal: Alarm*

	Description
SOTF . **Pickup**	*Signal: Pickup*
ExP[1] . **Trip**	*Signal: Trip*
ExP[1] . **Alarm**	*Alarm*
ExP[1] . **Pickup**	*Signal: Pickup*
ExP[2] . **Trip**	*Signal: Trip*
ExP[2] . **Alarm**	*Alarm*
ExP[2] . **Pickup**	*Signal: Pickup*
TCM . **Alarm**	*Signal: Alarm*
CBF . **Alarm**	*Signal: Alarm*
System . **New error/warning**	*Signal: A new Self-Supervision message (error or warning) has been issued.*
System . **Prot. Ready**	*Signal: The device has completely booted, all protection functions are running and there is enough electrical energy for a trip pulse.*
System . **Intern.Volt. not OK**	*Signal: The self-supervision of the device has determined a problem with the internal voltage level or energy supply. This might impair the overall protection functionality, including the possibility to output a trip pulse. (If the supply via the connected CTs is sufficient you might want to check for a potential energy drain through the devices connected to the output(s).)*
Prot . **TripCmd**	*Signal: Trip Command*
Prot . **Trip**	*Signal: General Trip*
Prot . **Alarm**	*Signal: General Alarm*
Prot . **Pickup**	*Signal: General Pickup*
Prot . **Trip IPh**	*Signal: General Trip due to a phase current fault*
Prot . **Trip IG**	*Signal: General Trip due to a ground current fault*
Prot . **Trip Ext.**	*Signal: General Trip due to an external signal*
Prot . **Trip IL1**	*Signal: General Trip due to a fault in phase L1*
Prot . **Trip IL2**	*Signal: General Trip due to a fault in phase L2*
Prot . **Trip IL3**	*Signal: General Trip due to a fault in phase L3*
Prot . **Pickup I Ph**	*Signal: General Pickup due to a phase current fault*
Prot . **Pickup IG**	*Signal: General Pickup due to a ground current fault*
Prot . **Pickup Ext.**	*Signal: General Pickup due to an external signal*
Prot . **DI 1**	*Signal: Digital Input*
Prot . **DI 2**	*Signal: Digital Input*
Prot . **Pos ON**	*Signal: Circuit Breaker is in ON-Position*
Prot . **Pos OFF**	*Signal: Circuit Breaker is in OFF-Position*

Nom voltage

Nominal voltage of the digital inputs

Selection list referenced by the following parameters:

- ⮡ Prot . Nom voltage

Nom voltage	Description
24 VDC	*24 VDC*
48 VDC ... 60 VDC	*48 VDC ... 60 VDC*
110 VDC	*110 VDC*
230 VDC	*230 VDC*
110 VAC	*110 VAC*
230 VAC	*230 VAC*
115 VAC / 230 VAC	*115 VAC / 230 VAC (depending on the input)*

Preference for Operation

If set to “Early wake-up”, the DiggiMEC is fully available at smaller primary currents, but at the cost of more inaccurate WIC1 measurement values. If set to “Precise meas.”, the DiggiMEC gets fully available only with higher primary currents, but the WIC1 measurement values will be more precise. In general, it is recommended to keep the default “Precise meas.”.

Selection list referenced by the following parameters:

- ⮡ DiggiMEC . Preference for Operation

Preference for Operation	Description
Precise meas.	*With this setting, the DiggiMEC gets fully available only with higher primary currents, but the WIC1 measurement values will be more precise.*
Early wake-up	*With this setting, the DiggiMEC is fully available at smaller primary currents, but at the cost of more inaccurate WIC1 measurement values. If set to “Precise meas.”, the DiggiMEC gets fully available only with higher primary currents, but the WIC*

Latching

Activates/deactivates latching and the type of automatical reset of the latching.

