



**MRM4 – Modbus
HighPROTEC**

Data point list

Manual DOK-TD-MRM4MDE

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This Manual is valid for version (applies for Modbus RTU and Modbus TCP):

Version 2.0.h

Build: 19747

Modbus Parameters

For the Modbus Protocol several parameters have to be set which are relevant for the communication between the control system (SCADA) and the device. The parameters and their setting possibilities or value ranges are shown in the table below.



ATTENTION!

The Parameters are described within the appendix of the device manual (chapter Modbus).

Notes for the SCADA-System

When using Modbus RTU the following times have to be considered by the control system and are fixed within the device :
The dwell times (t_D) before start of a telegram must at least be set to 3.5 characters.

Examples:

3.5 characters 9600 Baud = 4 ms

3.5 characters 19200 Baud = 2 ms

3.6 3.5 characters 38400 Baud = 1 ms

Start of a new telegram is expected when the dwell time (t_D) is > 3.5 characters.

The fact that the probability of disruptions during transmission of a telegram increases with its length has to be taken into duly consideration and thus a query to the Slave should be possibly such that the response telegram is not much longer than 32 Byte.

Specific Modbus Function Codes

For reading out data from the device or to carry out commands, the services listed in the table, also called »Function Codes«, are supported.

Function-code	Designation	Description
3	Read Holding Registers	There are single or several data words read as from a specific data word address. Only status addresses and parameter addresses can be read.
4	Read Input Registers	There are single or several data words read as from a specific data word address. Only measuring values can be read.
5	Write single Output (Bit)	All other values are illegal and will not affect the output. Via this function code acknowledgments can be executed as well as counters reseted or blockings set.
8	Loopback Test	Test function for the communication system
16	Load Multiple Registers	There are single or several data words written as from a specific data word address.

Table 3.1: function codes

On the following pages the Modbus functions are described in detail:

Function-Code 3/4:

Query

Slave address	3/4	Register address HI	Register address LO	Register number HI	Register number LO	Check-sum HI	Check-sum LO
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Response

Slave address	3/4	Byte number	Register 0 HI	Register 0 LO	...	Check-sum HI	Check-sum LO
---------------	-----	-------------	---------------	---------------	-----	--------------	--------------

Register address (HI*256 + LO)

The data word address from where reading should start.

Register number (HI*256 + LO)

Number of data words to be read. Valid range: 1..125

Byte number

Number of subsequent Bytes containing data words.

Register

Data words read out of the device (Highbyte and Lowbyte).

Function Code 5:

Query

Slave address	5	Register address HI	Register address LO	Register data HI	Register data LO	Check-sum HI	Check-sum LO
---------------	---	---------------------	---------------------	------------------	------------------	--------------	--------------

Response

Slave address	5	Register address HI	Register address LO	Register data HI	Register data LO	Check-sum HI	Check-sum LO
---------------	---	---------------------	---------------------	------------------	------------------	--------------	--------------

Register address (HI*256 + LO)
Data word address to be written

Register data
Value of the data word to be written (Highbyte and Lowbyte).

Permitted value range :

FF00 hex request for a single bit to be on: This often means to reset a counter, execute acknowledgments or set blockings signals.
0000 hex request for a single bit to be off: This often means to deactivate blocking signals or to reset single bits.

Function Code 8:

Query

Slave address	8	Data Diag Code HI 0x00	Data Diag Code LO 0x00	Test data	Test data	Check-sum HI	Check-sum LO
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Response

Slave address	8	Data Diag Code HI	Data Diag Code LO	Test data	Test data	Check-sum HI	Check-sum LO
---------------	---	-------------------	-------------------	-----------	-----------	--------------	--------------

Data Diag Code HI (high), Data Diag Code LO (Low)
Diagnostic Code (subfunction code of function code 8) for testing the communication system. The Diagnostic Code „Return Query Data“ (0x00, 0x00) is being supported.

Test Data

By using the Diagnostic Code 0x00 0x00, the transmitted data is sent back to the Master unchanged.

Function Code 16:

Query

Slave address	16	Register address HI	Register address LO	Register number HI	Register number LO	Byte number	Register 0 HI	Register 0 LO	...	Check-sum HI	Check-sum LO
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Response

Slave address	16	Register address HI	Register address LO	Register number HI	Register number LO	Check-sum HI	Check-sum LO
---------------	----	---------------------	---------------------	--------------------	--------------------	--------------	--------------

Register address (HI*256 + LO)

Data word address as from where writing should start.

Register number (HI*256 + LO)

Query: Number of data words to be written. Valid range: 1..123

Response: Number of data words written.

Byte number

Number of subsequent Bytes to contain data words.

Register

Data words read out of the device (Highbyte und Lowbyte).

Setting Date and Time

Date and time can be set by means of function code 16 and read with function code 3. If the device address 0 (broadcast address) is selected, the times of all devices connected to this bus are simultaneously reset. The devices do not respond to a broadcast command.

Supported MODBUS- Error Messages

Exception Response Telegrams are described within the general "Modbus Application Protocol Specification". An exception response table with examples is shown there. The table below contains just the actually used codes. In case the device has recognized an error it will react in the following way:

Exception Code	Designation	Description
1	Illegal Function	The message received includes a function code which is not supported by the Slave.
2	Illegal Data Address	Access was sought on a data word address not included in the data module.
3	Illegal Data Value	The received message contains an invalid data structure (e.g. wrong number of data bytes).
4	Slave Device Failure	An unrecoverable error occurred while the server (or slave) was attempting to perform the requested action.

The response given by the *device* in a failure case has the following format:

Slave Address	0x80 + Function Code	Exception Code	Check-sum HI	Check-sum LO
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In the second Byte of the response the Function Code is sent with the highest Bit set to 1. This is equivalent to an addition by 0x80. The third Byte holds the Exception Code of the error message.

Appendix - Data Point Lists

Signals

<i>Module</i>	<i>Subgroup Names Functions</i>	<i>Start Register Address</i>	<i>No. of Modbus Registers</i>	<i>Function Code</i>	<i>Format</i>	<i>Bit Mask / (Bit Position)</i>	<i>Unit</i>	<i>Description</i>
BO-3 X2		1004	1	3	Struct			
	BO 1	1004	1	3	Bit	0x4 (3)	-	Signal: Binary Output Relay
	BO 2	1004	1	3	Bit	0x8 (4)	-	Signal: Binary Output Relay
	BO 3	1004	1	3	Bit	0x10 (5)	-	Signal: Binary Output Relay
	DISARMED!	1004	1	3	Bit	0x40 (7)	-	Signal: CAUTION! RELAYS DISARMED in order to safely perform maintenance while eliminating the risk of taking an entire process off-line. (Note: The Self Supervision Contact cannot be disarmed). YOU MUST ENSURE that the relays are ARMED AGAIN after maintenance
	Outs forced	1004	1	3	Bit	0x80 (8)	-	Signal: The State of at least one Relay Output has been set by force. That means that the state of at least one Relay is forced and hence does not show the state of the assigned signals.

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
BO-5 X2		1003	1	3	Struct			
	BO 1	1003	1	3	Bit	0x1 (1)	-	Signal: Binary Output Relay
	BO 2	1003	1	3	Bit	0x2 (2)	-	Signal: Binary Output Relay
	BO 3	1003	1	3	Bit	0x4 (3)	-	Signal: Binary Output Relay
	BO 4	1003	1	3	Bit	0x8 (4)	-	Signal: Binary Output Relay
	BO 5	1003	1	3	Bit	0x10 (5)	-	Signal: Binary Output Relay
	DISARMED!	1003	1	3	Bit	0x40 (7)	-	Signal: CAUTION! RELAYS DISARMED in order to safely perform maintenance while eliminating the risk of taking an entire process off-line. (Note: The Self Supervision Contact cannot be disarmed). YOU MUST ENSURE that the relays are ARMED AGAIN after maintenance
	Outs forced	1003	1	3	Bit	0x80 (8)	-	Signal: The State of at least one Relay Output has been set by force. That means that the state of at least one Relay is forced and hence does not show the state of the assigned signals.

Appendix - Data Point Lists

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
CBF		53	1	3	Struct			
	ExBlo1-I	53	1	3	Bit	0x1 (1)	-	Module input state: External blocking1
	ExBlo2-I	53	1	3	Bit	0x2 (2)	-	Module input state: External blocking2
	active	53	1	3	Bit	0x4 (3)	-	Signal: active
	ExBlo	53	1	3	Bit	0x8 (4)	-	Signal: External Blocking
	Trigger1	53	1	3	Bit	0x10 (5)	-	Module Input: Trigger that will start the CBF
	Trigger2	53	1	3	Bit	0x20 (6)	-	Module Input: Trigger that will start the CBF
	Trigger3	53	1	3	Bit	0x40 (7)	-	Module Input: Trigger that will start the CBF
	running	53	1	3	Bit	0x80 (8)	-	Signal: CBF-Module started
	Alarm (*)	53	1	3	Bit	0x100 (9)	-	Signal: Circuit Breaker Failure
	Lockout (*)	53	1	3	Bit	0x200 (10)	-	Signal: Lockout
CTS		137	1	3	Struct			

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	ExBlo1-I	137	1	3	Bit	0x1 (1)	-	Module input state: External blocking1
	ExBlo2-I	137	1	3	Bit	0x2 (2)	-	Module input state: External blocking2
	active	137	1	3	Bit	0x4 (3)	-	Signal: active
	ExBlo	137	1	3	Bit	0x8 (4)	-	Signal: External Blocking
	Alarm	137	1	3	Bit	0x10 (5)	-	Signal: Alarm Current Transformer Measuring Circuit Supervision
Ctrl		176	1	3	Struct			
	Local	176	1	3	Bit	0x1 (1)	-	Switching Authority: Local
	Remote	176	1	3	Bit	0x2 (2)	-	Switching Authority: Remote
DI Slot X1		1000	1	3	Struct			
	DI 1	1000	1	3	Bit	0x1 (1)	-	Signal: Digital Input
	DI 2	1000	1	3	Bit	0x2 (2)	-	Signal: Digital Input
	DI 3	1000	1	3	Bit	0x4 (3)	-	Signal: Digital Input

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Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	DI 4	1000	1	3	Bit	0x8 (4)	-	Signal: Digital Input
	DI 5	1000	1	3	Bit	0x10 (5)	-	Signal: Digital Input
	DI 6	1000	1	3	Bit	0x20 (6)	-	Signal: Digital Input
	DI 7	1000	1	3	Bit	0x40 (7)	-	Signal: Digital Input
	DI 8	1000	1	3	Bit	0x80 (8)	-	Signal: Digital Input
DI Slot X1		1008	1	3	Struct			
	DI 1	1008	1	3	Bit	0x10 (5)	-	Signal: Digital Input
	DI 2	1008	1	3	Bit	0x20 (6)	-	Signal: Digital Input
	DI 3	1008	1	3	Bit	0x40 (7)	-	Signal: Digital Input
	DI 4	1008	1	3	Bit	0x80 (8)	-	Signal: Digital Input
Exp[1]		49	1	3	Struct			
	ExBlo1-l	49	1	3	Bit	0x1 (1)	-	Module input state: External blocking1

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	ExBlo2-I	49	1	3	Bit	0x2 (2)	-	Module input state: External blocking2
	ExBlo TripCmd-I	49	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	Alarm-I	49	1	3	Bit	0x8 (4)	-	Module input state: Alarm
	Trip-I	49	1	3	Bit	0x10 (5)	-	Module input state: Trip
	active	49	1	3	Bit	0x20 (6)	-	Signal: active
	ExBlo	49	1	3	Bit	0x40 (7)	-	Signal: External Blocking
	Blo TripCmd	49	1	3	Bit	0x80 (8)	-	Signal: Trip Command blocked
	ExBlo TripCmd	49	1	3	Bit	0x100 (9)	-	Signal: External Blocking of the Trip Command
	Alarm	49	1	3	Bit	0x200 (10)	-	Signal: Alarm
	Trip (*)	49	1	3	Bit	0x400 (11)	-	Signal: Trip
	TripCmd (*)	49	1	3	Bit	0x800 (12)	-	Signal: Trip Command
ExP[2]		50	1	3	Struct			

Appendix - Data Point Lists

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	ExBlo1-I	50	1	3	Bit	0x1 (1)	-	Module input state: External blocking1
	ExBlo2-I	50	1	3	Bit	0x2 (2)	-	Module input state: External blocking2
	ExBlo TripCmd-I	50	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	Alarm-I	50	1	3	Bit	0x8 (4)	-	Module input state: Alarm
	Trip-I	50	1	3	Bit	0x10 (5)	-	Module input state: Trip
	active	50	1	3	Bit	0x20 (6)	-	Signal: active
	ExBlo	50	1	3	Bit	0x40 (7)	-	Signal: External Blocking
	Blo TripCmd	50	1	3	Bit	0x80 (8)	-	Signal: Trip Command blocked
	ExBlo TripCmd	50	1	3	Bit	0x100 (9)	-	Signal: External Blocking of the Trip Command
	Alarm	50	1	3	Bit	0x200 (10)	-	Signal: Alarm
	Trip (*)	50	1	3	Bit	0x400 (11)	-	Signal: Trip

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	TripCmd (*)	50	1	3	Bit	0x800 (12)	-	Signal: Trip Command
Exp[3]		51	1	3	Struct			
	ExBlo1-I	51	1	3	Bit	0x1 (1)	-	Module input state: External blocking1
	ExBlo2-I	51	1	3	Bit	0x2 (2)	-	Module input state: External blocking2
	ExBlo TripCmd-I	51	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	Alarm-I	51	1	3	Bit	0x8 (4)	-	Module input state: Alarm
	Trip-I	51	1	3	Bit	0x10 (5)	-	Module input state: Trip
	active	51	1	3	Bit	0x20 (6)	-	Signal: active
	ExBlo	51	1	3	Bit	0x40 (7)	-	Signal: External Blocking
	Blo TripCmd	51	1	3	Bit	0x80 (8)	-	Signal: Trip Command blocked
	ExBlo TripCmd	51	1	3	Bit	0x100 (9)	-	Signal: External Blocking of the Trip Command
	Alarm	51	1	3	Bit	0x200 (10)	-	Signal: Alarm

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Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	Trip (*)	51	1	3	Bit	0x400 (11)	-	Signal: Trip
	TripCmd (*)	51	1	3	Bit	0x800 (12)	-	Signal: Trip Command
Exp[4]		52	1	3	Struct			
	ExBlo1-I	52	1	3	Bit	0x1 (1)	-	Module input state: External blocking1
	ExBlo2-I	52	1	3	Bit	0x2 (2)	-	Module input state: External blocking2
	ExBlo TripCmd-I	52	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	Alarm-I	52	1	3	Bit	0x8 (4)	-	Module input state: Alarm
	Trip-I	52	1	3	Bit	0x10 (5)	-	Module input state: Trip
	active	52	1	3	Bit	0x20 (6)	-	Signal: active
	ExBlo	52	1	3	Bit	0x40 (7)	-	Signal: External Blocking
	Blo TripCmd	52	1	3	Bit	0x80 (8)	-	Signal: Trip Command blocked
	ExBlo TripCmd	52	1	3	Bit	0x100 (9)	-	Signal: External Blocking of the Trip Command

