



EMR-3000 Modbus® Register Maps

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This manual applies to devices (Modbus RTU and Modbus TCP):

Version 3.0.c

Build: 28663

Modbus Parameters

For the Modbus Protocol, several parameters have to be set that 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 tables that follow.

**ATTENTION!**

The parameters are described within the Appendix of the device manual (Modbus section).

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 frame 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 message is expected when the dwell time (t_D) is > 3.5 characters.

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

Specific Modbus Function Codes

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

Table 1.1. Function Codes

Function-Code	Designation	Description
3	Read Holding Registers	There are single or several data words read 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 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 reset or blockings set.
8	Loopback Test	Test function for the communication system.
16	Load Multiple Registers	There are single or several data words written from a specific data word address.

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
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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
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Response

Slave address	5	Register address HI	Register address LO	Register data HI	Register data LO	Check-sum HI	Check-sum LO
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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 byte to be on: This often means to reset a counter, execute acknowledgments, or set blockings signals.

0000 hex request for a single byte to be off: This often means to deactivate blocking signals or to reset single bytes.

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
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Data Diag Code HI (high), Data Diag Code LO (low)

Diagnostic Code (sub-function 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 are 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 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 and 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 messages are described within the general "Modbus Application Protocol Specification". An exception response table with examples is shown in that specification. The table below contains just the actually used codes. In case the *device* has recognized an error, it can react in the following manner.

Exception Code	Designation	Description
1	Illegal Function	The message received includes a function code that 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 byte set to 1. This is equivalent to an addition by 0x80. The third byte holds the Exception Code of the error message.

Appendix – Register Maps

Signals

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
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
	Pickup Phase A	1	1	3	Bit	0x10 (5)	-	Signal: General Pickup Phase A
	Pickup Phase B	1	1	3	Bit	0x20 (6)	-	Signal: General Pickup Phase B
	Pickup Phase C	1	1	3	Bit	0x40 (7)	-	Signal: General Pickup Phase C
	Pickup IX or IR	1	1	3	Bit	0x80 (8)	-	Signal: General Pickup - Ground Fault
	Pickup	1	1	3	Bit	0x100 (9)	-	Signal: General Pickup
	Trip Phase A (*)	1	1	3	Bit	0x200 (10)	-	Signal: General Trip Phase A
	Trip Phase B (*)	1	1	3	Bit	0x400 (11)	-	Signal: General Trip Phase B

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	Trip Phase C (*)	1	1	3	Bit	0x800 (12)	-	Signal: General Trip Phase C
	Trip IX or IR (*)	1	1	3	Bit	0x1000 (13)	-	Signal: General Trip Ground Fault
	Trip (*)	1	1	3	Bit	0x2000 (14)	-	Signal: General Trip
50P[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
	Rvs Blo-I	3	1	3	Bit	0x8 (4)	-	Module Input State: Reverse Blocking
	Active	3	1	3	Bit	0x10 (5)	-	Signal: Active
	ExBlo	3	1	3	Bit	0x20 (6)	-	Signal: External Blocking
	Rvs Blo	3	1	3	Bit	0x40 (7)	-	Signal: Reverse Blocking
	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
50P[1]		4	1	3	Struct			

<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>
	Pickup IA	4	1	3	Bit	0x1 (1)	-	Signal: Pickup IA
	Pickup IB	4	1	3	Bit	0x2 (2)	-	Signal: Pickup IB
	Pickup IC	4	1	3	Bit	0x4 (3)	-	Signal: Pickup IC
	Pickup	4	1	3	Bit	0x8 (4)	-	Signal: Pickup
	Trip (*)	4	1	3	Bit	0x80 (8)	-	Signal: Trip
	TripCmd (*)	4	1	3	Bit	0x100 (9)	-	Signal: Trip Command
50P[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
	Rvs Blo-I	5	1	3	Bit	0x8 (4)	-	Module Input State: Reverse Blocking
	Active	5	1	3	Bit	0x10 (5)	-	Signal: Active
	ExBlo	5	1	3	Bit	0x20 (6)	-	Signal: External Blocking
	Rvs Blo	5	1	3	Bit	0x40 (7)	-	Signal: Reverse Blocking

<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>
	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
50P[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
	Rvs Blo-I	7	1	3	Bit	0x8 (4)	-	Module Input State: Reverse Blocking
	Active	7	1	3	Bit	0x10 (5)	-	Signal: Active
	ExBlo	7	1	3	Bit	0x20 (6)	-	Signal: External Blocking
	Rvs Blo	7	1	3	Bit	0x40 (7)	-	Signal: Reverse Blocking
	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
50P[3]		8	1	3	Struct			
	Pickup IA	8	1	3	Bit	0x1 (1)	-	Signal: Pickup IA

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	Pickup IB	8	1	3	Bit	0x2 (2)	-	Signal: Pickup IB
	Pickup IC	8	1	3	Bit	0x4 (3)	-	Signal: Pickup IC
	Pickup	8	1	3	Bit	0x8 (4)	-	Signal: Pickup
	Trip (*)	8	1	3	Bit	0x80 (8)	-	Signal: Trip
	TripCmd (*)	8	1	3	Bit	0x100 (9)	-	Signal: Trip Command
51P[1]		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
	Rvs Blo-I	9	1	3	Bit	0x8 (4)	-	Module Input State: Reverse Blocking
	Active	9	1	3	Bit	0x10 (5)	-	Signal: Active
	ExBlo	9	1	3	Bit	0x20 (6)	-	Signal: External Blocking
	Rvs Blo	9	1	3	Bit	0x40 (7)	-	Signal: Reverse Blocking
	Blo TripCmd	9	1	3	Bit	0x80 (8)	-	Signal: Trip Command blocked

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	ExBlo TripCmd	9	1	3	Bit	0x100 (9)	-	Signal: External Blocking of the Trip Command
51P[1]		10	1	3	Struct			
	Pickup IA	10	1	3	Bit	0x1 (1)	-	Signal: Pickup IA
	Pickup IB	10	1	3	Bit	0x2 (2)	-	Signal: Pickup IB
	Pickup IC	10	1	3	Bit	0x4 (3)	-	Signal: Pickup IC
	Pickup	10	1	3	Bit	0x8 (4)	-	Signal: Pickup
	Trip (*)	10	1	3	Bit	0x80 (8)	-	Signal: Trip
	TripCmd (*)	10	1	3	Bit	0x100 (9)	-	Signal: Trip Command
51P[2]		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
	Rvs Blo-I	11	1	3	Bit	0x8 (4)	-	Module Input State: Reverse Blocking
	Active	11	1	3	Bit	0x10 (5)	-	Signal: Active