Selection list referenced by the following parameters:

- ⮡ DiggiMEC . FI / BO 1 latching
- ⮡ DiggiMEC . FI / BO 2 latching
- ⮡ DiggiMEC . FI / BO 3 latching
- ⮡ DiggiMEC . LED2 latching
- ⮡ DiggiMEC . LED3 latching

Latching	Description
No latching	*No latching, the status always follows the status of the assigned signal.*
With latching	*With latching, i.e. the state remains active once the the assigned signal has become active. (After the assigned signal has dropped off the state can be reset by the device.)*
Latching w. Auto-Reset	*With latching, i.e. the state remains active once the the assigned signal has become active. In addition to a reset via DiggiMEC-HMI or via Digital Input there is also the automatical reset permitted.*

Color

Select the “active” color (if the assigned signal is active) and the “inactive” color (if the assigned signal is inactive)

Selection list referenced by the following parameters:

- ↳ DiggiMEC . LED2 Color

Color	Description
Red	*Red = “active” color (if the assigned signal is active)*
Green	*Green = “active” color (if the assigned signal is active)*
Green / Red	*Green = “active” color (if the assigned signal is active), red = “inactive” color (if the assigned signal is inactive)*

Selection list referenced by the following parameters:

- ↳ Prot . Assign Ext. Reset
- ↳ Prot . Aux ON
- ↳ Prot . Aux OFF
- ↳ Prot . SCmd ON
- ↳ ExP[1] . Trigger Signal
- ↳ ExP[2] . Trigger Signal

	Description
“-”	
Prot . **DI 1**	*Signal: Digital Input*
Prot . **DI 2**	*Signal: Digital Input*

Def. Autom. Reset

The automatic reset will reset all latched LEDs, all DiggiMEC Flag Indicators, and a fault/trip info that might be visible on the DiggiMEC display. This is done depending on this setting, when a new protection pickup occurs or after a particular time has elapsed.

Selection list referenced by the following parameters:

- ↳ Prot . Def. Autom. Reset

Def. Autom. Reset	Description
OFF (=No Autom. Reset)	*OFF (=No Autom. Reset)*
With a New Pickup	*Automatic Reset when a new protection trip occurs*
New Pickup or After 1 h	*Automatic Reset when a new protection trip occurs or after 1 hour*
New Pickup or After 2 h	*Automatic Reset when a new protection trip occurs or after 2 hours*
New Pickup or After 4 h	*Automatic Reset when a new protection trip occurs or after 4 hours*
New Pickup or After 8 h	*Automatic Reset when a new protection trip occurs or after 8 hours*
New Pickup or After 12 h	*Automatic Reset when a new protection trip occurs or after 12 hours*
New Pickup or After 24 h	*Automatic Reset when a new protection trip occurs or after 24 hours*
New Pickup or After 10 s	*Automatic Reset when a new protection trip occurs or after 10 seconds*

Phase Sequence

Selection list referenced by the following parameters:

- ↳ CT . Phase Sequence

Phase Sequence	Description
ABC	*Clockwise Rotating Field (“ABC” = “L1-L2-L3”)*
ACB	*Anti-Clockwise Rotating Field (“ACB” = “L1-L3-L2”)*

fN

Selection list referenced by the following parameters:

- ↳ CT . f

fN	Description
50	*Rated frequency*
60	*Rated frequency*

Measuring method

Measuring method: fundamental or rms or 3rd harmonic (only generator protection relays)

Selection list referenced by the following parameters:

- ⮡ CT . 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)*

IG Source

Selection if measured or calculated ground current should be used.

Selection list referenced by the following parameters:

- ⮡ CT . IG Source

IG Source	Description
calculated	*calculated*
measured	*measured*

Display of Meas. Values

Select the preferred scaling/unit for the display of measurement values.

Selection list referenced by the following parameters:

- ⮡ CT . Display of Meas. Values

Display of Meas. Values	Description
Based on In,relative	*All current measuring values are displayed based on In,relative.*
Primary current values	*All current measuring values are displayed as primary currents.*

CT Type

Select the connected CT Type (for the display of primary or relative phase current values).