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	Alarm	52	1	3	Bit	0x200 (10)	-	Signal: Alarm
	Trip (*)	52	1	3	Bit	0x400 (11)	-	Signal: Trip
	TripCmd (*)	52	1	3	Bit	0x800 (12)	-	Signal: Trip Command
I2>[1]		82	1	3	Struct			
	ExBlo1-I	82	1	3	Bit	0x1 (1)	-	Module input state: External blocking1
	ExBlo2-I	82	1	3	Bit	0x2 (2)	-	Module input state: External blocking2
	ExBlo TripCmd-I	82	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	active	82	1	3	Bit	0x8 (4)	-	Signal: active
	ExBlo	82	1	3	Bit	0x10 (5)	-	Signal: External Blocking
	Blo TripCmd	82	1	3	Bit	0x20 (6)	-	Signal: Trip Command blocked
	ExBlo TripCmd	82	1	3	Bit	0x40 (7)	-	Signal: External Blocking of the Trip Command
	Alarm	82	1	3	Bit	0x80 (8)	-	Signal: Alarm Negative Sequence

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Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	Trip (*)	82	1	3	Bit	0x100 (9)	-	Signal: Trip
	TripCmd (*)	82	1	3	Bit	0x200 (10)	-	Signal: Trip Command
I2>[2]		83	1	3	Struct			
	ExBlo1-I	83	1	3	Bit	0x1 (1)	-	Module input state: External blocking1
	ExBlo2-I	83	1	3	Bit	0x2 (2)	-	Module input state: External blocking2
	ExBlo TripCmd-I	83	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	active	83	1	3	Bit	0x8 (4)	-	Signal: active
	ExBlo	83	1	3	Bit	0x10 (5)	-	Signal: External Blocking
	Blo TripCmd	83	1	3	Bit	0x20 (6)	-	Signal: Trip Command blocked
	ExBlo TripCmd	83	1	3	Bit	0x40 (7)	-	Signal: External Blocking of the Trip Command
	Alarm	83	1	3	Bit	0x80 (8)	-	Signal: Alarm Negative Sequence
	Trip (*)	83	1	3	Bit	0x100 (9)	-	Signal: Trip

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	TripCmd (*)	83	1	3	Bit	0x200 (10)	-	Signal: Trip Command
I<[1]		167	1	3	Struct			
	ExBlo1-I	167	1	3	Bit	0x1 (1)	-	Module input state: External blocking1
	ExBlo2-I	167	1	3	Bit	0x2 (2)	-	Module input state: External blocking2
	ExBlo TripCmd-I	167	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	active	167	1	3	Bit	0x10 (5)	-	Signal: active
	ExBlo	167	1	3	Bit	0x20 (6)	-	Signal: External Blocking
	Blo TripCmd	167	1	3	Bit	0x40 (7)	-	Signal: Trip Command blocked
	ExBlo TripCmd	167	1	3	Bit	0x80 (8)	-	Signal: External Blocking of the Trip Command
	Alarm	167	1	3	Bit	0x200 (10)	-	Signal: Alarm
	Trip (*)	167	1	3	Bit	0x400 (11)	-	Signal: Trip
	TripCmd (*)	167	1	3	Bit	0x800 (12)	-	Signal: Trip Command

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Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
I<[2]		168	1	3	Struct			
	ExBlo1-I	168	1	3	Bit	0x1 (1)	-	Module input state: External blocking1
	ExBlo2-I	168	1	3	Bit	0x2 (2)	-	Module input state: External blocking2
	ExBlo TripCmd-I	168	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	active	168	1	3	Bit	0x10 (5)	-	Signal: active
	ExBlo	168	1	3	Bit	0x20 (6)	-	Signal: External Blocking
	Blo TripCmd	168	1	3	Bit	0x40 (7)	-	Signal: Trip Command blocked
	ExBlo TripCmd	168	1	3	Bit	0x80 (8)	-	Signal: External Blocking of the Trip Command
	Alarm	168	1	3	Bit	0x200 (10)	-	Signal: Alarm
	Trip (*)	168	1	3	Bit	0x400 (11)	-	Signal: Trip
	TripCmd (*)	168	1	3	Bit	0x800 (12)	-	Signal: Trip Command
I<[3]		169	1	3	Struct			

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	ExBlo1-I	169	1	3	Bit	0x1 (1)	-	Module input state: External blocking1
	ExBlo2-I	169	1	3	Bit	0x2 (2)	-	Module input state: External blocking2
	ExBlo TripCmd-I	169	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	active	169	1	3	Bit	0x10 (5)	-	Signal: active
	ExBlo	169	1	3	Bit	0x20 (6)	-	Signal: External Blocking
	Blo TripCmd	169	1	3	Bit	0x40 (7)	-	Signal: Trip Command blocked
	ExBlo TripCmd	169	1	3	Bit	0x80 (8)	-	Signal: External Blocking of the Trip Command
	Alarm	169	1	3	Bit	0x200 (10)	-	Signal: Alarm
	Trip (*)	169	1	3	Bit	0x400 (11)	-	Signal: Trip
	TripCmd (*)	169	1	3	Bit	0x800 (12)	-	Signal: Trip Command
IG[1]		15	1	3	Struct			
	ExBlo1-I	15	1	3	Bit	0x1 (1)	-	Module input state: External blocking1

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Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	ExBlo2-I	15	1	3	Bit	0x2 (2)	-	Module input state: External blocking2
	ExBlo TripCmd-I	15	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	Ex rev Interl-I	15	1	3	Bit	0x8 (4)	-	Module input state: External reverse interlocking
	active	15	1	3	Bit	0x10 (5)	-	Signal: active
	ExBlo	15	1	3	Bit	0x20 (6)	-	Signal: External Blocking
	Ex rev Interl	15	1	3	Bit	0x40 (7)	-	Signal: External reverse Interlocking
	Blo TripCmd	15	1	3	Bit	0x80 (8)	-	Signal: Trip Command blocked
	ExBlo TripCmd	15	1	3	Bit	0x100 (9)	-	Signal: External Blocking of the Trip Command
	Alarm	15	1	3	Bit	0x400 (11)	-	Signal: Alarm IG
	Trip (*)	15	1	3	Bit	0x800 (12)	-	Signal: Trip
	TripCmd (*)	15	1	3	Bit	0x1000 (13)	-	Signal: Trip Command
IG[2]		16	1	3	Struct			

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	ExBlo1-I	16	1	3	Bit	0x1 (1)	-	Module input state: External blocking1
	ExBlo2-I	16	1	3	Bit	0x2 (2)	-	Module input state: External blocking2
	ExBlo TripCmd-I	16	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	Ex rev Interl-I	16	1	3	Bit	0x8 (4)	-	Module input state: External reverse interlocking
	active	16	1	3	Bit	0x10 (5)	-	Signal: active
	ExBlo	16	1	3	Bit	0x20 (6)	-	Signal: External Blocking
	Ex rev Interl	16	1	3	Bit	0x40 (7)	-	Signal: External reverse Interlocking
	Blo TripCmd	16	1	3	Bit	0x80 (8)	-	Signal: Trip Command blocked
	ExBlo TripCmd	16	1	3	Bit	0x100 (9)	-	Signal: External Blocking of the Trip Command
	Alarm	16	1	3	Bit	0x400 (11)	-	Signal: Alarm IG
	Trip (*)	16	1	3	Bit	0x800 (12)	-	Signal: Trip

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Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	TripCmd (*)	16	1	3	Bit	0x1000 (13)	-	Signal: Trip Command
IG[3]		17	1	3	Struct			
	ExBlo1-I	17	1	3	Bit	0x1 (1)	-	Module input state: External blocking1
	ExBlo2-I	17	1	3	Bit	0x2 (2)	-	Module input state: External blocking2
	ExBlo TripCmd-I	17	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	Ex rev Interl-I	17	1	3	Bit	0x8 (4)	-	Module input state: External reverse interlocking
	active	17	1	3	Bit	0x10 (5)	-	Signal: active
	ExBlo	17	1	3	Bit	0x20 (6)	-	Signal: External Blocking
	Ex rev Interl	17	1	3	Bit	0x40 (7)	-	Signal: External reverse Interlocking
	Blo TripCmd	17	1	3	Bit	0x80 (8)	-	Signal: Trip Command blocked
	ExBlo TripCmd	17	1	3	Bit	0x100 (9)	-	Signal: External Blocking of the Trip Command
	Alarm	17	1	3	Bit	0x400 (11)	-	Signal: Alarm IG

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	Trip (*)	17	1	3	Bit	0x800 (12)	-	Signal: Trip
	TripCmd (*)	17	1	3	Bit	0x1000 (13)	-	Signal: Trip Command
IG[4]		18	1	3	Struct			
	ExBlo1-I	18	1	3	Bit	0x1 (1)	-	Module input state: External blocking1
	ExBlo2-I	18	1	3	Bit	0x2 (2)	-	Module input state: External blocking2
	ExBlo TripCmd-I	18	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	Ex rev Interl-I	18	1	3	Bit	0x8 (4)	-	Module input state: External reverse interlocking
	active	18	1	3	Bit	0x10 (5)	-	Signal: active
	ExBlo	18	1	3	Bit	0x20 (6)	-	Signal: External Blocking
	Ex rev Interl	18	1	3	Bit	0x40 (7)	-	Signal: External reverse Interlocking
	Blo TripCmd	18	1	3	Bit	0x80 (8)	-	Signal: Trip Command blocked
	ExBlo TripCmd	18	1	3	Bit	0x100 (9)	-	Signal: External Blocking of the Trip Command

Appendix - Data Point Lists

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	Alarm	18	1	3	Bit	0x400 (11)	-	Signal: Alarm IG
	Trip (*)	18	1	3	Bit	0x800 (12)	-	Signal: Trip
	TripCmd (*)	18	1	3	Bit	0x1000 (13)	-	Signal: Trip Command
IRIG-B		148	1	3	Struct			
	active	148	1	3	Bit	0x1 (1)	-	Signal: active
	inverted	148	1	3	Bit	0x2 (2)	-	Signal: IRIG-B inverted
	Control Signal1	148	1	3	Bit	0x4 (3)	-	Signal: IRIG-B Control Signal
	Control Signal2	148	1	3	Bit	0x8 (4)	-	Signal: IRIG-B Control Signal
	Control Signal4	148	1	3	Bit	0x10 (5)	-	Signal: IRIG-B Control Signal
	Control Signal5	148	1	3	Bit	0x20 (6)	-	Signal: IRIG-B Control Signal
	Control Signal6	148	1	3	Bit	0x40 (7)	-	Signal: IRIG-B Control Signal
	Control Signal7	148	1	3	Bit	0x80 (8)	-	Signal: IRIG-B Control Signal

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	Control Signal8	148	1	3	Bit	0x100 (9)	-	Signal: IRIG-B Control Signal
	Control Signal9	148	1	3	Bit	0x200 (10)	-	Signal: IRIG-B Control Signal
	Control Signal10	148	1	3	Bit	0x400 (11)	-	Signal: IRIG-B Control Signal
	Control Signal11	148	1	3	Bit	0x800 (12)	-	Signal: IRIG-B Control Signal
	Control Signal12	148	1	3	Bit	0x1000 (13)	-	Signal: IRIG-B Control Signal
	Control Signal13	148	1	3	Bit	0x2000 (14)	-	Signal: IRIG-B Control Signal
	Control Signal14	148	1	3	Bit	0x4000 (15)	-	Signal: IRIG-B Control Signal
	Control Signal15	148	1	3	Bit	0x8000 (16)	-	Signal: IRIG-B Control Signal
IRIG-B		149	1	3	Struct			
	Control Signal16	149	1	3	Bit	0x1 (1)	-	Signal: IRIG-B Control Signal
	Control Signal17	149	1	3	Bit	0x2 (2)	-	Signal: IRIG-B Control Signal
	Control Signal18	149	1	3	Bit	0x4 (3)	-	Signal: IRIG-B Control Signal

Appendix - Data Point Lists

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
I[1]		3	1	3	Struct			
	ExBlo1-I	3	1	3	Bit	0x1 (1)	-	Module input state: External blocking1
	ExBlo2-I	3	1	3	Bit	0x2 (2)	-	Module input state: External blocking2
	ExBlo TripCmd-I	3	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	Ex rev Interl-I	3	1	3	Bit	0x8 (4)	-	Module input state: External reverse interlocking
	active	3	1	3	Bit	0x10 (5)	-	Signal: active
	ExBlo	3	1	3	Bit	0x20 (6)	-	Signal: External Blocking
	Ex rev Interl	3	1	3	Bit	0x40 (7)	-	Signal: External reverse Interlocking
	Blo TripCmd	3	1	3	Bit	0x80 (8)	-	Signal: Trip Command blocked
	ExBlo TripCmd	3	1	3	Bit	0x100 (9)	-	Signal: External Blocking of the Trip Command
I[1]		4	1	3	Struct			
	Alarm L1	4	1	3	Bit	0x1 (1)	-	Signal: Alarm L1

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	Alarm L2	4	1	3	Bit	0x2 (2)	-	Signal: Alarm L2
	Alarm L3	4	1	3	Bit	0x4 (3)	-	Signal: Alarm L3
	Alarm	4	1	3	Bit	0x8 (4)	-	Signal: Alarm
	Trip L1 (*)	4	1	3	Bit	0x10 (5)	-	Signal: General Trip Phase L1
	Trip L2 (*)	4	1	3	Bit	0x20 (6)	-	Signal: General Trip Phase L2
	Trip L3 (*)	4	1	3	Bit	0x40 (7)	-	Signal: General Trip Phase L3
	Trip (*)	4	1	3	Bit	0x80 (8)	-	Signal: Trip
	TripCmd (*)	4	1	3	Bit	0x100 (9)	-	Signal: Trip Command
I[2]		5	1	3	Struct			
	ExBlo1-I	5	1	3	Bit	0x1 (1)	-	Module input state: External blocking1
	ExBlo2-I	5	1	3	Bit	0x2 (2)	-	Module input state: External blocking2
	ExBlo TripCmd-I	5	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command

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Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	Ex rev Interl-I	5	1	3	Bit	0x8 (4)	-	Module input state: External reverse interlocking
	active	5	1	3	Bit	0x10 (5)	-	Signal: active
	ExBlo	5	1	3	Bit	0x20 (6)	-	Signal: External Blocking
	Ex rev Interl	5	1	3	Bit	0x40 (7)	-	Signal: External reverse Interlocking
	Blo TripCmd	5	1	3	Bit	0x80 (8)	-	Signal: Trip Command blocked
	ExBlo TripCmd	5	1	3	Bit	0x100 (9)	-	Signal: External Blocking of the Trip Command
I[2]		6	1	3	Struct			
	Alarm L1	6	1	3	Bit	0x1 (1)	-	Signal: Alarm L1
	Alarm L2	6	1	3	Bit	0x2 (2)	-	Signal: Alarm L2
	Alarm L3	6	1	3	Bit	0x4 (3)	-	Signal: Alarm L3
	Alarm	6	1	3	Bit	0x8 (4)	-	Signal: Alarm
	Trip L1 (*)	6	1	3	Bit	0x10 (5)	-	Signal: General Trip Phase L1