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	ExBlo	11	1	3	Bit	0x20 (6)	-	Signal: External Blocking
	Rvs Blo	11	1	3	Bit	0x40 (7)	-	Signal: Reverse Blocking
	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
51P[2]		12	1	3	Struct			
	Pickup IA	12	1	3	Bit	0x1 (1)	-	Signal: Pickup IA
	Pickup IB	12	1	3	Bit	0x2 (2)	-	Signal: Pickup IB
	Pickup IC	12	1	3	Bit	0x4 (3)	-	Signal: Pickup IC
	Pickup	12	1	3	Bit	0x8 (4)	-	Signal: Pickup
	Trip (*)	12	1	3	Bit	0x80 (8)	-	Signal: Trip
	TripCmd (*)	12	1	3	Bit	0x100 (9)	-	Signal: Trip Command
51P[3]		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

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	ExBlo TripCmd-I	13	1	3	Bit	0x4 (3)	-	Module Input State: External Blocking of the Trip Command
	Rvs Blo-I	13	1	3	Bit	0x8 (4)	-	Module Input State: Reverse Blocking
	Active	13	1	3	Bit	0x10 (5)	-	Signal: Active
	ExBlo	13	1	3	Bit	0x20 (6)	-	Signal: External Blocking
	Rvs Blo	13	1	3	Bit	0x40 (7)	-	Signal: Reverse Blocking
	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
51P[3]		14	1	3	Struct			
	Pickup IA	14	1	3	Bit	0x1 (1)	-	Signal: Pickup IA
	Pickup IB	14	1	3	Bit	0x2 (2)	-	Signal: Pickup IB
	Pickup IC	14	1	3	Bit	0x4 (3)	-	Signal: Pickup IC
	Pickup	14	1	3	Bit	0x8 (4)	-	Signal: Pickup
	Trip (*)	14	1	3	Bit	0x80 (8)	-	Signal: Trip
	TripCmd (*)	14	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
50X[1]		15	1	3	Struct			
	ExBlo1-I	15	1	3	Bit	0x1 (1)	-	Module Input State: External Blocking1
	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
	Rvs Blo-I	15	1	3	Bit	0x8 (4)	-	Module Input State: Reverse Blocking
	Active	15	1	3	Bit	0x10 (5)	-	Signal: Active
	ExBlo	15	1	3	Bit	0x20 (6)	-	Signal: External Blocking
	Rvs Blo	15	1	3	Bit	0x40 (7)	-	Signal: Reverse Blocking
	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
	Pickup	15	1	3	Bit	0x400 (11)	-	Signal: Pickup IX or IR
	Trip (*)	15	1	3	Bit	0x800 (12)	-	Signal: Trip
	TripCmd (*)	15	1	3	Bit	0x1000 (13)	-	Signal: Trip Command
50X[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
	Rvs Blo-I	16	1	3	Bit	0x8 (4)	-	Module Input State: Reverse Blocking
	Active	16	1	3	Bit	0x10 (5)	-	Signal: Active
	ExBlo	16	1	3	Bit	0x20 (6)	-	Signal: External Blocking
	Rvs Blo	16	1	3	Bit	0x40 (7)	-	Signal: Reverse Blocking
	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
	Pickup	16	1	3	Bit	0x400 (11)	-	Signal: Pickup IX or IR
	Trip (*)	16	1	3	Bit	0x800 (12)	-	Signal: Trip
	TripCmd (*)	16	1	3	Bit	0x1000 (13)	-	Signal: Trip Command
51X[1]		17	1	3	Struct			
	ExBlo1-I	17	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	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
	Rvs Blo-I	17	1	3	Bit	0x8 (4)	-	Module Input State: Reverse Blocking
	Active	17	1	3	Bit	0x10 (5)	-	Signal: Active
	ExBlo	17	1	3	Bit	0x20 (6)	-	Signal: External Blocking
	Rvs Blo	17	1	3	Bit	0x40 (7)	-	Signal: Reverse Blocking
	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
	Pickup	17	1	3	Bit	0x400 (11)	-	Signal: Pickup IX or IR
	Trip (*)	17	1	3	Bit	0x800 (12)	-	Signal: Trip
	TripCmd (*)	17	1	3	Bit	0x1000 (13)	-	Signal: Trip Command
51X[2]		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

<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>
	ExBlo TripCmd-I	18	1	3	Bit	0x4 (3)	-	Module Input State: External Blocking of the Trip Command
	Rvs Blo-I	18	1	3	Bit	0x8 (4)	-	Module Input State: Reverse Blocking
	Active	18	1	3	Bit	0x10 (5)	-	Signal: Active
	ExBlo	18	1	3	Bit	0x20 (6)	-	Signal: External Blocking
	Rvs Blo	18	1	3	Bit	0x40 (7)	-	Signal: Reverse Blocking
	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
	Pickup	18	1	3	Bit	0x400 (11)	-	Signal: Pickup IX or IR
	Trip (*)	18	1	3	Bit	0x800 (12)	-	Signal: Trip
	TripCmd (*)	18	1	3	Bit	0x1000 (13)	-	Signal: Trip Command
Exp[1]		49	1	3	Struct			
	ExBlo1-I	49	1	3	Bit	0x1 (1)	-	Module Input State: External Blocking1
	ExBlo2-I	49	1	3	Bit	0x2 (2)	-	Module Input State: External Blocking2

<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>
	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			
	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

<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>
	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
	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

<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>
	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
	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

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	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
	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
BF		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

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	ExBlo	53	1	3	Bit	0x8 (4)	-	Signal: External Blocking
	Trigger1-I	53	1	3	Bit	0x10 (5)	-	Module Input: Trigger that will start the BF
	Trigger2-I	53	1	3	Bit	0x20 (6)	-	Module Input: Trigger that will start the BF
	Trigger3-I	53	1	3	Bit	0x40 (7)	-	Module Input: Trigger that will start the BF
	Pickup	53	1	3	Bit	0x80 (8)	-	Signal: BF-Module Started (Pickup)
	Trip (*)	53	1	3	Bit	0x100 (9)	-	Signal: Breaker Failure Trip
	Lockout (*)	53	1	3	Bit	0x200 (10)	-	Signal: Lockout
	Waiting for Trigger (*)	53	1	3	Bit	0x400 (11)	-	Waiting for Trigger
Prot		57	1	3	Struct			
	FaultNo	57	1	3	Bit	0xffff (1)	-	Waveform No.
Prot		58	1	3	Struct			
	No of GridFaults	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.
PSet-Switch		59	1	3	Struct			

<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>
	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 Comm	59	1	3	Bit	0x20 (6)	-	Signal: Parameter Set Switch via Scada. Write into this output byte the integer of the parameter set that should become active (e.g. 4 => Switch onto parameter set 4).
	PSS via Inp fct	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.
	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.