Selection list referenced by the following parameters:

- ↳ CT . CT Type
- ↳ CT . CT Type

CT Type	Description
Relative	*Phase current values are displayed as relative values.*
WE2 : 16 A ... 56 A	*Phase current values are displayed as primary values, that are calculated based on the connected CT type with primary current range 16 A ... 56 A.*
W2 : 16 A ... 56 A	*Phase current values are displayed as primary values, that are calculated based on the connected CT type with primary current range 16 A ... 56 A.*
W3 : 32 A ... 112 A	*Phase current values are displayed as primary values, that are calculated based on the connected CT type with primary current range 32 A ... 112 A.*
W4 : 64 A ... 224 A	*Phase current values are displayed as primary values, that are calculated based on the connected CT type with primary current range 64 A ... 224 A.*
W5 : 128 A ... 448 A	*Phase current values are displayed as primary values, that are calculated based on the connected CT type with primary current range 128 A ... 448 A.*
W6 : 256 A ... 896 A	*Phase current values are displayed as primary values, that are calculated based on the connected CT type with primary current range 256 A ... 896 A.*
Standard	*Standard*

Polarity

Selection list referenced by the following parameters:

- ↳ CT . CT Shift by 0°/180°
- ↳ CT . ECT Shift by 0°/180°

Polarity	Description
0	*0*
180	*180 degree polarity correction (wiring faults)*

Meth.Detect.Bkr.Pos.

Select the method to be used to determine the connected breaker position.

Selection list referenced by the following parameters:

- ↳ Prot . Meth.Detect.Bkr.Pos.

Meth.Detect.Bkr.Pos.	Description
Current-Based	*The breaker position is determined based on current measurement.*
Aux-Based	*The breaker position is dependent on a particular input signal (Aux contacts 52a/52b of the circuit breaker).*

Meth.Detect.Bkr.Pos.	Description
Current and Aux	*The breaker position is determined based on current measurement AND input signal (Aux contacts 52a/52b of the circuit breaker).*

Char

Characteristic

Selection list referenced by the following parameters:

- ⮡ I> . 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*
HV Fuse	*Overcurrent characteristic “HV Fuse”*
FR Fuse	*Overcurrent characteristic “FR Fuse”*
IEEE MINV	*IEEE Moderately Inverse [MINV] - Characteristic*
IEEE VINV	*IEEE Very Inverse [VINV]*
IEEE EINV	*IEEE Extremely Inverse - Characteristic*
EF Curve	*Overcurrent characteristic “EF Response Curve”*

Reset Mode

Selection list referenced by the following parameters:

- ⮡ I> . 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.* *(Remark: This delay is then defined by the parameter »t-reset delay«.)*
inverse time	*Calculated reset, based on the selected characteristic.*

Char

Characteristic

Selection list referenced by the following parameters:

- ⮡ I>> . 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*
HV Fuse	*Overcurrent characteristic “HV Fuse”*
FR Fuse	*Overcurrent characteristic “FR Fuse”*
IEEE MINV	*IEEE Moderately Inverse [MINV] - Characteristic*
IEEE VINV	*IEEE Very Inverse [VINV]*
IEEE EINV	*IEEE Extremely Inverse - Characteristic*
EF Curve	*Overcurrent characteristic “EF Response Curve”*

Reset Mode

Selection list referenced by the following parameters:

- ⮡ I>> . 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.* *(Remark: This delay is then defined by the parameter »t-reset delay«.)*
inverse time	*Calculated reset, based on the selected characteristic.*

Char

Characteristic

Selection list referenced by the following parameters:

- ↳ I>>> . 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*
HV Fuse	*Overcurrent characteristic “HV Fuse”*
FR Fuse	*Overcurrent characteristic “FR Fuse”*
IEEE MINV	*IEEE Moderately Inverse [MINV] - Characteristic*
IEEE VINV	*IEEE Very Inverse [VINV]*
IEEE EINV	*IEEE Extremely Inverse - Characteristic*
EF Curve	*Overcurrent characteristic “EF Response Curve”*

Reset Mode

Selection list referenced by the following parameters:

- ↳ I>>> . 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.* *(Remark: This delay is then defined by the parameter »t-reset delay«.)*
inverse time	*Calculated reset, based on the selected characteristic.*

Char

Characteristic

Selection list referenced by the following parameters:

- ↳ IG> . Char

Char	Description
DEFT	*DEFT*
IEC NINV	*IEC Normal Inverse*

Char	Description
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*
HV Fuse	*Overcurrent characteristic “HV Fuse”*
FR Fuse	*Overcurrent characteristic “FR Fuse”*
IEEE MINV	*IEEE Moderately Inverse [MINV] - Characteristic*
IEEE VINV	*IEEE Very Inverse [VINV]*
IEEE EINV	*IEEE Extremely Inverse - Characteristic*
EF Curve	*Overcurrent characteristic “EF Response Curve”*
RXIDG	*Overcurrent characteristic “RXIDG”*

Reset Mode

Selection list referenced by the following parameters:

- ⮡ IG> . 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.* *(Remark: This delay is then defined by the parameter »t-reset delay«.)*
inverse time	*Calculated reset, based on the selected characteristic.*

Char

Characteristic

Selection list referenced by the following parameters:

- ⮡ IG>> . Char

Char	Description
DEFT	*DEFT*
IEC NINV	*IEC Normal Inverse*
IEC VINV	*IEC Very Inverse [VINV]*
IEC EINV	*IEC Extremely Inverse - Characteristic*

Char	Description
IEC LINV	*IEC Long Time Inverse - Characteristic [LINV]*
RINV	*R Inverse [RINV] - Characteristic*
HV Fuse	*Overcurrent characteristic “HV Fuse”*
FR Fuse	*Overcurrent characteristic “FR Fuse”*
IEEE MINV	*IEEE Moderately Inverse [MINV] - Characteristic*
IEEE VINV	*IEEE Very Inverse [VINV]*
IEEE EINV	*IEEE Extremely Inverse - Characteristic*
EF Curve	*Overcurrent characteristic “EF Response Curve”*
RXIDG	*Overcurrent characteristic “RXIDG”*

Reset Mode

Selection list referenced by the following parameters:

- ⮡ IG>> . 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.* *(Remark: This delay is then defined by the parameter »t-reset delay«.)*
inverse time	*Calculated reset, based on the selected characteristic.*

Char

Characteristic

Selection list referenced by the following parameters:

- ⮡ I2> . 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*

Char	Description
HV Fuse	*Overcurrent characteristic “HV Fuse”*
FR Fuse	*Overcurrent characteristic “FR Fuse”*
IEEE MINV	*IEEE Moderately Inverse [MINV] - Characteristic*
IEEE VINV	*IEEE Very Inverse [VINV]*
IEEE EINV	*IEEE Extremely Inverse - Characteristic*
EF Curve	*Overcurrent characteristic “EF Response Curve”*

Reset Mode

Selection list referenced by the following parameters:

- ⮡ I2> . 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.* *(Remark: This delay is then defined by the parameter »t-reset delay«.)*
inverse time	*Calculated reset, based on the selected characteristic.*

Initial Thermal Level

Select the criterion for setting the initial thermal level after a restart of the device.

Selection list referenced by the following parameters:

- ⮡ ThR . Initial Thermal Level

Initial Thermal Level	Description
Zero	*After a restart of the device, always set the initial value to 0.*
Last Stored Value	*After a restart of the device, restore the initial value to the last known value, that had been valid before the restart of the device.*

Enabling

Select the criterion for determining a manual CLOSE of the breaker. (After this, the »SOTF« module gets enabled for a particular settable time.)

Selection list referenced by the following parameters:

- ⮡ SOTF . Enabling

Enabling	Description
Breaker Pos.	*A (manual) CLOSE command is determined based on the breaker position. (Note that the determination of breaker positions needs to be configured separately.)*
Close Command	*A CLOSE command being executed enables the »SOTF« module.*

Selection list referenced by the following parameters:

- ⮡ SOTF . Trigger
- ⮡ ExP[2] . Condition

	Description
“-”	
I> . **Pickup**	*Signal: Pickup*
I>> . **Pickup**	*Signal: Pickup*
I>>> . **Pickup**	*Signal: Pickup*
Ipeak> . **Pickup**	*Signal: Pickup*
Prot . **Pickup**	*Signal: General Pickup*

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REFERENCE MANUAL

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