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	Trip L2 (*)	6	1	3	Bit	0x20 (6)	-	Signal: General Trip Phase L2
	Trip L3 (*)	6	1	3	Bit	0x40 (7)	-	Signal: General Trip Phase L3
	Trip (*)	6	1	3	Bit	0x80 (8)	-	Signal: Trip
	TripCmd (*)	6	1	3	Bit	0x100 (9)	-	Signal: Trip Command
I[3]		7	1	3	Struct			
	ExBlo1-I	7	1	3	Bit	0x1 (1)	-	Module input state: External blocking1
	ExBlo2-I	7	1	3	Bit	0x2 (2)	-	Module input state: External blocking2
	ExBlo TripCmd-I	7	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	Ex rev Interl-I	7	1	3	Bit	0x8 (4)	-	Module input state: External reverse interlocking
	active	7	1	3	Bit	0x10 (5)	-	Signal: active
	ExBlo	7	1	3	Bit	0x20 (6)	-	Signal: External Blocking
	Ex rev Interl	7	1	3	Bit	0x40 (7)	-	Signal: External reverse Interlocking

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Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	Blo TripCmd	7	1	3	Bit	0x80 (8)	-	Signal: Trip Command blocked
	ExBlo TripCmd	7	1	3	Bit	0x100 (9)	-	Signal: External Blocking of the Trip Command
I[3]		8	1	3	Struct			
	Alarm L1	8	1	3	Bit	0x1 (1)	-	Signal: Alarm L1
	Alarm L2	8	1	3	Bit	0x2 (2)	-	Signal: Alarm L2
	Alarm L3	8	1	3	Bit	0x4 (3)	-	Signal: Alarm L3
	Alarm	8	1	3	Bit	0x8 (4)	-	Signal: Alarm
	Trip L1 (*)	8	1	3	Bit	0x10 (5)	-	Signal: General Trip Phase L1
	Trip L2 (*)	8	1	3	Bit	0x20 (6)	-	Signal: General Trip Phase L2
	Trip L3 (*)	8	1	3	Bit	0x40 (7)	-	Signal: General Trip Phase L3
	Trip (*)	8	1	3	Bit	0x80 (8)	-	Signal: Trip
	TripCmd (*)	8	1	3	Bit	0x100 (9)	-	Signal: Trip Command

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
I[4]		9	1	3	Struct			
	ExBlo1-I	9	1	3	Bit	0x1 (1)	-	Module input state: External blocking1
	ExBlo2-I	9	1	3	Bit	0x2 (2)	-	Module input state: External blocking2
	ExBlo TripCmd-I	9	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	Ex rev Interl-I	9	1	3	Bit	0x8 (4)	-	Module input state: External reverse interlocking
	active	9	1	3	Bit	0x10 (5)	-	Signal: active
	ExBlo	9	1	3	Bit	0x20 (6)	-	Signal: External Blocking
	Ex rev Interl	9	1	3	Bit	0x40 (7)	-	Signal: External reverse Interlocking
	Blo TripCmd	9	1	3	Bit	0x80 (8)	-	Signal: Trip Command blocked
	ExBlo TripCmd	9	1	3	Bit	0x100 (9)	-	Signal: External Blocking of the Trip Command
I[4]		10	1	3	Struct			
	Alarm L1	10	1	3	Bit	0x1 (1)	-	Signal: Alarm L1

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Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	Alarm L2	10	1	3	Bit	0x2 (2)	-	Signal: Alarm L2
	Alarm L3	10	1	3	Bit	0x4 (3)	-	Signal: Alarm L3
	Alarm	10	1	3	Bit	0x8 (4)	-	Signal: Alarm
	Trip L1 (*)	10	1	3	Bit	0x10 (5)	-	Signal: General Trip Phase L1
	Trip L2 (*)	10	1	3	Bit	0x20 (6)	-	Signal: General Trip Phase L2
	Trip L3 (*)	10	1	3	Bit	0x40 (7)	-	Signal: General Trip Phase L3
	Trip (*)	10	1	3	Bit	0x80 (8)	-	Signal: Trip
	TripCmd (*)	10	1	3	Bit	0x100 (9)	-	Signal: Trip Command
I[5]		11	1	3	Struct			
	ExBlo1-I	11	1	3	Bit	0x1 (1)	-	Module input state: External blocking1
	ExBlo2-I	11	1	3	Bit	0x2 (2)	-	Module input state: External blocking2
	ExBlo TripCmd-I	11	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	Ex rev Interl-I	11	1	3	Bit	0x8 (4)	-	Module input state: External reverse interlocking
	active	11	1	3	Bit	0x10 (5)	-	Signal: active
	ExBlo	11	1	3	Bit	0x20 (6)	-	Signal: External Blocking
	Ex rev Interl	11	1	3	Bit	0x40 (7)	-	Signal: External reverse Interlocking
	Blo TripCmd	11	1	3	Bit	0x80 (8)	-	Signal: Trip Command blocked
	ExBlo TripCmd	11	1	3	Bit	0x100 (9)	-	Signal: External Blocking of the Trip Command
I[5]		12	1	3	Struct			
	Alarm L1	12	1	3	Bit	0x1 (1)	-	Signal: Alarm L1
	Alarm L2	12	1	3	Bit	0x2 (2)	-	Signal: Alarm L2
	Alarm L3	12	1	3	Bit	0x4 (3)	-	Signal: Alarm L3
	Alarm	12	1	3	Bit	0x8 (4)	-	Signal: Alarm
	Trip L1 (*)	12	1	3	Bit	0x10 (5)	-	Signal: General Trip Phase L1

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Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	Trip L2 (*)	12	1	3	Bit	0x20 (6)	-	Signal: General Trip Phase L2
	Trip L3 (*)	12	1	3	Bit	0x40 (7)	-	Signal: General Trip Phase L3
	Trip (*)	12	1	3	Bit	0x80 (8)	-	Signal: Trip
	TripCmd (*)	12	1	3	Bit	0x100 (9)	-	Signal: Trip Command
I[6]		13	1	3	Struct			
	ExBlo1-I	13	1	3	Bit	0x1 (1)	-	Module input state: External blocking1
	ExBlo2-I	13	1	3	Bit	0x2 (2)	-	Module input state: External blocking2
	ExBlo TripCmd-I	13	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	Ex rev Interl-I	13	1	3	Bit	0x8 (4)	-	Module input state: External reverse interlocking
	active	13	1	3	Bit	0x10 (5)	-	Signal: active
	ExBlo	13	1	3	Bit	0x20 (6)	-	Signal: External Blocking
	Ex rev Interl	13	1	3	Bit	0x40 (7)	-	Signal: External reverse Interlocking

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	Blo TripCmd	13	1	3	Bit	0x80 (8)	-	Signal: Trip Command blocked
	ExBlo TripCmd	13	1	3	Bit	0x100 (9)	-	Signal: External Blocking of the Trip Command
I[6]		14	1	3	Struct			
	Alarm L1	14	1	3	Bit	0x1 (1)	-	Signal: Alarm L1
	Alarm L2	14	1	3	Bit	0x2 (2)	-	Signal: Alarm L2
	Alarm L3	14	1	3	Bit	0x4 (3)	-	Signal: Alarm L3
	Alarm	14	1	3	Bit	0x8 (4)	-	Signal: Alarm
	Trip L1 (*)	14	1	3	Bit	0x10 (5)	-	Signal: General Trip Phase L1
	Trip L2 (*)	14	1	3	Bit	0x20 (6)	-	Signal: General Trip Phase L2
	Trip L3 (*)	14	1	3	Bit	0x40 (7)	-	Signal: General Trip Phase L3
	Trip (*)	14	1	3	Bit	0x80 (8)	-	Signal: Trip
	TripCmd (*)	14	1	3	Bit	0x100 (9)	-	Signal: Trip Command

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Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
Jam[1]		165	1	3	Struct			
	ExBlo1-I	165	1	3	Bit	0x1 (1)	-	Module input state: External blocking1
	ExBlo2-I	165	1	3	Bit	0x2 (2)	-	Module input state: External blocking2
	ExBlo TripCmd-I	165	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	active	165	1	3	Bit	0x10 (5)	-	Signal: active
	ExBlo	165	1	3	Bit	0x20 (6)	-	Signal: External Blocking
	Blo TripCmd	165	1	3	Bit	0x40 (7)	-	Signal: Trip Command blocked
	ExBlo TripCmd	165	1	3	Bit	0x80 (8)	-	Signal: External Blocking of the Trip Command
	Alarm	165	1	3	Bit	0x200 (10)	-	Signal: Alarm
	Trip (*)	165	1	3	Bit	0x400 (11)	-	Signal: Trip
	TripCmd (*)	165	1	3	Bit	0x800 (12)	-	Signal: Trip Command
Jam[2]		166	1	3	Struct			

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	ExBlo1-I	166	1	3	Bit	0x1 (1)	-	Module input state: External blocking1
	ExBlo2-I	166	1	3	Bit	0x2 (2)	-	Module input state: External blocking2
	ExBlo TripCmd-I	166	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	active	166	1	3	Bit	0x10 (5)	-	Signal: active
	ExBlo	166	1	3	Bit	0x20 (6)	-	Signal: External Blocking
	Blo TripCmd	166	1	3	Bit	0x40 (7)	-	Signal: Trip Command blocked
	ExBlo TripCmd	166	1	3	Bit	0x80 (8)	-	Signal: External Blocking of the Trip Command
	Alarm	166	1	3	Bit	0x200 (10)	-	Signal: Alarm
	Trip (*)	166	1	3	Bit	0x400 (11)	-	Signal: Trip
	TripCmd (*)	166	1	3	Bit	0x800 (12)	-	Signal: Trip Command
Logics		1100	1	3	Struct			
	LE1.Gate Out	1100	1	3	Bit	0x1 (1)	-	Signal: Output of the logic gate

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Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	LE1.Timer Out	1100	1	3	Bit	0x2 (2)	-	Signal: Timer Output
	LE1.Out	1100	1	3	Bit	0x4 (3)	-	Signal: Latched Output (Q)
	LE1.Out inverted	1100	1	3	Bit	0x8 (4)	-	Signal: Negated Latched Output (Q NOT)
	LE1.Gate In1-l	1100	1	3	Bit	0x10 (5)	-	State of the module input: Assignment of the Input Signal
	LE1.Gate In2-l	1100	1	3	Bit	0x20 (6)	-	State of the module input: Assignment of the Input Signal
	LE1.Gate In3-l	1100	1	3	Bit	0x40 (7)	-	State of the module input: Assignment of the Input Signal
	LE1.Gate In4-l	1100	1	3	Bit	0x80 (8)	-	State of the module input: Assignment of the Input Signal
	LE1.Reset Latch-l	1100	1	3	Bit	0x100 (9)	-	State of the module input: Reset Signal for the Latching
Logics		1101	1	3	Struct			
	LE2.Gate Out	1101	1	3	Bit	0x1 (1)	-	Signal: Output of the logic gate
	LE2.Timer Out	1101	1	3	Bit	0x2 (2)	-	Signal: Timer Output
	LE2.Out	1101	1	3	Bit	0x4 (3)	-	Signal: Latched Output (Q)

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	LE2.Out inverted	1101	1	3	Bit	0x8 (4)	-	Signal: Negated Latched Output (Q NOT)
	LE2.Gate In1-l	1101	1	3	Bit	0x10 (5)	-	State of the module input: Assignment of the Input Signal
	LE2.Gate In2-l	1101	1	3	Bit	0x20 (6)	-	State of the module input: Assignment of the Input Signal
	LE2.Gate In3-l	1101	1	3	Bit	0x40 (7)	-	State of the module input: Assignment of the Input Signal
	LE2.Gate In4-l	1101	1	3	Bit	0x80 (8)	-	State of the module input: Assignment of the Input Signal
	LE2.Reset Latch-l	1101	1	3	Bit	0x100 (9)	-	State of the module input: Reset Signal for the Latching
Logics		1102	1	3	Struct			
	LE3.Gate Out	1102	1	3	Bit	0x1 (1)	-	Signal: Output of the logic gate
	LE3.Timer Out	1102	1	3	Bit	0x2 (2)	-	Signal: Timer Output
	LE3.Out	1102	1	3	Bit	0x4 (3)	-	Signal: Latched Output (Q)
	LE3.Out inverted	1102	1	3	Bit	0x8 (4)	-	Signal: Negated Latched Output (Q NOT)
	LE3.Gate In1-l	1102	1	3	Bit	0x10 (5)	-	State of the module input: Assignment of the Input Signal

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Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	LE3.Gate In2-l	1102	1	3	Bit	0x20 (6)	-	State of the module input: Assignment of the Input Signal
	LE3.Gate In3-l	1102	1	3	Bit	0x40 (7)	-	State of the module input: Assignment of the Input Signal
	LE3.Gate In4-l	1102	1	3	Bit	0x80 (8)	-	State of the module input: Assignment of the Input Signal
	LE3.Reset Latch-l	1102	1	3	Bit	0x100 (9)	-	State of the module input: Reset Signal for the Latching
Logics		1103	1	3	Struct			
	LE4.Gate Out	1103	1	3	Bit	0x1 (1)	-	Signal: Output of the logic gate
	LE4.Timer Out	1103	1	3	Bit	0x2 (2)	-	Signal: Timer Output
	LE4.Out	1103	1	3	Bit	0x4 (3)	-	Signal: Latched Output (Q)
	LE4.Out inverted	1103	1	3	Bit	0x8 (4)	-	Signal: Negated Latched Output (Q NOT)
	LE4.Gate In1-l	1103	1	3	Bit	0x10 (5)	-	State of the module input: Assignment of the Input Signal
	LE4.Gate In2-l	1103	1	3	Bit	0x20 (6)	-	State of the module input: Assignment of the Input Signal
	LE4.Gate In3-l	1103	1	3	Bit	0x40 (7)	-	State of the module input: Assignment of the Input Signal

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	LE4.Gate In4-l	1103	1	3	Bit	0x80 (8)	-	State of the module input: Assignment of the Input Signal
	LE4.Reset Latch-l	1103	1	3	Bit	0x100 (9)	-	State of the module input: Reset Signal for the Latching
Logics		1104	1	3	Struct			
	LE5.Gate Out	1104	1	3	Bit	0x1 (1)	-	Signal: Output of the logic gate
	LE5.Timer Out	1104	1	3	Bit	0x2 (2)	-	Signal: Timer Output
	LE5.Out	1104	1	3	Bit	0x4 (3)	-	Signal: Latched Output (Q)
	LE5.Out inverted	1104	1	3	Bit	0x8 (4)	-	Signal: Negated Latched Output (Q NOT)
	LE5.Gate In1-l	1104	1	3	Bit	0x10 (5)	-	State of the module input: Assignment of the Input Signal
	LE5.Gate In2-l	1104	1	3	Bit	0x20 (6)	-	State of the module input: Assignment of the Input Signal
	LE5.Gate In3-l	1104	1	3	Bit	0x40 (7)	-	State of the module input: Assignment of the Input Signal
	LE5.Gate In4-l	1104	1	3	Bit	0x80 (8)	-	State of the module input: Assignment of the Input Signal
	LE5.Reset Latch-l	1104	1	3	Bit	0x100 (9)	-	State of the module input: Reset Signal for the Latching