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	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
50R[1]		61	1	3	Struct			
	ExBlo1-I	61	1	3	Bit	0x1 (1)	-	Module Input State: External Blocking1
	ExBlo2-I	61	1	3	Bit	0x2 (2)	-	Module Input State: External Blocking2
	ExBlo TripCmd-I	61	1	3	Bit	0x4 (3)	-	Module Input State: External Blocking of the Trip Command
	Rvs Blo-I	61	1	3	Bit	0x8 (4)	-	Module Input State: Reverse Blocking
	Active	61	1	3	Bit	0x10 (5)	-	Signal: Active
	ExBlo	61	1	3	Bit	0x20 (6)	-	Signal: External Blocking
	Rvs Blo	61	1	3	Bit	0x40 (7)	-	Signal: Reverse Blocking
	Blo TripCmd	61	1	3	Bit	0x80 (8)	-	Signal: Trip Command blocked
	ExBlo TripCmd	61	1	3	Bit	0x100 (9)	-	Signal: External Blocking of the Trip Command
	Pickup	61	1	3	Bit	0x400 (11)	-	Signal: Pickup IX or IR

<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>
	Trip (*)	61	1	3	Bit	0x800 (12)	-	Signal: Trip
	TripCmd (*)	61	1	3	Bit	0x1000 (13)	-	Signal: Trip Command
50R[2]		62	1	3	Struct			
	ExBlo1-I	62	1	3	Bit	0x1 (1)	-	Module Input State: External Blocking1
	ExBlo2-I	62	1	3	Bit	0x2 (2)	-	Module Input State: External Blocking2
	ExBlo TripCmd-I	62	1	3	Bit	0x4 (3)	-	Module Input State: External Blocking of the Trip Command
	Rvs Blo-I	62	1	3	Bit	0x8 (4)	-	Module Input State: Reverse Blocking
	Active	62	1	3	Bit	0x10 (5)	-	Signal: Active
	ExBlo	62	1	3	Bit	0x20 (6)	-	Signal: External Blocking
	Rvs Blo	62	1	3	Bit	0x40 (7)	-	Signal: Reverse Blocking
	Blo TripCmd	62	1	3	Bit	0x80 (8)	-	Signal: Trip Command blocked
	ExBlo TripCmd	62	1	3	Bit	0x100 (9)	-	Signal: External Blocking of the Trip Command
	Pickup	62	1	3	Bit	0x400 (11)	-	Signal: Pickup IX or IR
	Trip (*)	62	1	3	Bit	0x800 (12)	-	Signal: Trip

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	TripCmd (*)	62	1	3	Bit	0x1000 (13)	-	Signal: Trip Command
51R[1]		63	1	3	Struct			
	ExBlo1-I	63	1	3	Bit	0x1 (1)	-	Module Input State: External Blocking1
	ExBlo2-I	63	1	3	Bit	0x2 (2)	-	Module Input State: External Blocking2
	ExBlo TripCmd-I	63	1	3	Bit	0x4 (3)	-	Module Input State: External Blocking of the Trip Command
	Rvs Blo-I	63	1	3	Bit	0x8 (4)	-	Module Input State: Reverse Blocking
	Active	63	1	3	Bit	0x10 (5)	-	Signal: Active
	ExBlo	63	1	3	Bit	0x20 (6)	-	Signal: External Blocking
	Rvs Blo	63	1	3	Bit	0x40 (7)	-	Signal: Reverse Blocking
	Blo TripCmd	63	1	3	Bit	0x80 (8)	-	Signal: Trip Command blocked
	ExBlo TripCmd	63	1	3	Bit	0x100 (9)	-	Signal: External Blocking of the Trip Command
	Pickup	63	1	3	Bit	0x400 (11)	-	Signal: Pickup IX or IR
	Trip (*)	63	1	3	Bit	0x800 (12)	-	Signal: Trip
	TripCmd (*)	63	1	3	Bit	0x1000 (13)	-	Signal: Trip Command

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
51R[2]		64	1	3	Struct			
	ExBlo1-I	64	1	3	Bit	0x1 (1)	-	Module Input State: External Blocking1
	ExBlo2-I	64	1	3	Bit	0x2 (2)	-	Module Input State: External Blocking2
	ExBlo TripCmd-I	64	1	3	Bit	0x4 (3)	-	Module Input State: External Blocking of the Trip Command
	Rvs Blo-I	64	1	3	Bit	0x8 (4)	-	Module Input State: Reverse Blocking
	Active	64	1	3	Bit	0x10 (5)	-	Signal: Active
	ExBlo	64	1	3	Bit	0x20 (6)	-	Signal: External Blocking
	Rvs Blo	64	1	3	Bit	0x40 (7)	-	Signal: Reverse Blocking
	Blo TripCmd	64	1	3	Bit	0x80 (8)	-	Signal: Trip Command blocked
	ExBlo TripCmd	64	1	3	Bit	0x100 (9)	-	Signal: External Blocking of the Trip Command
	Pickup	64	1	3	Bit	0x400 (11)	-	Signal: Pickup IX or IR
	Trip (*)	64	1	3	Bit	0x800 (12)	-	Signal: Trip
	TripCmd (*)	64	1	3	Bit	0x1000 (13)	-	Signal: Trip Command
46[1]		82	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	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
	Pickup	82	1	3	Bit	0x80 (8)	-	Signal: Pickup Negative Sequence
	Trip (*)	82	1	3	Bit	0x100 (9)	-	Signal: Trip
	TripCmd (*)	82	1	3	Bit	0x200 (10)	-	Signal: Trip Command
46[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