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Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
Logics		1105	1	3	Struct			
	LE6.Gate Out	1105	1	3	Bit	0x1 (1)	-	Signal: Output of the logic gate
	LE6.Timer Out	1105	1	3	Bit	0x2 (2)	-	Signal: Timer Output
	LE6.Out	1105	1	3	Bit	0x4 (3)	-	Signal: Latched Output (Q)
	LE6.Out inverted	1105	1	3	Bit	0x8 (4)	-	Signal: Negated Latched Output (Q NOT)
	LE6.Gate In1-l	1105	1	3	Bit	0x10 (5)	-	State of the module input: Assignment of the Input Signal
	LE6.Gate In2-l	1105	1	3	Bit	0x20 (6)	-	State of the module input: Assignment of the Input Signal
	LE6.Gate In3-l	1105	1	3	Bit	0x40 (7)	-	State of the module input: Assignment of the Input Signal
	LE6.Gate In4-l	1105	1	3	Bit	0x80 (8)	-	State of the module input: Assignment of the Input Signal
	LE6.Reset Latch-l	1105	1	3	Bit	0x100 (9)	-	State of the module input: Reset Signal for the Latching
Logics		1106	1	3	Struct			
	LE7.Gate Out	1106	1	3	Bit	0x1 (1)	-	Signal: Output of the logic gate

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	LE7.Timer Out	1106	1	3	Bit	0x2 (2)	-	Signal: Timer Output
	LE7.Out	1106	1	3	Bit	0x4 (3)	-	Signal: Latched Output (Q)
	LE7.Out inverted	1106	1	3	Bit	0x8 (4)	-	Signal: Negated Latched Output (Q NOT)
	LE7.Gate In1-l	1106	1	3	Bit	0x10 (5)	-	State of the module input: Assignment of the Input Signal
	LE7.Gate In2-l	1106	1	3	Bit	0x20 (6)	-	State of the module input: Assignment of the Input Signal
	LE7.Gate In3-l	1106	1	3	Bit	0x40 (7)	-	State of the module input: Assignment of the Input Signal
	LE7.Gate In4-l	1106	1	3	Bit	0x80 (8)	-	State of the module input: Assignment of the Input Signal
	LE7.Reset Latch-l	1106	1	3	Bit	0x100 (9)	-	State of the module input: Reset Signal for the Latching
Logics		1107	1	3	Struct			
	LE8.Gate Out	1107	1	3	Bit	0x1 (1)	-	Signal: Output of the logic gate
	LE8.Timer Out	1107	1	3	Bit	0x2 (2)	-	Signal: Timer Output
	LE8.Out	1107	1	3	Bit	0x4 (3)	-	Signal: Latched Output (Q)

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Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	LE8.Out inverted	1107	1	3	Bit	0x8 (4)	-	Signal: Negated Latched Output (Q NOT)
	LE8.Gate In1-l	1107	1	3	Bit	0x10 (5)	-	State of the module input: Assignment of the Input Signal
	LE8.Gate In2-l	1107	1	3	Bit	0x20 (6)	-	State of the module input: Assignment of the Input Signal
	LE8.Gate In3-l	1107	1	3	Bit	0x40 (7)	-	State of the module input: Assignment of the Input Signal
	LE8.Gate In4-l	1107	1	3	Bit	0x80 (8)	-	State of the module input: Assignment of the Input Signal
	LE8.Reset Latch-l	1107	1	3	Bit	0x100 (9)	-	State of the module input: Reset Signal for the Latching
Logics		1108	1	3	Struct			
	LE9.Gate Out	1108	1	3	Bit	0x1 (1)	-	Signal: Output of the logic gate
	LE9.Timer Out	1108	1	3	Bit	0x2 (2)	-	Signal: Timer Output
	LE9.Out	1108	1	3	Bit	0x4 (3)	-	Signal: Latched Output (Q)
	LE9.Out inverted	1108	1	3	Bit	0x8 (4)	-	Signal: Negated Latched Output (Q NOT)
	LE9.Gate In1-l	1108	1	3	Bit	0x10 (5)	-	State of the module input: Assignment of the Input Signal

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	LE9.Gate In2-l	1108	1	3	Bit	0x20 (6)	-	State of the module input: Assignment of the Input Signal
	LE9.Gate In3-l	1108	1	3	Bit	0x40 (7)	-	State of the module input: Assignment of the Input Signal
	LE9.Gate In4-l	1108	1	3	Bit	0x80 (8)	-	State of the module input: Assignment of the Input Signal
	LE9.Reset Latch-l	1108	1	3	Bit	0x100 (9)	-	State of the module input: Reset Signal for the Latching
Logics		1109	1	3	Struct			
	LE10.Gate Out	1109	1	3	Bit	0x1 (1)	-	Signal: Output of the logic gate
	LE10.Timer Out	1109	1	3	Bit	0x2 (2)	-	Signal: Timer Output
	LE10.Out	1109	1	3	Bit	0x4 (3)	-	Signal: Latched Output (Q)
	LE10.Out inverted	1109	1	3	Bit	0x8 (4)	-	Signal: Negated Latched Output (Q NOT)
	LE10.Gate In1-l	1109	1	3	Bit	0x10 (5)	-	State of the module input: Assignment of the Input Signal
	LE10.Gate In2-l	1109	1	3	Bit	0x20 (6)	-	State of the module input: Assignment of the Input Signal
	LE10.Gate In3-l	1109	1	3	Bit	0x40 (7)	-	State of the module input: Assignment of the Input Signal

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Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	LE10.Gate In4-l	1109	1	3	Bit	0x80 (8)	-	State of the module input: Assignment of the Input Signal
	LE10.Reset Latch-l	1109	1	3	Bit	0x100 (9)	-	State of the module input: Reset Signal for the Latching
Logics		1110	1	3	Struct			
	LE11.Gate Out	1110	1	3	Bit	0x1 (1)	-	Signal: Output of the logic gate
	LE11.Timer Out	1110	1	3	Bit	0x2 (2)	-	Signal: Timer Output
	LE11.Out	1110	1	3	Bit	0x4 (3)	-	Signal: Latched Output (Q)
	LE11.Out inverted	1110	1	3	Bit	0x8 (4)	-	Signal: Negated Latched Output (Q NOT)
	LE11.Gate In1-l	1110	1	3	Bit	0x10 (5)	-	State of the module input: Assignment of the Input Signal
	LE11.Gate In2-l	1110	1	3	Bit	0x20 (6)	-	State of the module input: Assignment of the Input Signal
	LE11.Gate In3-l	1110	1	3	Bit	0x40 (7)	-	State of the module input: Assignment of the Input Signal
	LE11.Gate In4-l	1110	1	3	Bit	0x80 (8)	-	State of the module input: Assignment of the Input Signal
	LE11.Reset Latch-l	1110	1	3	Bit	0x100 (9)	-	State of the module input: Reset Signal for the Latching

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
Logics		1111	1	3	Struct			
	LE12.Gate Out	1111	1	3	Bit	0x1 (1)	-	Signal: Output of the logic gate
	LE12.Timer Out	1111	1	3	Bit	0x2 (2)	-	Signal: Timer Output
	LE12.Out	1111	1	3	Bit	0x4 (3)	-	Signal: Latched Output (Q)
	LE12.Out inverted	1111	1	3	Bit	0x8 (4)	-	Signal: Negated Latched Output (Q NOT)
	LE12.Gate In1-l	1111	1	3	Bit	0x10 (5)	-	State of the module input: Assignment of the Input Signal
	LE12.Gate In2-l	1111	1	3	Bit	0x20 (6)	-	State of the module input: Assignment of the Input Signal
	LE12.Gate In3-l	1111	1	3	Bit	0x40 (7)	-	State of the module input: Assignment of the Input Signal
	LE12.Gate In4-l	1111	1	3	Bit	0x80 (8)	-	State of the module input: Assignment of the Input Signal
	LE12.Reset Latch-l	1111	1	3	Bit	0x100 (9)	-	State of the module input: Reset Signal for the Latching
Logics		1112	1	3	Struct			
	LE13.Gate Out	1112	1	3	Bit	0x1 (1)	-	Signal: Output of the logic gate

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Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	LE13.Timer Out	1112	1	3	Bit	0x2 (2)	-	Signal: Timer Output
	LE13.Out	1112	1	3	Bit	0x4 (3)	-	Signal: Latched Output (Q)
	LE13.Out inverted	1112	1	3	Bit	0x8 (4)	-	Signal: Negated Latched Output (Q NOT)
	LE13.Gate In1-l	1112	1	3	Bit	0x10 (5)	-	State of the module input: Assignment of the Input Signal
	LE13.Gate In2-l	1112	1	3	Bit	0x20 (6)	-	State of the module input: Assignment of the Input Signal
	LE13.Gate In3-l	1112	1	3	Bit	0x40 (7)	-	State of the module input: Assignment of the Input Signal
	LE13.Gate In4-l	1112	1	3	Bit	0x80 (8)	-	State of the module input: Assignment of the Input Signal
	LE13.Reset Latch-l	1112	1	3	Bit	0x100 (9)	-	State of the module input: Reset Signal for the Latching
Logics		1113	1	3	Struct			
	LE14.Gate Out	1113	1	3	Bit	0x1 (1)	-	Signal: Output of the logic gate
	LE14.Timer Out	1113	1	3	Bit	0x2 (2)	-	Signal: Timer Output
	LE14.Out	1113	1	3	Bit	0x4 (3)	-	Signal: Latched Output (Q)

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	LE14.Out inverted	1113	1	3	Bit	0x8 (4)	-	Signal: Negated Latched Output (Q NOT)
	LE14.Gate In1-l	1113	1	3	Bit	0x10 (5)	-	State of the module input: Assignment of the Input Signal
	LE14.Gate In2-l	1113	1	3	Bit	0x20 (6)	-	State of the module input: Assignment of the Input Signal
	LE14.Gate In3-l	1113	1	3	Bit	0x40 (7)	-	State of the module input: Assignment of the Input Signal
	LE14.Gate In4-l	1113	1	3	Bit	0x80 (8)	-	State of the module input: Assignment of the Input Signal
	LE14.Reset Latch-l	1113	1	3	Bit	0x100 (9)	-	State of the module input: Reset Signal for the Latching
Logics		1114	1	3	Struct			
	LE15.Gate Out	1114	1	3	Bit	0x1 (1)	-	Signal: Output of the logic gate
	LE15.Timer Out	1114	1	3	Bit	0x2 (2)	-	Signal: Timer Output
	LE15.Out	1114	1	3	Bit	0x4 (3)	-	Signal: Latched Output (Q)
	LE15.Out inverted	1114	1	3	Bit	0x8 (4)	-	Signal: Negated Latched Output (Q NOT)
	LE15.Gate In1-l	1114	1	3	Bit	0x10 (5)	-	State of the module input: Assignment of the Input Signal

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Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	LE15.Gate In2-l	1114	1	3	Bit	0x20 (6)	-	State of the module input: Assignment of the Input Signal
	LE15.Gate In3-l	1114	1	3	Bit	0x40 (7)	-	State of the module input: Assignment of the Input Signal
	LE15.Gate In4-l	1114	1	3	Bit	0x80 (8)	-	State of the module input: Assignment of the Input Signal
	LE15.Reset Latch-l	1114	1	3	Bit	0x100 (9)	-	State of the module input: Reset Signal for the Latching
Logics		1115	1	3	Struct			
	LE16.Gate Out	1115	1	3	Bit	0x1 (1)	-	Signal: Output of the logic gate
	LE16.Timer Out	1115	1	3	Bit	0x2 (2)	-	Signal: Timer Output
	LE16.Out	1115	1	3	Bit	0x4 (3)	-	Signal: Latched Output (Q)
	LE16.Out inverted	1115	1	3	Bit	0x8 (4)	-	Signal: Negated Latched Output (Q NOT)
	LE16.Gate In1-l	1115	1	3	Bit	0x10 (5)	-	State of the module input: Assignment of the Input Signal
	LE16.Gate In2-l	1115	1	3	Bit	0x20 (6)	-	State of the module input: Assignment of the Input Signal
	LE16.Gate In3-l	1115	1	3	Bit	0x40 (7)	-	State of the module input: Assignment of the Input Signal

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	LE16.Gate In4-l	1115	1	3	Bit	0x80 (8)	-	State of the module input: Assignment of the Input Signal
	LE16.Reset Latch-l	1115	1	3	Bit	0x100 (9)	-	State of the module input: Reset Signal for the Latching
Logics		1116	1	3	Struct			
	LE17.Gate Out	1116	1	3	Bit	0x1 (1)	-	Signal: Output of the logic gate
	LE17.Timer Out	1116	1	3	Bit	0x2 (2)	-	Signal: Timer Output
	LE17.Out	1116	1	3	Bit	0x4 (3)	-	Signal: Latched Output (Q)
	LE17.Out inverted	1116	1	3	Bit	0x8 (4)	-	Signal: Negated Latched Output (Q NOT)
	LE17.Gate In1-l	1116	1	3	Bit	0x10 (5)	-	State of the module input: Assignment of the Input Signal
	LE17.Gate In2-l	1116	1	3	Bit	0x20 (6)	-	State of the module input: Assignment of the Input Signal
	LE17.Gate In3-l	1116	1	3	Bit	0x40 (7)	-	State of the module input: Assignment of the Input Signal
	LE17.Gate In4-l	1116	1	3	Bit	0x80 (8)	-	State of the module input: Assignment of the Input Signal
	LE17.Reset Latch-l	1116	1	3	Bit	0x100 (9)	-	State of the module input: Reset Signal for the Latching

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Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
Logics		1117	1	3	Struct			
	LE18.Gate Out	1117	1	3	Bit	0x1 (1)	-	Signal: Output of the logic gate
	LE18.Timer Out	1117	1	3	Bit	0x2 (2)	-	Signal: Timer Output
	LE18.Out	1117	1	3	Bit	0x4 (3)	-	Signal: Latched Output (Q)
	LE18.Out inverted	1117	1	3	Bit	0x8 (4)	-	Signal: Negated Latched Output (Q NOT)
	LE18.Gate In1-l	1117	1	3	Bit	0x10 (5)	-	State of the module input: Assignment of the Input Signal
	LE18.Gate In2-l	1117	1	3	Bit	0x20 (6)	-	State of the module input: Assignment of the Input Signal
	LE18.Gate In3-l	1117	1	3	Bit	0x40 (7)	-	State of the module input: Assignment of the Input Signal
	LE18.Gate In4-l	1117	1	3	Bit	0x80 (8)	-	State of the module input: Assignment of the Input Signal
	LE18.Reset Latch-l	1117	1	3	Bit	0x100 (9)	-	State of the module input: Reset Signal for the Latching
Logics		1118	1	3	Struct			
	LE19.Gate Out	1118	1	3	Bit	0x1 (1)	-	Signal: Output of the logic gate

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	LE19.Timer Out	1118	1	3	Bit	0x2 (2)	-	Signal: Timer Output
	LE19.Out	1118	1	3	Bit	0x4 (3)	-	Signal: Latched Output (Q)
	LE19.Out inverted	1118	1	3	Bit	0x8 (4)	-	Signal: Negated Latched Output (Q NOT)
	LE19.Gate In1-l	1118	1	3	Bit	0x10 (5)	-	State of the module input: Assignment of the Input Signal
	LE19.Gate In2-l	1118	1	3	Bit	0x20 (6)	-	State of the module input: Assignment of the Input Signal
	LE19.Gate In3-l	1118	1	3	Bit	0x40 (7)	-	State of the module input: Assignment of the Input Signal
	LE19.Gate In4-l	1118	1	3	Bit	0x80 (8)	-	State of the module input: Assignment of the Input Signal
	LE19.Reset Latch-l	1118	1	3	Bit	0x100 (9)	-	State of the module input: Reset Signal for the Latching
Logics		1119	1	3	Struct			
	LE20.Gate Out	1119	1	3	Bit	0x1 (1)	-	Signal: Output of the logic gate
	LE20.Timer Out	1119	1	3	Bit	0x2 (2)	-	Signal: Timer Output
	LE20.Out	1119	1	3	Bit	0x4 (3)	-	Signal: Latched Output (Q)

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Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	LE20.Out inverted	1119	1	3	Bit	0x8 (4)	-	Signal: Negated Latched Output (Q NOT)
	LE20.Gate In1-l	1119	1	3	Bit	0x10 (5)	-	State of the module input: Assignment of the Input Signal
	LE20.Gate In2-l	1119	1	3	Bit	0x20 (6)	-	State of the module input: Assignment of the Input Signal
	LE20.Gate In3-l	1119	1	3	Bit	0x40 (7)	-	State of the module input: Assignment of the Input Signal
	LE20.Gate In4-l	1119	1	3	Bit	0x80 (8)	-	State of the module input: Assignment of the Input Signal
	LE20.Reset Latch-l	1119	1	3	Bit	0x100 (9)	-	State of the module input: Reset Signal for the Latching
MLS		170	1	3	Struct			
	ExBlo1-l	170	1	3	Bit	0x1 (1)	-	Module input state: External blocking1
	ExBlo2-l	170	1	3	Bit	0x2 (2)	-	Module input state: External blocking2
	active	170	1	3	Bit	0x4 (3)	-	Signal: active
	ExBlo	170	1	3	Bit	0x8 (4)	-	Signal: External Blocking
	Alarm	170	1	3	Bit	0x10 (5)	-	Signal: Alarm

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	Trip	170	1	3	Bit	0x20 (6)	-	Signal: Trip
MStart		160	1	3	Struct			
	Blo TripCmd	160	1	3	Bit	0x10 (5)	-	Signal: Trip Command blocked
	Blo	160	1	3	Bit	0x40 (7)	-	Signal: Motor is blocked for starting or transition to Run mode
	ThermalBlo	160	1	3	Bit	0x80 (8)	-	Signal: Thermal block
	EmgOvr-I	160	1	3	Bit	0x100 (9)	-	State of the module input: Emergency Override. Signal has to be active in order to release the thermal capacity of the motor. Please notice that by doing this you run the risk of damaging the motor. "EMGOVR" has to be set to "DI" or "DI or UI" for this input to take effect
	INSQ-I	160	1	3	Bit	0x200 (10)	-	State of the module input: INcomplete SeQuence
MStart		161	1	3	Struct			
	RemStartBlock-I	161	1	3	Bit	0x2 (2)	-	State of the module input: Remote Motor Start Blocking

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Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	ZSS-I	161	1	3	Bit	0x10 (5)	-	State of the module input: Zero Speed Switch
	active	161	1	3	Bit	0x80 (8)	-	Signal: active
	Trip (*)	161	1	3	Bit	0x400 (11)	-	Signal: Trip
	TripCmd (*)	161	1	3	Bit	0x800 (12)	-	Signal: Trip Command
	INSQst2RunFail	161	1	3	Bit	0x1000 (13)	-	Signal: Fail to transit from start to run based on reported back time
	INSQSP2STFail	161	1	3	Bit	0x2000 (14)	-	Signal: Fail to transit from stop to start based on reported back time
	LATBlock	161	1	3	Bit	0x4000 (15)	-	Signal: Long acceleration timer enforced
	TripPhaseReverse (*)	161	1	3	Bit	0x8000 (16)	-	Signal: Relay tripped because of phase reverse detection
MStart		162	1	3	Struct			
	RemBlockStart	162	1	3	Bit	0x2 (2)	-	Signal: Motor is prohibited to start due to external blocking through digital input DI
	Run	162	1	3	Bit	0x4 (3)	-	Signal: Motor is in run mode

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	Start	162	1	3	Bit	0x8 (4)	-	Signal: Motor is in start mode
	SPHBlockAlarm	162	1	3	Bit	0x10 (5)	-	Signal: Motor is prohibited to start due to starts per hour limits, would come active in the next stop
	SPHBlocked	162	1	3	Bit	0x20 (6)	-	Signal: Motor is prohibited to start due to starts per hour limits
	Stop	162	1	3	Bit	0x40 (7)	-	Signal: Motor is in stop mode
	TBSBlocked	162	1	3	Bit	0x80 (8)	-	Signal: Motor is prohibited to start due to time between starts limits
	TransitionTrip (*)	162	1	3	Bit	0x100 (9)	-	Signal: Start transition fail trip
	ZSSTrip (*)	162	1	3	Bit	0x200 (10)	-	Signal: Zero speed trip (possible locked rotor)
	ABSActive	162	1	3	Bit	0x400 (11)	-	Signal: Anti-backspin is active. For certain applications, such as pumping a fluid up a pipe, the motor may be driven backward for a period of time after it stops. The anti-backspin timer prevents starting the motor while it is spinning in the reverse direction.

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Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	EmergOverrideDI	162	1	3	Bit	0x800 (12)	-	Signal: Emergency override start blocking through digital input DI
	EmergOverrideUI	162	1	3	Bit	0x1000 (13)	-	Signal: Emergency override start blocking through front panel
	ForcedStart	162	1	3	Bit	0x2000 (14)	-	Signal: Motor being forced to start
	Blo-GOCStart	162	1	3	Bit	0x4000 (15)	-	Signal: Ground Instantaneous Overcurrent Start Delay. GOC (Instantaneous Overcurrent) elements are blocked for the time programmed under this parameter
	Blo-IOCStart	162	1	3	Bit	0x8000 (16)	-	Signal: Phase Instantaneous Overcurrent Start Delay. IOC (Instantaneous Overcurrent) elements are blocked for the time programmed under this parameter
MStart		163	1	3	Struct			
	Blo-JamStart	163	1	3	Bit	0x1 (1)	-	Signal: JAM Start Delay. JAM(Instantaneous Overcurrent) elements are blocked for the time programmed under this parameter

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	Blo-I<Start	163	1	3	Bit	0x2 (2)	-	Signal: Underload Start Delay. Underload(Instantaneous Overcurrent) elements are blocked for the time programmed under this parameter
	Blo-UnbalStart	163	1	3	Bit	0x4 (3)	-	Signal: Motor start block current unbalance signal
	ColdStartSeq	163	1	3	Bit	0x8 (4)	-	Signal: Motor cold start sequence flag
	MotorStopBlo	163	1	3	Bit	0x20 (6)	-	Signal: Motor stop block other protection functions
	Blo-Generic1	163	1	3	Bit	0x40 (7)	-	Generic Start Delay. This value can be used to block any protective element.1
	Blo-Generic2	163	1	3	Bit	0x80 (8)	-	Generic Start Delay. This value can be used to block any protective element.2
	Blo-Generic3	163	1	3	Bit	0x100 (9)	-	Generic Start Delay. This value can be used to block any protective element.3
	Blo-Generic4	163	1	3	Bit	0x200 (10)	-	Generic Start Delay. This value can be used to block any protective element.4
	Blo-Generic5	163	1	3	Bit	0x400 (11)	-	Generic Start Delay. This value can be used to block any protective element.5

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Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	I_Transit	163	1	3	Bit	0x800 (12)	-	Signal: Current transition signal
	T_Transit	163	1	3	Bit	0x1000 (13)	-	Signal: Time transition signal
	Rotating forward	163	1	3	Bit	0x2000 (14)	-	Signal: Rotation Direction forward
	Rotating backward	163	1	3	Bit	0x4000 (15)	-	Signal: Rotation Direction reverse
	STPC Blo-I	163	1	3	Bit	0x8000 (16)	-	State of the module input: With this setting a Digital Input keeps the Motor in the RUN mode, even when the motor current drops below STPC (motor stop current).
Modbus		1005	1	3	Struct			
	Scada Cmd 1	1005	1	3	Bit	0x1 (1)	-	Scada Command
	Scada Cmd 2	1005	1	3	Bit	0x2 (2)	-	Scada Command
	Scada Cmd 3	1005	1	3	Bit	0x4 (3)	-	Scada Command
	Scada Cmd 4	1005	1	3	Bit	0x8 (4)	-	Scada Command

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	Scada Cmd 5	1005	1	3	Bit	0x10 (5)	-	Scada Command
	Scada Cmd 6	1005	1	3	Bit	0x20 (6)	-	Scada Command
	Scada Cmd 7	1005	1	3	Bit	0x40 (7)	-	Scada Command
	Scada Cmd 8	1005	1	3	Bit	0x80 (8)	-	Scada Command
	Scada Cmd 9	1005	1	3	Bit	0x100 (9)	-	Scada Command
	Scada Cmd 10	1005	1	3	Bit	0x200 (10)	-	Scada Command
	Scada Cmd 11	1005	1	3	Bit	0x400 (11)	-	Scada Command
	Scada Cmd 12	1005	1	3	Bit	0x800 (12)	-	Scada Command
	Scada Cmd 13	1005	1	3	Bit	0x1000 (13)	-	Scada Command
	Scada Cmd 14	1005	1	3	Bit	0x2000 (14)	-	Scada Command
	Scada Cmd 15	1005	1	3	Bit	0x4000 (15)	-	Scada Command

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Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	Scada Cmd 16	1005	1	3	Bit	0x8000 (16)	-	Scada Command
Modbus		1006	1	3	Struct			
	Transmission	1006	1	3	Bit	0x1 (1)	-	Signal: SCADA active
PSet-Switch		59	1	3	Struct			
	PS 1	59	1	3	Bit	0x1 (1)	-	Signal: Parameter Set 1
	PS 2	59	1	3	Bit	0x2 (2)	-	Signal: Parameter Set 2
	PS 3	59	1	3	Bit	0x4 (3)	-	Signal: Parameter Set 3
	PS 4	59	1	3	Bit	0x8 (4)	-	Signal: Parameter Set 4
	PSS manual	59	1	3	Bit	0x10 (5)	-	Signal: Manual Switch over of a Parameter Set
	PSS via Scada	59	1	3	Bit	0x20 (6)	-	Signal: Parameter Set Switch via Scada
	PSS via Inp fct	59	1	3	Bit	0x40 (7)	-	Signal: Parameter Set Switch via input function
	PS1-I	59	1	3	Bit	0x80 (8)	-	State of the module input respectively of the signal, that should activate this Parameter Setting Group.

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	PS2-I	59	1	3	Bit	0x100 (9)	-	State of the module input respectively of the signal, that should activate this Parameter Setting Group.
	PS3-I	59	1	3	Bit	0x200 (10)	-	State of the module input respectively of the signal, that should activate this Parameter Setting Group.
	PS4-I	59	1	3	Bit	0x400 (11)	-	State of the module input respectively of the signal, that should activate this Parameter Setting Group.
	min 1 param changed (*)	59	1	3	Bit	0x800 (12)	-	Signal: At least one parameter has been changed
Prot		1	1	3	Struct			
	ExBlo1-I	1	1	3	Bit	0x1 (1)	-	Module input state: External blocking1
	ExBlo2-I	1	1	3	Bit	0x2 (2)	-	Module input state: External blocking2
	active	1	1	3	Bit	0x4 (3)	-	Signal: active
	ExBlo	1	1	3	Bit	0x8 (4)	-	Signal: External Blocking
	Alarm L1	1	1	3	Bit	0x10 (5)	-	Signal: General-Alarm L1

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Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	Alarm L2	1	1	3	Bit	0x20 (6)	-	Signal: General-Alarm L2
	Alarm L3	1	1	3	Bit	0x40 (7)	-	Signal: General-Alarm L3
	Alarm G	1	1	3	Bit	0x80 (8)	-	Signal: General-Alarm - Earth fault
	Alarm	1	1	3	Bit	0x100 (9)	-	Signal: General Alarm
	Trip L1 (*)	1	1	3	Bit	0x200 (10)	-	Signal: General Trip L1
	Trip L2 (*)	1	1	3	Bit	0x400 (11)	-	Signal: General Trip L2
	Trip L3 (*)	1	1	3	Bit	0x800 (12)	-	Signal: General Trip L3
	Trip G (*)	1	1	3	Bit	0x1000 (13)	-	Signal: General Trip Ground fault
	Trip (*)	1	1	3	Bit	0x2000 (14)	-	Signal: General Trip
Prot		57	1	3	Struct			
	FaultNo	57	1	3	Bit	0xffff (1)	-	Disturbance No
Prot		58	1	3	Struct			

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	No of grid faults	58	1	3	Bit	0xffff (1)	-	Number of grid faults: A grid fault, e.g. a short circuit, might cause several faults with trip and autoreclosing, each fault being identified by an increased fault number. In this case, the grid fault number remains the same.
RTD		143	1	3	Struct			
	ExBlo1-I	143	1	3	Bit	0x1 (1)	-	Module input state: External blocking1
	ExBlo2-I	143	1	3	Bit	0x2 (2)	-	Module input state: External blocking2
	ExBlo TripCmd-I	143	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	active	143	1	3	Bit	0x8 (4)	-	Signal: active
	ExBlo	143	1	3	Bit	0x10 (5)	-	Signal: External Blocking
	Blo TripCmd	143	1	3	Bit	0x20 (6)	-	Signal: Trip Command blocked
	ExBlo TripCmd	143	1	3	Bit	0x40 (7)	-	Signal: External Blocking of the Trip Command
	Alarm	143	1	3	Bit	0x80 (8)	-	Alarm RTD Temperature Protection

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Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	Trip (*)	143	1	3	Bit	0x100 (9)	-	Signal: Trip
	TripCmd (*)	143	1	3	Bit	0x200 (10)	-	Signal: Trip Command
RTD		144	1	3	Struct			
	Windg 1 Alarm	144	1	3	Bit	0x1 (1)	-	Winding 1 Alarm RTD Temperature Protection
	Windg 1 Timeout Alarm	144	1	3	Bit	0x2 (2)	-	Winding 1 Timeout Alarm
	Windg 1 Trip (*)	144	1	3	Bit	0x4 (3)	-	Winding 1 Signal: Trip
	Windg 1 Invalid	144	1	3	Bit	0x8 (4)	-	Winding 1 Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement)
	Windg 2 Alarm	144	1	3	Bit	0x10 (5)	-	Winding 2 Alarm RTD Temperature Protection
	Windg 2 Timeout Alarm	144	1	3	Bit	0x20 (6)	-	Winding 2 Timeout Alarm
	Windg 2 Trip (*)	144	1	3	Bit	0x40 (7)	-	Winding 2 Signal: Trip