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	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
	Pickup	83	1	3	Bit	0x80 (8)	-	Signal: Pickup Negative Sequence
	Trip (*)	83	1	3	Bit	0x100 (9)	-	Signal: Trip
	TripCmd (*)	83	1	3	Bit	0x200 (10)	-	Signal: Trip Command
Bkr		123	1	3	Struct			
	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: IA	123	1	3	Bit	0x20 (6)	-	Signal: Maximum permissible Summation of the interrupting (tripping) currents exceeded: IA
	Isum Intr trip: IB	123	1	3	Bit	0x40 (7)	-	Signal: Maximum permissible Summation of the interrupting (tripping) currents exceeded: IB

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	Isum Intr trip: IC	123	1	3	Bit	0x80 (8)	-	Signal: Maximum permissible Summation of the interrupting (tripping) currents exceeded: IC
	Operations Alarm	123	1	3	Bit	0x100 (9)	-	Signal: Service Alarm, too many Operations
	WearLevel Alarm	123	1	3	Bit	0x200 (10)	-	Signal: Breaker Wear curve Alarm
	WearLevel Lockout	123	1	3	Bit	0x400 (11)	-	Signal: Breaker Wear Curve Lockout Level
	Isum Intr ph Alm	123	1	3	Bit	0x800 (12)	-	Signal: Alarm, the per hour Sum (Limit) of interrupting currents has been exceeded.
CTS		137	1	3	Struct			
	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
	Pickup	137	1	3	Bit	0x10 (5)	-	Signal: Pickup Current Transformer Measuring Circuit Supervision
ZI		139	1	3	Struct			
	ExBlo1-I	139	1	3	Bit	0x2 (2)	-	Module Input State: External Blocking1

<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>
	ExBlo2-I	139	1	3	Bit	0x4 (3)	-	Module Input State: External Blocking2
	ExBlo TripCmd-I	139	1	3	Bit	0x8 (4)	-	Module Input State: External Blocking of the Trip Command
	Bkr Blo	139	1	3	Bit	0x10 (5)	-	Signal: Blocked by Breaker Failure
	Active	139	1	3	Bit	0x20 (6)	-	Signal: Active
	ExBlo	139	1	3	Bit	0x40 (7)	-	Signal: External Blocking
	Blo TripCmd	139	1	3	Bit	0x80 (8)	-	Signal: Trip Command blocked
	ExBlo TripCmd	139	1	3	Bit	0x100 (9)	-	Signal: External Blocking of the Trip Command
	Ground OUT	139	1	3	Bit	0x200 (10)	-	Signal: Zone Interlocking Ground OUT
	Ground Pickup	139	1	3	Bit	0x400 (11)	-	Signal: Zone Interlocking Ground Pickup
	Ground Trip (*)	139	1	3	Bit	0x800 (12)	-	Signal: Zone Interlocking Ground Trip
	Phase OUT	139	1	3	Bit	0x1000 (13)	-	Signal: Zone Interlocking Phase OUT
	Phase Pickup	139	1	3	Bit	0x2000 (14)	-	Signal: Zone Interlocking Phase Pickup
	Phase Trip (*)	139	1	3	Bit	0x4000 (15)	-	Signal: Zone Interlocking Phase Trip

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	IN	139	1	3	Bit	0x8000 (16)	-	Signal: Zone Interlocking IN
ZI		140	1	3	Struct			
	OUT	140	1	3	Bit	0x1 (1)	-	Signal: Zone Interlocking OUT
	Pickup	140	1	3	Bit	0x2 (2)	-	Signal: Pickup Zone Interlocking
	Trip (*)	140	1	3	Bit	0x4 (3)	-	Signal: Zone Interlocking Trip
	TripCmd (*)	140	1	3	Bit	0x8 (4)	-	Signal: Zone Interlocking Trip Command
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

<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>
	Alarm	143	1	3	Bit	0x80 (8)	-	Alarm RTD Temperature Protection
	Trip (*)	143	1	3	Bit	0x100 (9)	-	Signal: Trip
	TripCmd (*)	143	1	3	Bit	0x200 (10)	-	Signal: Trip Command
RTD		144	1	3	Struct			
	WD 1 Alarm	144	1	3	Bit	0x1 (1)	-	Winding 1 Alarm RTD Temperature Protection
	WD 1 Timeout Alarm	144	1	3	Bit	0x2 (2)	-	Winding 1 Timeout Alarm
	WD 1 Trip (*)	144	1	3	Bit	0x4 (3)	-	Winding 1 Signal: Trip
	WD 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)
	WD 2 Alarm	144	1	3	Bit	0x10 (5)	-	Winding 2 Alarm RTD Temperature Protection
	WD 2 Timeout Alarm	144	1	3	Bit	0x20 (6)	-	Winding 2 Timeout Alarm
	WD 2 Trip (*)	144	1	3	Bit	0x40 (7)	-	Winding 2 Signal: Trip
	WD 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)

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	WD 3 Alarm	144	1	3	Bit	0x100 (9)	-	Winding 3 Alarm RTD Temperature Protection
	WD 3 Timeout Alarm	144	1	3	Bit	0x200 (10)	-	Winding 3 Timeout Alarm
	WD 3 Trip (*)	144	1	3	Bit	0x400 (11)	-	Winding 3 Signal: Trip
	WD 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)
	WD 4 Alarm	144	1	3	Bit	0x1000 (13)	-	Winding 4 Alarm RTD Temperature Protection
	WD 4 Timeout Alarm	144	1	3	Bit	0x2000 (14)	-	Winding 4 Timeout Alarm
	WD 4 Trip (*)	144	1	3	Bit	0x4000 (15)	-	Winding 4 Signal: Trip
	WD 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)
RTD		145	1	3	Struct			
	WD 5 Alarm	145	1	3	Bit	0x1 (1)	-	Winding 5 Alarm RTD Temperature Protection
	WD 5 Timeout Alarm	145	1	3	Bit	0x2 (2)	-	Winding 5 Timeout Alarm
	WD 5 Trip (*)	145	1	3	Bit	0x4 (3)	-	Winding 5 Signal: Trip