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	Windg 2 Invalid	144	1	3	Bit	0x80 (8)	-	Winding 2 Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement)
	Windg 3 Alarm	144	1	3	Bit	0x100 (9)	-	Winding 3 Alarm RTD Temperature Protection
	Windg 3 Timeout Alarm	144	1	3	Bit	0x200 (10)	-	Winding 3 Timeout Alarm
	Windg 3 Trip (*)	144	1	3	Bit	0x400 (11)	-	Winding 3 Signal: Trip
	Windg 3 Invalid	144	1	3	Bit	0x800 (12)	-	Winding 3 Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement)
	Windg 4 Alarm	144	1	3	Bit	0x1000 (13)	-	Winding 4 Alarm RTD Temperature Protection
	Windg 4 Timeout Alarm	144	1	3	Bit	0x2000 (14)	-	Winding 4 Timeout Alarm
	Windg 4 Trip (*)	144	1	3	Bit	0x4000 (15)	-	Winding 4 Signal: Trip
	Windg 4 Invalid	144	1	3	Bit	0x8000 (16)	-	Winding 4 Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement)

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Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
RTD		145	1	3	Struct			
	Windg 5 Alarm	145	1	3	Bit	0x1 (1)	-	Winding 5 Alarm RTD Temperature Protection
	Windg 5 Timeout Alarm	145	1	3	Bit	0x2 (2)	-	Winding 5 Timeout Alarm
	Windg 5 Trip (*)	145	1	3	Bit	0x4 (3)	-	Winding 5 Signal: Trip
	Windg 5 Invalid	145	1	3	Bit	0x8 (4)	-	Winding 5 Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement)
	Windg 6 Alarm	145	1	3	Bit	0x10 (5)	-	Winding 6 Alarm RTD Temperature Protection
	Windg 6 Timeout Alarm	145	1	3	Bit	0x20 (6)	-	Winding 6 Timeout Alarm
	Windg 6 Trip (*)	145	1	3	Bit	0x40 (7)	-	Winding 6 Signal: Trip
	Windg 6 Invalid	145	1	3	Bit	0x80 (8)	-	Winding 6 Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement)
	MotBear 1 Alarm	145	1	3	Bit	0x100 (9)	-	Motor Bearing 1 Alarm RTD Temperature Protection

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	MotBear 1 Timeout Alarm	145	1	3	Bit	0x200 (10)	-	Motor Bearing 1 Timeout Alarm
	MotBear 1 Trip (*)	145	1	3	Bit	0x400 (11)	-	Motor Bearing 1 Signal: Trip
	MotBear 1 Invalid	145	1	3	Bit	0x800 (12)	-	Motor Bearing 1 Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement)
	MotBear 2 Alarm	145	1	3	Bit	0x1000 (13)	-	Motor Bearing 2 Alarm RTD Temperature Protection
	MotBear 2 Timeout Alarm	145	1	3	Bit	0x2000 (14)	-	Motor Bearing 2 Timeout Alarm
	MotBear 2 Trip (*)	145	1	3	Bit	0x4000 (15)	-	Motor Bearing 2 Signal: Trip
	MotBear 2 Invalid	145	1	3	Bit	0x8000 (16)	-	Motor Bearing 2 Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement)
RTD		146	1	3	Struct			
	LoadBear 1 Alarm	146	1	3	Bit	0x1 (1)	-	Load Bearing 1 Alarm RTD Temperature Protection
	LoadBear 1 Timeout Alarm	146	1	3	Bit	0x2 (2)	-	Load Bearing 1 Timeout Alarm

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Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	LoadBear 1 Trip (*)	146	1	3	Bit	0x4 (3)	-	Load Bearing 1 Signal: Trip
	LoadBear 1 Invalid	146	1	3	Bit	0x8 (4)	-	Load Bearing 1 Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement)
	LoadBear 2 Alarm	146	1	3	Bit	0x10 (5)	-	Load Bearing 2 Alarm RTD Temperature Protection
	LoadBear 2 Timeout Alarm	146	1	3	Bit	0x20 (6)	-	Load Bearing 2 Timeout Alarm
	LoadBear 2 Trip (*)	146	1	3	Bit	0x40 (7)	-	Load Bearing 2 Signal: Trip
	LoadBear 2 Invalid	146	1	3	Bit	0x80 (8)	-	Load Bearing 2 Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement)
	Aux1 Alarm	146	1	3	Bit	0x100 (9)	-	Auxiliary 1 Alarm RTD Temperature Protection
	Aux1 Timeout Alarm	146	1	3	Bit	0x200 (10)	-	Auxiliary 1 Timeout Alarm
	Aux1 Trip (*)	146	1	3	Bit	0x400 (11)	-	Auxiliary 1 Signal: Trip

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	Aux1 Invalid	146	1	3	Bit	0x800 (12)	-	Auxiliary 1 Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement)
	Windg Group Invalid	146	1	3	Bit	0x1000 (13)	-	Winding Group Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement)
	MotBear Group Invalid	146	1	3	Bit	0x2000 (14)	-	Motor Bearing Group Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement)
	Timeout Alarm (*)	146	1	3	Bit	0x4000 (15)	-	Alarm timeout expired
RTD		147	1	3	Struct			
	LoadBear Group Invalid	147	1	3	Bit	0x1 (1)	-	Load Bearing Group Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement)
	Alarm LB Group	147	1	3	Bit	0x2 (2)	-	Alarm all Load Bearings
	TimeoutAlmLBGrp	147	1	3	Bit	0x4 (3)	-	Timeout Alarm all Load Bearings

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Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	Trip LB Group (*)	147	1	3	Bit	0x8 (4)	-	Trip all Load Bearings
	Alarm MB Group	147	1	3	Bit	0x10 (5)	-	Alarm all Motor Bearings
	TimeoutAlmMBGrp	147	1	3	Bit	0x20 (6)	-	Timeout Alarm all Motor Bearings
	Trip MB Group (*)	147	1	3	Bit	0x40 (7)	-	Trip all Motor Bearings
	Alarm WD Group	147	1	3	Bit	0x80 (8)	-	Alarm all Windings
	TimeoutAlmWDGrp	147	1	3	Bit	0x100 (9)	-	Timeout Alarm all Windings
	Trip WD Group (*)	147	1	3	Bit	0x200 (10)	-	Trip all Windings
	Trip Group 1 (*)	147	1	3	Bit	0x2000 (14)	-	Trip Group 1
	Trip Group 2 (*)	147	1	3	Bit	0x4000 (15)	-	Trip Group 2
RTD		205	1	3	Struct			
	Alarm Any Group	205	1	3	Bit	0x1 (1)	-	Alarm Any Group
	Trip Any Group (*)	205	1	3	Bit	0x2 (2)	-	Trip Any Group

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Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	TimeoutAlmAnyGrp	205	1	3	Bit	0x4 (3)	-	Timeout Alarm Any Group
	Aux2 Alarm	205	1	3	Bit	0x8 (4)	-	Auxiliary 2 Alarm RTD Temperature Protection
	Aux2 Timeout Alarm	205	1	3	Bit	0x10 (5)	-	Auxiliary 2 Timeout Alarm
	Aux2 Invalid	205	1	3	Bit	0x20 (6)	-	Auxiliary 2 Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement)
	Aux2 Trip (*)	205	1	3	Bit	0x40 (7)	-	Auxiliary 2 Signal: Trip
	AuxGrpInvalid	205	1	3	Bit	0x80 (8)	-	Invalid Auxiliary Group
	Alarm Aux Group	205	1	3	Bit	0x100 (9)	-	Alarm Auxiliary Group
	TimeoutAlmAuxGrp	205	1	3	Bit	0x200 (10)	-	Timeout Alarm Auxiliary Group
	Trip Aux Group (*)	205	1	3	Bit	0x400 (11)	-	Trip Auxiliary Group
SG		123	1	3	Struct			

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Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	Isum Intr trip	123	1	3	Bit	0x10 (5)	-	Signal: Maximum permissible Summation of the interrupting (tripping) currents exceeded in at least one phase.
	Isum Intr trip: IL1	123	1	3	Bit	0x20 (6)	-	Signal: Maximum permissible Summation of the interrupting (tripping) currents exceeded: IL1
	Isum Intr trip: IL2	123	1	3	Bit	0x40 (7)	-	Signal: Maximum permissible Summation of the interrupting (tripping) currents exceeded: IL2
	Isum Intr trip: IL3	123	1	3	Bit	0x80 (8)	-	Signal: Maximum permissible Summation of the interrupting (tripping) currents exceeded: IL3
	Operations Alarm	123	1	3	Bit	0x100 (9)	-	Signal: Service Alarm, too many Operations
	WearLevel Alarm	123	1	3	Bit	0x200 (10)	-	Signal: Threshold for the Alarm
	WearLevel Lockout	123	1	3	Bit	0x400 (11)	-	Signal: Threshold for the Lockout Level
	Isum Intr ph Alm	123	1	3	Bit	0x800 (12)	-	Signal: Isum Intr ph Alm
SG		177	1	3	Struct			

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	Aux OFF-I	177	1	3	Bit	0x1 (1)	-	Module input state: Position indicator/check-back signal of the CB (52b)
	Aux ON-I	177	1	3	Bit	0x2 (2)	-	Module Input State: Position indicator/check-back signal of the CB (52a)
	Ready-I	177	1	3	Bit	0x4 (3)	-	Module input state: CB ready
	Interl OFF1-I	177	1	3	Bit	0x10 (5)	-	State of the module input: Interlocking of the OFF command
	Interl OFF2-I	177	1	3	Bit	0x20 (6)	-	State of the module input: Interlocking of the OFF command
	Interl OFF3-I	177	1	3	Bit	0x40 (7)	-	State of the module input: Interlocking of the OFF command
	Interl ON1-I	177	1	3	Bit	0x80 (8)	-	State of the module input: Interlocking of the ON command
	Interl ON2-I	177	1	3	Bit	0x100 (9)	-	State of the module input: Interlocking of the ON command
	Interl ON3-I	177	1	3	Bit	0x200 (10)	-	State of the module input: Interlocking of the ON command

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Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	SCmd OFF-I	177	1	3	Bit	0x800 (12)	-	State of the module input: Switching OFF Command, e.g. the state of the Logics or the state of the digital input
	SCmd ON-I	177	1	3	Bit	0x1000 (13)	-	State of the module input: Switching ON Command, e.g. the state of the Logics or the state of the digital input
	TripCmd (*)	177	1	3	Bit	0x2000 (14)	-	Signal: Trip Command
	OFF Cmd	177	1	3	Bit	0x4000 (15)	-	Signal: OFF Command issued to the switchgear. Depending on the setting the signal may include the OFF command of the Prot module.
	OFF Cmd manual	177	1	3	Bit	0x8000 (16)	-	Signal: OFF Cmd manual
SG		178	1	3	Struct			
	ON Cmd	178	1	3	Bit	0x1 (1)	-	Signal: ON Command issued to the switchgear. Depending on the setting the signal may include the ON command of the Prot module.
	ON Cmd manual	178	1	3	Bit	0x2 (2)	-	Signal: ON Cmd manual
	SGwear Slow SG	178	1	3	Bit	0x8 (4)	-	Signal: Alarm, the circuit breaker (load-break switch) becomes slower

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	Res SGwear SI SG	178	1	3	Bit	0x10 (5)	-	Signal: Resetting the slow Switchgear Alarm
	CES Disturbed	178	1	3	Bit	0x40 (7)	-	Command Execution Supervision: Switching Command unsuccessful. Switchgear in disturbed position.
	CES Fiel Interl	178	1	3	Bit	0x80 (8)	-	Command Execution Supervision: Switching Command not executed because of field interlocking.
	CES ON d OFF	178	1	3	Bit	0x400 (11)	-	Command Execution Supervision: On Command during a pending OFF Command.
	CES SwitchgDir	178	1	3	Bit	0x800 (12)	-	Command Execution Supervision respectively Switching Direction Control: This signal becomes true, if a switch command is issued even though the switchgear is already in the requested position. Example: A switchgear that is already OFF should be switched OFF again (doubly). The same applies to CLOSE commands.
	CES SG not ready	178	1	3	Bit	0x1000 (13)	-	Command Execution Supervision: Switchgear not ready

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Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	CES SyncTimeout	178	1	3	Bit	0x2000 (14)	-	Command Execution Supervision: Switching Command not executed. No Synchronization signal while t-sync was running.
	CES succesf	178	1	3	Bit	0x4000 (15)	-	Command Execution Supervision: Switching command executed successfully.
SG		179	1	3	Struct			
	Pos Disturb	179	1	3	Bit	0x1 (1)	-	Signal: Circuit Breaker Disturbed - Undefined Breaker Position. The Position Indicators contradict themselves. After expiring of a supervision timer this signal becomes true.
	Pos Indeterm	179	1	3	Bit	0x4 (3)	-	Signal: Circuit Breaker is in Indeterminate Position
	Pos OFF	179	1	3	Bit	0x8 (4)	-	Signal: Circuit Breaker is in OFF-Position
	Pos ON	179	1	3	Bit	0x10 (5)	-	Signal: Circuit Breaker is in ON-Position
	Ready	179	1	3	Bit	0x20 (6)	-	Signal: Circuit breaker is ready for operation.
	Pos not ON	179	1	3	Bit	0x40 (7)	-	Signal: Pos not ON

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	SI SingleContactInd	179	1	3	Bit	0x80 (8)	-	Signal: The Position of the Switchgear is detected by one auxiliary contact (pole) only. Thus indeterminate and disturbed Positions cannot be detected.
	CES Fail TripCmd	179	1	3	Bit	0x800 (12)	-	Command Execution Supervision: Command execution failed because trip command is pending.
	Interl OFF	179	1	3	Bit	0x1000 (13)	-	Signal: One or more IL_Off inputs are active.
	Interl ON	179	1	3	Bit	0x2000 (14)	-	Signal: One or more IL_On inputs are active.
SOTF		65	1	3	Struct			
	ExBlo1-I	65	1	3	Bit	0x1 (1)	-	Module input state: External blocking
	ExBlo2-I	65	1	3	Bit	0x2 (2)	-	Module input state: External blocking
	Ext SOTF-I	65	1	3	Bit	0x4 (3)	-	Module input state: External Switch Onto Fault Alarm
	Ex rev Interl-I	65	1	3	Bit	0x8 (4)	-	Module input state: External reverse interlocking
	active	65	1	3	Bit	0x10 (5)	-	Signal: active

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Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	ExBlo	65	1	3	Bit	0x20 (6)	-	Signal: External Blocking
	Ex rev Interl	65	1	3	Bit	0x40 (7)	-	Signal: External reverse Interlocking
	enabled	65	1	3	Bit	0x800 (12)	-	Signal: Switch Onto Fault enabled. This Signal can be used to modify Overcurrent Protection Settings.
	I<	65	1	3	Bit	0x2000 (14)	-	Signal: No Load Current.
Sgen		1012	1	3	Struct			
	ExBlo	1012	1	3	Bit	0x1 (1)	-	Module input state: External blocking
	Ex ForcePost-I	1012	1	3	Bit	0x2 (2)	-	State of the module input:Force Post state. Abort simulation.
	Running	1012	1	3	Bit	0x10 (5)	-	Signal; Measuring value simulation is running
	State	1012	1	3	Bit	0xe0 (6)	-	Signal: Wave generation states: 0=Off, 1=PreFault, 2=Fault, 3=PostFault, 4=InitReset
	Ex Start Simulation-I	1012	1	3	Bit	0x100 (9)	-	State of the module input:External Start of Fault Simulation (Using the test parameters)

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Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
Sys		154	1	3	Struct			
	SNTP active	154	1	3	Bit	0x80 (8)	-	Signal: If there is no valid SNTP signal for 120 sec, SNTP is regarded as inactive.
	Setting Lock Bypass	154	1	3	Bit	0x100 (9)	-	Signal: Short-period unlock of the Setting Lock
TCS		150	1	3	Struct			
	ExBlo1-l	150	1	3	Bit	0x1 (1)	-	Module input state: External blocking1
	ExBlo2-l	150	1	3	Bit	0x2 (2)	-	Module input state: External blocking2
	active	150	1	3	Bit	0x4 (3)	-	Signal: active
	ExBlo	150	1	3	Bit	0x8 (4)	-	Signal: External Blocking
	Alarm	150	1	3	Bit	0x10 (5)	-	Signal: Alarm Trip Circuit Supervision
	Not Possible	150	1	3	Bit	0x20 (6)	-	Not possible because no state indicator assigned to the breaker.
	CB Pos Detect-l	150	1	3	Bit	0xc0 (7)	-	Module input state: Criterion by which the Circuit Breaker Switch Position is to be detected.