<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>
	WD 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)
	WD 6 Alarm	145	1	3	Bit	0x10 (5)	-	Winding 6 Alarm RTD Temperature Protection
	WD 6 Timeout Alarm	145	1	3	Bit	0x20 (6)	-	Winding 6 Timeout Alarm
	WD 6 Trip (*)	145	1	3	Bit	0x40 (7)	-	Winding 6 Signal: Trip
	WD 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)
	MB 1 Alarm	145	1	3	Bit	0x100 (9)	-	Motor Bearing 1 Alarm RTD Temperature Protection
	MB 1 Timeout Alarm	145	1	3	Bit	0x200 (10)	-	Motor Bearing 1 Timeout Alarm
	MB 1 Trip (*)	145	1	3	Bit	0x400 (11)	-	Motor Bearing 1 Signal: Trip
	MB 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)
	MB 2 Alarm	145	1	3	Bit	0x1000 (13)	-	Motor Bearing 2 Alarm RTD Temperature Protection

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	MB 2 Timeout Alarm	145	1	3	Bit	0x2000 (14)	-	Motor Bearing 2 Timeout Alarm
	MB 2 Trip (*)	145	1	3	Bit	0x4000 (15)	-	Motor Bearing 2 Signal: Trip
	MB 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			
	LB 1 Alarm	146	1	3	Bit	0x1 (1)	-	Load Bearing 1 Alarm RTD Temperature Protection
	LB 1 Timeout Alarm	146	1	3	Bit	0x2 (2)	-	Load Bearing 1 Timeout Alarm
	LB 1 Trip (*)	146	1	3	Bit	0x4 (3)	-	Load Bearing 1 Signal: Trip
	LB 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)
	LB 2 Alarm	146	1	3	Bit	0x10 (5)	-	Load Bearing 2 Alarm RTD Temperature Protection
	LB 2 Timeout Alarm	146	1	3	Bit	0x20 (6)	-	Load Bearing 2 Timeout Alarm
	LB 2 Trip (*)	146	1	3	Bit	0x40 (7)	-	Load Bearing 2 Signal: Trip

<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>
	LB 2 Invalid	146	1	3	Bit	0x80 (8)	-	Load Bearing 2 Signal: Invalid Temperature Measurement Value (e.g caused by a 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
	Aux1 Invalid	146	1	3	Bit	0x800 (12)	-	Auxiliary 1 Signal: Invalid Temperature Measurement Value (e.g caused by a defective or interrupted RTD Measurement)
	WD Group Invalid	146	1	3	Bit	0x1000 (13)	-	Winding Group Signal: Invalid Temperature Measurement Value (e.g caused by a defective or interrupted RTD Measurement)
	MB Group Invalid	146	1	3	Bit	0x2000 (14)	-	Motor Bearing Group Signal: Invalid Temperature Measurement Value (e.g caused by a defective or interrupted RTD Measurement)
	Timeout Alarm (*)	146	1	3	Bit	0x4000 (15)	-	Alarm timeout expired
RTD		147	1	3	Struct			

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	LB 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
	TimeoutAlarmLBGrp	147	1	3	Bit	0x4 (3)	-	Timeout Alarm all Load Bearings
	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
	TimeoutAlarmMBGrp	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
	TimeoutAlarmWDGrp	147	1	3	Bit	0x100 (9)	-	Timeout Alarm all Windings
	Trip WD Group (*)	147	1	3	Bit	0x200 (10)	-	Trip all Windings
	Voting Trip Grp 1 (*)	147	1	3	Bit	0x2000 (14)	-	Voting Trip Group 1
	Voting Trip Grp 2 (*)	147	1	3	Bit	0x4000 (15)	-	Voting Trip Group 2
IRIG-B		148	1	3	Struct			

<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>
	IRIG-B active	148	1	3	Bit	0x1 (1)	-	Signal: If there is no valid IRIG-B signal for 60 sec, IRIG-B is regarded as inactive.
	High-Low Invert	148	1	3	Bit	0x2 (2)	-	Signal: The High and Low signals of the IRIG-B are inverted. This does NOT mean that the wiring is faulty. If the wiring is faulty no IRIG-B signal will be detected.
	Control Signal1	148	1	3	Bit	0x4 (3)	-	Signal: IRIG-B Control Signal. The external IRIG-B generator can set these signals. They can be used for further control procedures inside the device (e.g. logic funtions).
	Control Signal2	148	1	3	Bit	0x8 (4)	-	Signal: IRIG-B Control Signal. The external IRIG-B generator can set these signals. They can be used for further control procedures inside the device (e.g. logic funtions).
	Control Signal3	148	1	3	Bit	0x10 (5)	-	Signal: IRIG-B Control Signal. The external IRIG-B generator can set these signals. They can be used for further control procedures inside the device (e.g. logic funtions).
	Control Signal4	148	1	3	Bit	0x20 (6)	-	Signal: IRIG-B Control Signal. The external IRIG-B generator can set these signals. They can be used for further control procedures inside the device (e.g. logic funtions).

<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>
	Control Signal5	148	1	3	Bit	0x40 (7)	-	Signal: IRIG-B Control Signal. The external IRIG-B generator can set these signals. They can be used for further control procedures inside the device (e.g. logic funtions).
	Control Signal6	148	1	3	Bit	0x80 (8)	-	Signal: IRIG-B Control Signal. The external IRIG-B generator can set these signals. They can be used for further control procedures inside the device (e.g. logic funtions).
	Control Signal7	148	1	3	Bit	0x100 (9)	-	Signal: IRIG-B Control Signal. The external IRIG-B generator can set these signals. They can be used for further control procedures inside the device (e.g. logic funtions).
	Control Signal8	148	1	3	Bit	0x200 (10)	-	Signal: IRIG-B Control Signal. The external IRIG-B generator can set these signals. They can be used for further control procedures inside the device (e.g. logic funtions).
	Control Signal9	148	1	3	Bit	0x400 (11)	-	Signal: IRIG-B Control Signal. The external IRIG-B generator can set these signals. They can be used for further control procedures inside the device (e.g. logic funtions).