Appendix - Data Point Lists

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	Aux ON-I	150	1	3	Bit	0x100 (9)	-	Module Input State: Position indicator/check-back signal of the CB (52a)
	Aux OFF-I	150	1	3	Bit	0x200 (10)	-	Module input state: Position indicator/check-back signal of the CB (52b)
ThR		164	1	3	Struct			
	ExBlo1	164	1	3	Bit	0x1 (1)	-	Module input state: External blocking
	ExBlo2	164	1	3	Bit	0x2 (2)	-	Module input state: External blocking
	ExBlo TripCmd	164	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	active	164	1	3	Bit	0x8 (4)	-	Signal: active
	ExBlo	164	1	3	Bit	0x10 (5)	-	Signal: External Blocking
	Blo TripCmd	164	1	3	Bit	0x20 (6)	-	Signal: Trip Command blocked
	ExBlo TripCmd	164	1	3	Bit	0x40 (7)	-	Signal: External Blocking of the Trip Command
	Alarm	164	1	3	Bit	0x80 (8)	-	Signal: Alarm

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	Trip (*)	164	1	3	Bit	0x100 (9)	-	Signal: Trip
	TripCmd (*)	164	1	3	Bit	0x200 (10)	-	Signal: Trip Command
	Alarm Pickup	164	1	3	Bit	0x400 (11)	-	Signal: Alarm Pickup
	Alarm Timeout	164	1	3	Bit	0x800 (12)	-	Signal: Alarm Timeout
	Load above SF	164	1	3	Bit	0x1000 (13)	-	Load above Service Factor
	RTD effective	164	1	3	Bit	0x2000 (14)	-	RTD effective
URTD		1007	1	3	Struct			
	Windg1 Superv	1007	1	3	Bit	0x1 (1)	-	Signal: Supervision Channel Windg1
	Windg2 Superv	1007	1	3	Bit	0x2 (2)	-	Signal: Supervision Channel Windg2
	Windg3 Superv	1007	1	3	Bit	0x4 (3)	-	Signal: Supervision Channel Windg3
	Windg4 Superv	1007	1	3	Bit	0x8 (4)	-	Signal: Supervision Channel Windg4
	Windg5 Superv	1007	1	3	Bit	0x10 (5)	-	Signal: Supervision Channel Windg5

Appendix - Data Point Lists

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	Windg6 Superv	1007	1	3	Bit	0x20 (6)	-	Signal: Supervision Channel Windg6
	MotBear1 Superv	1007	1	3	Bit	0x40 (7)	-	Signal: Supervision Channel MotBear1
	MotBear2 Superv	1007	1	3	Bit	0x80 (8)	-	Signal: Supervision Channel MotBear2
	LoadBear1 Superv	1007	1	3	Bit	0x100 (9)	-	Signal: Supervision Channel LoadBear1
	LoadBear2 Superv	1007	1	3	Bit	0x200 (10)	-	Signal: Supervision Channel LoadBear2
	Aux1 Superv	1007	1	3	Bit	0x400 (11)	-	Signal: Supervision Channel Aux1
	Superv	1007	1	3	Bit	0x800 (12)	-	Signal: URTD Supervision Channel
	Aux2 Superv	1007	1	3	Bit	0x1000 (13)	-	Signal: Supervision Channel Aux2

Legend * = These Signals have to be acknowledged by the Scada System.

Measuring values

<i>Module</i>	<i>Subgroup Names Functions</i>	<i>Start Register Address</i>	<i>No. of Modbus Registers</i>	<i>Function Code</i>	<i>Format</i>	<i>Bit Mask / (Bit Position)</i>	<i>Unit</i>	<i>Description</i>
Current	I0	20114	2	4	Float IEE754		A	Measured value (calculated): Zero current (fundamental)
Current	I1	20116	2	4	Float IEE754		A	Measured value (calculated): Positive phase sequence current (fundamental)
Current	I2	20118	2	4	Float IEE754		A	Measured value (calculated): Unbalanced load current (fundamental)
Current	phi IG calc	20200	2	4	Float IEE754		°	Measured value (calculated): Angle of Phasor IG calc
Current	phi IG meas	20202	2	4	Float IEE754		°	Measured value (calculated): Angle of Phasor IG meas
Current	phi IL1	20204	2	4	Float IEE754		°	Measured value (calculated): Angle of Phasor IL1
Current	phi IL2	20206	2	4	Float IEE754		°	Measured value (calculated): Angle of Phasor IL2
Current	phi IL3	20208	2	4	Float IEE754		°	Measured value (calculated): Angle of Phasor IL3
Current	IL1 THD	20210	2	4	Float IEE754		A	Measured value (calculated): IL1 Total Harmonic Current
Current	IL2 THD	20212	2	4	Float IEE754		A	Measured value (calculated): IL2 Total Harmonic Current

Appendix - Data Point Lists

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
Current	IL3 THD	20214	2	4	Float IEE754		A	Measured value (calculated): IL3 Total Harmonic Current
Current	%IL1 THD	20216	2	4	Float IEE754		%	Measured value (calculated): IL1 Total Harmonic Distortion
Current	%IL2 THD	20218	2	4	Float IEE754		%	Measured value (calculated): IL2 Total Harmonic Distortion
Current	%IL3 THD	20220	2	4	Float IEE754		%	Measured value (calculated): IL3 Total Harmonic Distortion
Current	IL1 RMS	20316	2	4	Float IEE754		A	Measured value: Phase current (RMS)
Current	IL2 RMS	20318	2	4	Float IEE754		A	Measured value: Phase current (RMS)
Current	IL3 RMS	20320	2	4	Float IEE754		A	Measured value: Phase current (RMS)
Current	IG meas RMS	20322	2	4	Float IEE754		A	Measured value (measured): IG (RMS)
Current	IG calc RMS	20324	2	4	Float IEE754		A	Measured value (calculated): IG (RMS)
Current	%(I2/I1)	20376	2	4	Float IEE754		%	Measured value (calculated): I2/I1, phase sequence will be taken into account automatically.
Current	phi I0	20378	2	4	Float IEE754		°	Measured value (calculated): Angle Zero Sequence System

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
Current	phi I1	20380	2	4	Float IEE754		°	Measured value (calculated): Angle of Positive Sequence System
Current	phi I2	20382	2	4	Float IEE754		°	Measured Value (calculated): Angle of Negative Sequence System
Current	I1 max	21074	2	4	Float IEE754		A	Maximum value positive phase sequence current (fundamental)
Current	I1 min	21076	2	4	Float IEE754		A	Minimum value positive phase sequence current (fundamental)
Current	I2 max	21080	2	4	Float IEE754		A	Maximum value unbalanced load (fundamental)
Current	I2 min	21082	2	4	Float IEE754		A	Minimum value unbalanced load current (fundamental)
Current	IL1 avg RMS	21130	2	4	Float IEE754		A	IL1 average value (RMS)
Current	IL2 avg RMS	21132	2	4	Float IEE754		A	IL2 average value (RMS)
Current	IL3 avg RMS	21134	2	4	Float IEE754		A	IL3 average value (RMS)
Current	IL1 max RMS	21136	2	4	Float IEE754		A	IL1 maximum value (RMS)

Appendix - Data Point Lists

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
Current	IL2 max RMS	21138	2	4	Float IEE754		A	IL2 maximum value (RMS)
Current	IL3 max RMS	21140	2	4	Float IEE754		A	IL3 maximum value (RMS)
Current	IL1 min RMS	21142	2	4	Float IEE754		A	IL1 minimum value (RMS)
Current	IL2 min RMS	21144	2	4	Float IEE754		A	IL2 minimum value (RMS)
Current	IL3 min RMS	21146	2	4	Float IEE754		A	IL3 minimum value (RMS)
Current	IG calc max RMS	21456	2	4	Float IEE754		A	Measured value (calculated):IG maximum value (RMS)
Current	IG calc min RMS	21458	2	4	Float IEE754		A	Measured value (calculated):IG minimum value (RMS)
Current	IG meas max RMS	21462	2	4	Float IEE754		A	Measured value: IG maximum value (RMS)
Current	IG meas min RMS	21464	2	4	Float IEE754		A	Measured value: IG minimum value (RMS)
Current	%(I2/I1) max	21468	2	4	Float IEE754		%	Measured value (calculated): I2/I1 maximum value, phase sequence will be taken into account automatically

Appendix - Data Point Lists

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
Current	%(I2/I1) min	21470	2	4	Float IEE754		%	Measured value (calculated): I2/I1 minimum value, phase sequence will be taken into account automatically
Date and Time		20000	6	4	Struct			
	y	20000	6	4	Short	Word 0 (1)	-	year
	m	20000	6	4	Short	Word 1 (17)	-	month
	d	20000	6	4	Short	Word 2 (33)	-	days
	h	20000	6	4	Short	Word 3 (49)	-	hours
	min	20000	6	4	Short	Word 4 (65)	-	minute
	ms	20000	6	4	Short	Word 5 (81)	-	milliseconds
ExP[1]	NumberOfAlarms	24018	2	4	Float IEE754		-	Number of alarms since last reset.
ExP[1]	NumberOfTripCmds	24020	2	4	Float IEE754		-	Number of trip commands since last reset
ExP[2]	NumberOfAlarms	24022	2	4	Float IEE754		-	Number of alarms since last reset.

Appendix - Data Point Lists

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
Exp[2]	NumberOfTripCmds	24024	2	4	Float IEE754		-	Number of trip commands since last reset
Exp[3]	NumberOfAlarms	24026	2	4	Float IEE754		-	Number of alarms since last reset.
Exp[3]	NumberOfTripCmds	24028	2	4	Float IEE754		-	Number of trip commands since last reset
Exp[4]	NumberOfAlarms	24030	2	4	Float IEE754		-	Number of alarms since last reset.
Exp[4]	NumberOfTripCmds	24032	2	4	Float IEE754		-	Number of trip commands since last reset
I2>[1]	nRevTrips	21614	2	4	Float IEE754		-	Number of reverse spinning trips since last reset.
I2>[1]	NumberOfAlarms	21724	2	4	Float IEE754		-	Number of alarms since last reset.
I2>[1]	NumberOfTripCmds	21726	2	4	Float IEE754		-	Number of trip commands since last reset
I2>[2]	NumberOfAlarms	21730	2	4	Float IEE754		-	Number of alarms since last reset.
I2>[2]	NumberOfTripCmds	21732	2	4	Float IEE754		-	Number of trip commands since last reset
I<[1]	NumberOfTripCmds	21642	2	4	Float IEE754		-	Number of trip commands since last reset

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
I<[1]	NumberOfAlarms	21648	2	4	Float IEE754		-	Number of alarms since last reset.
I<[2]	NumberOfTripCmds	21644	2	4	Float IEE754		-	Number of trip commands since last reset
I<[2]	NumberOfAlarms	21650	2	4	Float IEE754		-	Number of alarms since last reset.
I<[3]	NumberOfTripCmds	21646	2	4	Float IEE754		-	Number of trip commands since last reset
I<[3]	NumberOfAlarms	21652	2	4	Float IEE754		-	Number of alarms since last reset.
IG[1]	NumberOfAlarms	21690	2	4	Float IEE754		-	Number of alarms since last reset.
IG[1]	NumberOfTripCmds	21692	2	4	Float IEE754		-	Number of trip commands since last reset
IG[2]	NumberOfAlarms	21694	2	4	Float IEE754		-	Number of alarms since last reset.
IG[2]	NumberOfTripCmds	21696	2	4	Float IEE754		-	Number of trip commands since last reset
IG[3]	NumberOfAlarms	21698	2	4	Float IEE754		-	Number of alarms since last reset.
IG[3]	NumberOfTripCmds	21700	2	4	Float IEE754		-	Number of trip commands since last reset

Appendix - Data Point Lists

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
IG[4]	NumberOfAlarms	21702	2	4	Float IEE754		-	Number of alarms since last reset.
IG[4]	NumberOfTripCmds	21704	2	4	Float IEE754		-	Number of trip commands since last reset
IRIG-B	Edges	20298	2	4	Float IEE754		-	Edges
IRIG-B	NoOfFrameErrors	20300	2	4	Float IEE754		-	Total Number of Frame Errors. Physically corrupted Frame.
IRIG-B	NoOfFramesOK	20302	2	4	Float IEE754		-	Total Number valid Frames.
I[1]	NumberOfAlarms	21666	2	4	Float IEE754		-	Number of alarms since last reset.
I[1]	NumberOfTripCmds	21668	2	4	Float IEE754		-	Number of trip commands since last reset
I[2]	NumberOfAlarms	21670	2	4	Float IEE754		-	Number of alarms since last reset.
I[2]	NumberOfTripCmds	21672	2	4	Float IEE754		-	Number of trip commands since last reset
I[3]	NumberOfAlarms	21674	2	4	Float IEE754		-	Number of alarms since last reset.
I[3]	NumberOfTripCmds	21676	2	4	Float IEE754		-	Number of trip commands since last reset

Appendix - Data Point Lists

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
I[4]	NumberOfAlarms	21678	2	4	Float IEE754		-	Number of alarms since last reset.
I[4]	NumberOfTripCmds	21680	2	4	Float IEE754		-	Number of trip commands since last reset
I[5]	NumberOfAlarms	21682	2	4	Float IEE754		-	Number of alarms since last reset.
I[5]	NumberOfTripCmds	21684	2	4	Float IEE754		-	Number of trip commands since last reset
I[6]	NumberOfAlarms	21686	2	4	Float IEE754		-	Number of alarms since last reset.
I[6]	NumberOfTripCmds	21688	2	4	Float IEE754		-	Number of trip commands since last reset
Jam[1]	NumberOfTripCmds	21580	2	4	Float IEE754		-	Number of trip commands since last reset
Jam[1]	NumberOfAlarms	21662	2	4	Float IEE754		-	Number of alarms since last reset.
Jam[2]	NumberOfTripCmds	21582	2	4	Float IEE754		-	Number of trip commands since last reset
Jam[2]	NumberOfAlarms	21664	2	4	Float IEE754		-	Number of alarms since last reset.
MStart	AntiBackSpin	20466	2	4	Float IEE754		s	Anti-BackspinTimer

Appendix - Data Point Lists

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
MStart	IL1 lb	20468	2	4	Float IEE754		lb	Measured value: Phase current as multiple of lb
MStart	IL2 lb	20470	2	4	Float IEE754		lb	Measured value: Phase current as multiple of lb
MStart	IL3 lb	20472	2	4	Float IEE754		lb	Measured value: Phase current as multiple of lb
MStart	ColdStartPermit	20474	2	4	Float IEE754		-	Number of cold starts remaining
MStart	StartPerHour	20476	2	4	Float IEE754		-	StartPerHour
MStart	WaitTimeStarts	20478	2	4	Float IEE754		s	Wait time between starts remained
MStart	I3 PRMS avg	20510	2	4	Float IEE754		A	Average RMS current of all 3 phases
MStart	I3 P (%lb) avg	20512	2	4	Float IEE754		lb	Average RMS current of all 3 phases as percentages of lb
MStart	SPH Release	20894	2	4	Float IEE754		min	In case that the Motor is blocked by a SPH blocking, this timer needs to be expired before the blocking is released and the next motor start is permitted. The next Motor Start will increment the SPH counter again.