<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>
	Control Signal10	148	1	3	Bit	0x800 (12)	-	Signal: IRIG-B Control Signal. The external IRIG-B generator can set these signals. They can be used for further control procedures inside the device (e.g. logic funtions).
	Control Signal11	148	1	3	Bit	0x1000 (13)	-	Signal: IRIG-B Control Signal. The external IRIG-B generator can set these signals. They can be used for further control procedures inside the device (e.g. logic funtions).
	Control Signal12	148	1	3	Bit	0x2000 (14)	-	Signal: IRIG-B Control Signal. The external IRIG-B generator can set these signals. They can be used for further control procedures inside the device (e.g. logic funtions).
	Control Signal13	148	1	3	Bit	0x4000 (15)	-	Signal: IRIG-B Control Signal. The external IRIG-B generator can set these signals. They can be used for further control procedures inside the device (e.g. logic funtions).
	Control Signal14	148	1	3	Bit	0x8000 (16)	-	Signal: IRIG-B Control Signal. The external IRIG-B generator can set these signals. They can be used for further control procedures inside the device (e.g. logic funtions).
IRIG-B		149	1	3	Struct			

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	Control Signal15	149	1	3	Bit	0x1 (1)	-	Signal: IRIG-B Control Signal. The external IRIG-B generator can set these signals. They can be used for further control procedures inside the device (e.g. logic funtions).
	Control Signal16	149	1	3	Bit	0x2 (2)	-	Signal: IRIG-B Control Signal. The external IRIG-B generator can set these signals. They can be used for further control procedures inside the device (e.g. logic funtions).
	Control Signal17	149	1	3	Bit	0x4 (3)	-	Signal: IRIG-B Control Signal. The external IRIG-B generator can set these signals. They can be used for further control procedures inside the device (e.g. logic funtions).
	Control Signal18	149	1	3	Bit	0x8 (4)	-	Signal: IRIG-B Control Signal. The external IRIG-B generator can set these signals. They can be used for further control procedures inside the device (e.g. logic funtions).
TCM		150	1	3	Struct			
	ExBlo1-I	150	1	3	Bit	0x1 (1)	-	Module Input State: External Blocking1
	ExBlo2-I	150	1	3	Bit	0x2 (2)	-	Module Input State: External Blocking2
	Active	150	1	3	Bit	0x4 (3)	-	Signal: Active

<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>
	ExBlo	150	1	3	Bit	0x8 (4)	-	Signal: External Blocking
	Pickup	150	1	3	Bit	0x10 (5)	-	Signal: Pickup Trip Circuit Supervision
	Not Possible	150	1	3	Bit	0x20 (6)	-	Not possible because no state indicator assigned to the breaker.
	CinBkr-52a-l	150	1	3	Bit	0x100 (9)	-	Module Input State: Feedback signal of the Bkr (52a)
	CinBkr-52b-l	150	1	3	Bit	0x200 (10)	-	Module Input State: Feedback signal of the Bkr. (52b)
Sys		154	1	3	Struct			
	Maint Mode Active	154	1	3	Bit	0x1 (1)	-	Signal: Arc Flash Reduction Maintenance Active
	Maint Mode Manually	154	1	3	Bit	0x2 (2)	-	Signal: Arc Flash Reduction Maintenance Manual Mode
	Maint Mode DI	154	1	3	Bit	0x4 (3)	-	Signal: Arc Flash Reduction Maintenance Digital Input Mode
	Maint Mode Comm	154	1	3	Bit	0x8 (4)	-	Signal: Arc Flash Reduction Maintenance Comm Mode
	Maint Mode Inactive	154	1	3	Bit	0x10 (5)	-	Signal: Arc Flash Reduction Maintenance Inactive
	Maint Mode-l	154	1	3	Bit	0x20 (6)	-	Module Input State: Arc Flash Reduction Maintenance Switch

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	SNTP active	154	1	3	Bit	0x80 (8)	-	Signal: If there is no valid SNTP signal for 120 sec, SNTP is regarded as inactive.
	Program Mode Bypass	154	1	3	Bit	0x100 (9)	-	Signal: Short-period bypass of the Program Mode.
RO-ZI X2		155	1	3	Struct			
	DISARME D!	155	1	3	Bit	0x1 (1)	-	Signal: CAUTION! RELAYS DISARMED in order to safely perform maintenance while eliminating the risk of taking an entire process off-line. (Note: Zone Interlocking and Supervision Contact cannot be disarmed). YOU MUST ENSURE that the relays are ARMED AGAIN after maintenance
	Outs forced	155	1	3	Bit	0x2 (2)	-	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.
	ZI OUT	155	1	3	Bit	0x4 (3)	-	Signal: Zone Interlocking OUT
	RO 1	155	1	3	Bit	0x8 (4)	-	Signal: Relay Output
	RO 2	155	1	3	Bit	0x10 (5)	-	Signal: Relay Output
	RO 3	155	1	3	Bit	0x20 (6)	-	Signal: Relay Output

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
MStart		160	1	3	Struct			
	ExBlo TripCmd-I	160	1	3	Bit	0x4 (3)	-	Module Input State: External Blocking of the Trip Command
	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
	ThermalBlock	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			
	RemStart Block-I	161	1	3	Bit	0x2 (2)	-	State of the module input: Remote Motor Start Blocking
	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

<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>
	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
	TripPhase Reverse (*)	161	1	3	Bit	0x8000 (16)	-	Signal: Relay tripped because of phase reverse detection
MStart		162	1	3	Struct			
	NOCSBlocked	162	1	3	Bit	0x1 (1)	-	Signal: Motor is prohibited to start due to number of cold start limits
	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
	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

<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>
	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
	Transition Trip (*)	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)
	ABKActive	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.
	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

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	GOCStartBlock	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
	IOCStartBlock	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			
	JamStartBlock	163	1	3	Bit	0x1 (1)	-	Signal: JAM Start Delay. JAM(Instantaneous Overcurrent) elements are blocked for the time programmed under this parameter
	ULoadStartBlock	163	1	3	Bit	0x2 (2)	-	Signal: Underload Start Delay. Underload(Instantaneous Overcurrent) elements are blocked for the time programmed under this parameter
	UnbalStartBlock	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
	MotorStopBlock	163	1	3	Bit	0x20 (6)	-	Signal: Motor stop block other protection functions

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	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
	I_Transit	163	1	3	Bit	0x800 (12)	-	Signal: Current transition signal
	T_Transit	163	1	3	Bit	0x1000 (13)	-	Signal: Time transition signal
	RFD_IA_N ormal	163	1	3	Bit	0x2000 (14)	-	Signal: System IA RotaryFieldDetection Normal
	RFD_IA_R everse	163	1	3	Bit	0x4000 (15)	-	Signal: System IA RotaryFieldDetection 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).
49		164	1	3	Struct			
	ExBlo1	164	1	3	Bit	0x1 (1)	-	Module Input State: External Blocking

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	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
	Pickup	164	1	3	Bit	0x80 (8)	-	Signal: Pickup
	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
50J[1]		165	1	3	Struct			

<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>
	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
	Pickup	165	1	3	Bit	0x200 (10)	-	Signal: Pickup
	Trip (*)	165	1	3	Bit	0x400 (11)	-	Signal: Trip
	TripCmd (*)	165	1	3	Bit	0x800 (12)	-	Signal: Trip Command
50J[2]		166	1	3	Struct			
	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

<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>
	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
	Pickup	166	1	3	Bit	0x200 (10)	-	Signal: Pickup
	Trip (*)	166	1	3	Bit	0x400 (11)	-	Signal: Trip
	TripCmd (*)	166	1	3	Bit	0x800 (12)	-	Signal: Trip Command
37[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

<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>
	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
	Pickup	167	1	3	Bit	0x200 (10)	-	Signal: Pickup
	Trip (*)	167	1	3	Bit	0x400 (11)	-	Signal: Trip
	TripCmd (*)	167	1	3	Bit	0x800 (12)	-	Signal: Trip Command
37[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

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	Pickup	168	1	3	Bit	0x200 (10)	-	Signal: Pickup
	Trip (*)	168	1	3	Bit	0x400 (11)	-	Signal: Trip
	TripCmd (*)	168	1	3	Bit	0x800 (12)	-	Signal: Trip Command
37[3]		169	1	3	Struct			
	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
	Pickup	169	1	3	Bit	0x200 (10)	-	Signal: Pickup
	Trip (*)	169	1	3	Bit	0x400 (11)	-	Signal: Trip
	TripCmd (*)	169	1	3	Bit	0x800 (12)	-	Signal: Trip Command

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
MLS		170	1	3	Struct			
	ExBlo1-I	170	1	3	Bit	0x1 (1)	-	Module Input State: External Blocking1
	ExBlo2-I	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
	Pickup	170	1	3	Bit	0x10 (5)	-	Signal: Pickup
	Trip	170	1	3	Bit	0x20 (6)	-	Signal: Trip
Wired Inputs		172	1	3	Struct			
	Bkr Trouble-I	172	1	3	Bit	0x1 (1)	-	Breaker Trouble
SysA		173	1	3	Struct			
	ExBlo-I	173	1	3	Bit	0x1 (1)	-	Module Input State: External Blocking
	ExBlo	173	1	3	Bit	0x2 (2)	-	Signal: External Blocking
	Alm Current Demd	173	1	3	Bit	0x4 (3)	-	Signal: Alarm Current demand value
	Active	173	1	3	Bit	0x8 (4)	-	Signal: Active
	Alarm I THD	173	1	3	Bit	0x10 (5)	-	Signal: Alarm Total Harmonic Distortion Current

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	Trip Current Demand (*)	173	1	3	Bit	0x1000 (13)	-	Signal: Trip Current demand value
	Trip I THD (*)	173	1	3	Bit	0x2000 (14)	-	Signal: Trip Total Harmonic Distortion Current
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
	SG Disturb	176	1	3	Bit	0x8 (4)	-	Minimum one Switchgear is disturbed.
	SG Indeterm	176	1	3	Bit	0x10 (5)	-	Minimum one Switchgear is moving (Position cannot be determined).
Bkr		177	1	3	Struct			
	CinBkr-52b-I	177	1	3	Bit	0x1 (1)	-	Module Input State: Feedback signal of the Bkr. (52b)
	CinBkr-52a-I	177	1	3	Bit	0x2 (2)	-	Module Input State: Feedback signal of the Bkr (52a)
	Ready-I	177	1	3	Bit	0x4 (3)	-	Module Input State: Breaker Ready
	Interl OPEN1-I	177	1	3	Bit	0x10 (5)	-	State of the module input: Interlocking of the OPEN command
	Interl OPEN2-I	177	1	3	Bit	0x20 (6)	-	State of the module input: Interlocking of the OPEN command

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	Interl OPEN3-I	177	1	3	Bit	0x40 (7)	-	State of the module input: Interlocking of the OPEN command
	Interl CLOSE1-I	177	1	3	Bit	0x80 (8)	-	State of the module input: Interlocking of the CLOSE command
	Interl CLOSE2-I	177	1	3	Bit	0x100 (9)	-	State of the module input: Interlocking of the CLOSE command
	Interl CLOSE3-I	177	1	3	Bit	0x200 (10)	-	State of the module input: Interlocking of the CLOSE command
	SC OPEN-I	177	1	3	Bit	0x800 (12)	-	State of the module input: Switching OPEN Command, e.g. the state of the Logics or the state of the digital input
	SC CLOSE-I	177	1	3	Bit	0x1000 (13)	-	State of the module input: Switching CLOSE 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
	OPEN Cmd	177	1	3	Bit	0x4000 (15)	-	Signal: OPEN command issued to the switchgear. Depending on the setting the signal may include the OPEN command of the Prot module.
	OPEN Cmd manual	177	1	3	Bit	0x8000 (16)	-	Signal: OPEN Cmd manual
Bkr		178	1	3	Struct			

<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>
	CLOSE Cmd	178	1	3	Bit	0x1 (1)	-	Signal: CLOSE command issued to the switchgear. Depending on the setting the signal may include the CLOSE command of the Prot module.
	CLOSE Cmd manual	178	1	3	Bit	0x2 (2)	-	Signal: CLOSE Cmd manual
	Bwear Slow Breaker	178	1	3	Bit	0x8 (4)	-	Signal: Slow Breaker Alarm
	Res Bwear SI Breaker	178	1	3	Bit	0x10 (5)	-	Signal: Resetting the slow breaker alarm
	CES Disturbed	178	1	3	Bit	0x40 (7)	-	Signal: Command Execution Supervision: Switching Command unsuccessful. Switchgear in disturbed position.
	CES Field Interl	178	1	3	Bit	0x80 (8)	-	Signal: Command Execution Supervision: Switching Command not executed because of field interlocking.
	CES CLOSE d OPEN	178	1	3	Bit	0x400 (11)	-	Signal: Command Execution Supervision: CLOSE Command during a pending OPEN Command.