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Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
MStart	HighestRunI	21584	2	4	Float IEE754		A	Highest running phase current. The time stamp indicates the point in time when the maximum current has occurred.
MStart	HighestStartI	21586	2	4	Float IEE754		A	Highest starting phase current. The time stamp indicates the point in time when the maximum current has occurred.
MStart	OCNT	21588	2	4	Float IEE754		-	Motor Operation count since last reset.
MStart	RunTime	21590	2	4	Float IEE754		h	Motor Operation time since last reset.
MStart	TOCS	21592	2	4	Float IEE754		-	Total Motor Operation count since last reset.
MStart	TRunTime	21594	2	4	Float IEE754		h	Motor Operation (Motor run time) time since last reset.
MStart	nEmrgOvr	21596	2	4	Float IEE754		-	Number of emergency overrides since last reset.
MStart	nISQT	21598	2	4	Float IEE754		-	Number of incomplete sequence trips since last reset.
MStart	nTRNTrips	21606	2	4	Float IEE754		-	Number of transition trips since last reset.

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Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
MStart	nZSWTrips	21608	2	4	Float IEE754		-	Number of zero speed switch trips since last reset.
MStart	nSPHBlocks	21654	2	4	Float IEE754		-	Number of start per hour blocks since last reset.
MStart	nTBSBlocks	21656	2	4	Float IEE754		-	Number of time between start blocks since last reset.
MStart	Highest%I2/I1	21722	2	4	Float IEE754		%	Highest %I2/I1 value since last reset. The time stamp indicates the point in time when the maximum unbalanced load has occurred.
MStart	I3P Fla Demand	21734	2	4	Float IEE754		lb	RMS current of all 3 phases calculated in a fixed demand window as percentages of Ib
MStart	IL1 avg lb	21736	2	4	Float IEE754		lb	IL1 average value as multiple of Ib
MStart	IL1 max lb	21738	2	4	Float IEE754		lb	IL1 maximum value as multiple of Ib
MStart	IL1 min lb	21740	2	4	Float IEE754		lb	IL1 minimum value as multiple of Ib
MStart	IL2 avg lb	21742	2	4	Float IEE754		lb	IL2 average value as multiple of Ib
MStart	IL2 max lb	21744	2	4	Float IEE754		lb	IL2 maximum value as multiple of Ib

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Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
MStart	IL2 min lb	21746	2	4	Float IEE754		lb	IL2 minimum value as multiple of lb
MStart	IL3 avg lb	21748	2	4	Float IEE754		lb	IL3 average value as multiple of lb
MStart	IL3 max lb	21750	2	4	Float IEE754		lb	IL3 maximum value as multiple of lb
MStart	IL3 min lb	21752	2	4	Float IEE754		lb	IL3 minimum value as multiple of lb
RTD	HottestWindingTemp	20504	2	4	Float IEE754		°C	Hottest motor winding temperature in degrees C.
RTD	HighestLbTemp	21618	2	4	Float IEE754		°C	Highest load bearing temperature in degrees.
RTD	HighestMbTemp	21620	2	4	Float IEE754		°C	Highest motor bearing temperature in degrees.
RTD	HighestWdTemp	21622	2	4	Float IEE754		°C	Highest motor winding temperature in degrees.
RTD	nAuxAlarms	21624	2	4	Float IEE754		-	Number of auxiliary temperature alarms since last reset.
RTD	nAuxTrips	21626	2	4	Float IEE754		-	Number of auxiliary temperature trips since last reset.
RTD	nChannelFails	21628	2	4	Float IEE754		-	Number of RTD channel failures.

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Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
RTD	nLbAlarms	21630	2	4	Float IEE754		-	Number of load bearing temperature alarms since last reset.
RTD	nLbTrips	21632	2	4	Float IEE754		-	Number of load bearing temperature trips since last reset.
RTD	nMbAlarms	21634	2	4	Float IEE754		-	Number of motor bearing temperature alarms since last reset.
RTD	nMbTrips	21636	2	4	Float IEE754		-	Number of motor bearing temperature trips since last reset.
RTD	nWdAlarms	21638	2	4	Float IEE754		-	Number of winding temperature alarms since last reset.
RTD	nWdTrips	21640	2	4	Float IEE754		-	Number of winding temperature trips since last reset.
RTD	HighestAuxTemp	21822	2	4	Float IEE754		°C	Highest Auxiliary temperature in degrees.
SG	TripCmd Cr	20006	2	4	Float IEE754		-	Counter: Total number of trips of the switchgear (circuit breaker, load break switch...). Resettable with Total or All.
SG	Sum trip IL1	20182	2	4	Float IEE754		A	Summation of the tripping currents phase
SG	Sum trip IL2	20184	2	4	Float IEE754		A	Summation of the tripping currents phase

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Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
SG	Sum trip IL3	20186	2	4	Float IEE754		A	Summation of the tripping currents phase
Statistics	IL1 Peak demand	24000	2	4	Float IEE754		A	IL1 Peak value, RMS value
Statistics	IL2 Peak demand	24002	2	4	Float IEE754		A	IL2 Peak value, RMS value
Statistics	IL3 Peak demand	24004	2	4	Float IEE754		A	IL3 Peak value, RMS value
ThR	I2T Used	20482	2	4	Float IEE754		%	Thermal capacity used.
ThR	I2T Remained	20484	2	4	Float IEE754		%	Thermal capacity remained.
ThR	nAlarms	21658	2	4	Float IEE754		-	nAlarms
ThR	NumberOfTripCmds	21660	2	4	Float IEE754		-	Number of trip commands since last reset
URTD	Aux2	20328	2	4	Float IEE754		°C	Auxiliary2
URTD	Windg1	20330	2	4	Float IEE754		°C	Winding 1
URTD	Windg2	20332	2	4	Float IEE754		°C	Winding 2

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Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
URTD	Windg3	20334	2	4	Float IEE754		°C	Winding 3
URTD	Windg4	20336	2	4	Float IEE754		°C	Winding 4
URTD	Windg5	20338	2	4	Float IEE754		°C	Winding 5
URTD	Windg6	20340	2	4	Float IEE754		°C	Winding 6
URTD	MotBear1	20342	2	4	Float IEE754		°C	Motor Bearing 1
URTD	MotBear2	20344	2	4	Float IEE754		°C	Motor Bearing 2
URTD	LoadBear1	20346	2	4	Float IEE754		°C	Load Bearing 1
URTD	LoadBear2	20348	2	4	Float IEE754		°C	Load Bearing 2
URTD	Aux1	20350	2	4	Float IEE754		°C	Auxiliary1
URTD	RTD Max	20486	2	4	Float IEE754		°C	Maximum temperature of all channels.
URTD	Windg1 max	21194	2	4	Float IEE754		°C	Winding1 Maximum Value

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
URTD	Windg2 max	21196	2	4	Float IEE754		°C	Winding2 Maximum Value
URTD	Windg3 max	21198	2	4	Float IEE754		°C	Winding3 Maximum Value
URTD	Windg4 max	21200	2	4	Float IEE754		°C	Winding4 Maximum Value
URTD	Windg5 max	21202	2	4	Float IEE754		°C	Winding5 Maximum Value
URTD	Windg6 max	21204	2	4	Float IEE754		°C	Winding6 Maximum Value
URTD	MotBear1 max	21206	2	4	Float IEE754		°C	Motor Bearing1 Maximum Value
URTD	MotBear2 max	21208	2	4	Float IEE754		°C	Motor Bearing2 Maximum Value
URTD	LoadBear1 max	21210	2	4	Float IEE754		°C	Load Bearing1 Maximum Value
URTD	LoadBear2 max	21212	2	4	Float IEE754		°C	Load Bearing2 Maximum Value
URTD	Aux1 max	21214	2	4	Float IEE754		°C	Auxiliary1 Maximum Value
URTD	Aux2 max	21800	2	4	Float IEE754		°C	Auxiliary2 Maximum Value

Appendix - Data Point Lists

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
Values	Build	20008	2	4	Float IEE754		-	Build
Values	Operating hours Cr	20010	2	4	Float IEE754		h	Operating hours counter of the protective device
Values	Hours Counter	20514	2	4	Float IEE754		h	Hours Counter

Commands

<i>Module</i>	<i>Subgroup Names Functions</i>	<i>Start Register Address</i>	<i>No. of Modbus Registers</i>	<i>Function Code</i>	<i>Format</i>	<i>Bit Mask / (Bit Position)</i>	<i>Unit</i>	<i>Description</i>
Acknowledge	LEDs	22000	1	5	0xFF00		-	LEDs
Acknowledge	Binary Outputs	22001	1	5	0xFF00		-	Binary Outputs
Acknowledge	Scada	22002	1	5	0xFF00		-	Scada
Acknowledge	Device	22003	1	5	0xFF00		-	Device
Acknowledge	Ack TripCmd	22005	1	5	0xFF00		-	Signal: Acknowledge Trip Command
Reset	Modbus diagnosis counter	22006	1	5	0xFF00		-	Modbus diagnosis counter
Reset	Res Sum trip	22012	1	5	Short		-	Reset summation of the tripping currents
Scada Cmd	Assbl Scada Cmd 1	22020	1	5	0xFF00= On 0x0000= Off		-	Assignable Scada Command
Scada Cmd	Assbl Scada Cmd 2	22021	1	5	0xFF00= On 0x0000= Off		-	Assignable Scada Command

Appendix - Data Point Lists

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
Scada Cmd	Assbl Scada Cmd 3	22022	1	5	0xFF00= On 0x0000= Off		-	Assignable Scada Command
Scada Cmd	Assbl Scada Cmd 4	22023	1	5	0xFF00= On 0x0000= Off		-	Assignable Scada Command
Scada Cmd	Assbl Scada Cmd 5	22024	1	5	0xFF00= On 0x0000= Off		-	Assignable Scada Command
Scada Cmd	Assbl Scada Cmd 6	22025	1	5	0xFF00= On 0x0000= Off		-	Assignable Scada Command
Scada Cmd	Assbl Scada Cmd 7	22026	1	5	0xFF00= On 0x0000= Off		-	Assignable Scada Command
Scada Cmd	Assbl Scada Cmd 8	22027	1	5	0xFF00= On 0x0000= Off		-	Assignable Scada Command

Appendix - Data Point Lists

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
Scada Cmd	Assbl Scada Cmd 9	22028	1	5	0xFF00= On 0x0000= Off		-	Assignable Scada Command
Scada Cmd	Assbl Scada Cmd 10	22029	1	5	0xFF00= On 0x0000= Off		-	Assignable Scada Command
Scada Cmd	Assbl Scada Cmd 11	22030	1	5	0xFF00= On 0x0000= Off		-	Assignable Scada Command
Scada Cmd	Assbl Scada Cmd 12	22031	1	5	0xFF00= On 0x0000= Off		-	Assignable Scada Command
Scada Cmd	Assbl Scada Cmd 13	22032	1	5	0xFF00= On 0x0000= Off		-	Assignable Scada Command
Scada Cmd	Assbl Scada Cmd 14	22033	1	5	0xFF00= On 0x0000= Off		-	Assignable Scada Command

Appendix - Data Point Lists

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
Scada Cmd	Assbl Scada Cmd 15	22034	1	5	0xFF00= On 0x0000= Off		-	Assignable Scada Command
Scada Cmd	Assbl Scada Cmd 16	22035	1	5	0xFF00= On 0x0000= Off		-	Assignable Scada Command
PSet-Switch	Scada PS1	22050	1	5	0xFF00		-	Scada Setting Group1
PSet-Switch	Scada PS2	22051	1	5	0xFF00		-	Scada Setting Group2
PSet-Switch	Scada PS3	22052	1	5	0xFF00		-	Scada Setting Group3
PSet-Switch	Scada PS4	22053	1	5	0xFF00		-	Scada Setting Group4
AFRMS Mode	AFRMS SCADA	22054	1	5	0xFF00		-	Signal: Arcflash Reduction Maintenance SCADA Mode
Res I2T Used	Res I2T Used	22055	1	5	Short		-	Reset thermal capacity used.
SG	SG ControlCmd1	22100	1	5	0xFF00= On 0x0000= Off		-	Control Command Switchgear

Appendix - Data Point Lists

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
SG	SG ControlCmd6	22105	1	5	0xFF00= On 0x0000= Off		-	Control Command Switchgear

Settings

<i>Module</i>	<i>Subgroup Names Functions</i>	<i>Start Register Address</i>	<i>No. of Modbus Registers</i>	<i>Function Code</i>	<i>Format</i>	<i>Bit Mask / (Bit Position)</i>	<i>Unit</i>	<i>Description</i>
Date and Time		32500	6	3 16	Struct			
	y	32500	6	3 16	Short	Word 0 (1)	-	year
	m	32500	6	3 16	Short	Word 1 (17)	-	month
	d	32500	6	3 16	Short	Word 2 (33)	-	days
	h	32500	6	3 16	Short	Word 3 (49)	-	hours
	min	32500	6	3 16	Short	Word 4 (65)	-	minute
	ms	32500	6	3 16	Short	Word 5 (81)	-	milliseconds

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