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	CES SwitchgDir	178	1	3	Bit	0x800 (12)	-	Signal: Command Execution Supervision respectively Switching Direction Control: This signal becomes true, if a switch command is issued even though the switchgear is already in the requested position. Example: A switchgear that is already OPEN should be switched OPEN again (doubly). The same applies to CLOSE commands.
	CES SG not ready	178	1	3	Bit	0x1000 (13)	-	Signal: Command Execution Supervision: Switchgear not ready
	CES succesf	178	1	3	Bit	0x4000 (15)	-	Signal: Command Execution Supervision: Switching command executed successfully.
Bkr		179	1	3	Struct			
	Pos Disturb	179	1	3	Bit	0x1 (1)	-	Signal: Breaker Disturbed - Undefined Breaker Position. The feed-back signals (Position Indicators) contradict themselves. After expiring of a supervision timer this signal becomes true.
	Pos Indeterm	179	1	3	Bit	0x4 (3)	-	Signal: Breaker is in Indeterminate Position
	Pos OPEN	179	1	3	Bit	0x8 (4)	-	Signal: Breaker is in OPEN-Position
	Pos CLOSE	179	1	3	Bit	0x10 (5)	-	Signal: Breaker is in CLOSE-Position

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	Ready	179	1	3	Bit	0x20 (6)	-	Signal: Breaker is ready for operation.
	Pos not CLOSE	179	1	3	Bit	0x40 (7)	-	Signal: Pos not CLOSE
	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)	-	Signal: Command Execution Supervision: Command execution failed because trip command is pending.
	Interl OPEN	179	1	3	Bit	0x1000 (13)	-	Signal: One or more IL_Open inputs are active.
	Interl CLOSE	179	1	3	Bit	0x2000 (14)	-	Signal: One or more IL_Close inputs are active.
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
	TimeoutAlarmAnyGrp	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

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	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
	TimeoutAlarmAuxGrp	205	1	3	Bit	0x200 (10)	-	Timeout Alarm Auxiliary Group
	Trip Aux Group (*)	205	1	3	Bit	0x400 (11)	-	Trip Auxiliary Group
Wired Inputs		216	1	3	Struct			
	ExtPer1-I	216	1	3	Bit	0x1 (1)	-	State of the module input: External Permissive1
	ExtPer2-I	216	1	3	Bit	0x2 (2)	-	State of the module input: External Permissive2
	ExtTrip1-I	216	1	3	Bit	0x4 (3)	-	State of the module input: External Trip1
	ExtTrip-I2	216	1	3	Bit	0x8 (4)	-	State of the module input: External Trip2
	Forward-I	216	1	3	Bit	0x10 (5)	-	State of the module input: Forward
	GrpSetSelect-I	216	1	3	Bit	0x20 (6)	-	State of the module input: Group Setting Select

<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>
	Jog Forward-I	216	1	3	Bit	0x40 (7)	-	State of the module input: JogFow
	Jog reverse-I	216	1	3	Bit	0x80 (8)	-	State of the module input: JogRev
	Local-I	216	1	3	Bit	0x100 (9)	-	State of the module input: Local (Remote)
	MainCont-I	216	1	3	Bit	0x200 (10)	-	State of the module input: Main Contactor
	RunCont-I	216	1	3	Bit	0x400 (11)	-	State of the module input: Running Contactor (inc sequence)
	Reverse-I	216	1	3	Bit	0x800 (12)	-	State of the module input: Reverse
	StartCont-I	216	1	3	Bit	0x1000 (13)	-	State of the module input: Starting Contactor
	speed1-I	216	1	3	Bit	0x2000 (14)	-	State of the module input: Speed1
	Start-I	216	1	3	Bit	0x4000 (15)	-	State of the module input: Start
	Stop-I	216	1	3	Bit	0x8000 (16)	-	State of the module input: Stop
Remote Trip		222	1	3	Struct			
	Alarm-I	222	1	3	Bit	0x1 (1)	-	Module Input State: Alarm
	ExBlo1-I	222	1	3	Bit	0x2 (2)	-	Module Input State: External Blocking1
	ExBlo2-I	222	1	3	Bit	0x4 (3)	-	Module Input State: External Blocking2

<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>
	ExBlo TripCmd-I	222	1	3	Bit	0x8 (4)	-	Module Input State: External Blocking of the Trip Command
	Trip-I (*)	222	1	3	Bit	0x10 (5)	-	Module Input State: Trip
	Alarm	222	1	3	Bit	0x20 (6)	-	Signal: Alarm
	Active	222	1	3	Bit	0x40 (7)	-	Signal: Active
	ExBlo	222	1	3	Bit	0x80 (8)	-	Signal: External Blocking
	Trip (*)	222	1	3	Bit	0x100 (9)	-	Signal: Trip
	Blo TripCmd	222	1	3	Bit	0x200 (10)	-	Signal: Trip Command blocked
	ExBlo TripCmd	222	1	3	Bit	0x400 (11)	-	Signal: External Blocking of the Trip Command
	TripCmd (*)	222	1	3	Bit	0x800 (12)	-	Signal: Trip Command
Ex87		223	1	3	Struct			
	Alarm-I	223	1	3	Bit	0x1 (1)	-	Module Input State: Alarm
	ExBlo1-I	223	1	3	Bit	0x2 (2)	-	Module Input State: External Blocking1
	ExBlo2-I	223	1	3	Bit	0x4 (3)	-	Module Input State: External Blocking2

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	ExBlo TripCmd-I	223	1	3	Bit	0x8 (4)	-	Module Input State: External Blocking of the Trip Command
	Trip-I (*)	223	1	3	Bit	0x10 (5)	-	Module Input State: Trip
	Alarm	223	1	3	Bit	0x20 (6)	-	Signal: Alarm
	Active	223	1	3	Bit	0x40 (7)	-	Signal: Active
	ExBlo	223	1	3	Bit	0x80 (8)	-	Signal: External Blocking
	Trip (*)	223	1	3	Bit	0x100 (9)	-	Signal: Trip
	Blo TripCmd	223	1	3	Bit	0x200 (10)	-	Signal: Trip Command blocked
	ExBlo TripCmd	223	1	3	Bit	0x400 (11)	-	Signal: External Blocking of the Trip Command
	TripCmd (*)	223	1	3	Bit	0x800 (12)	-	Signal: Trip Command
/SG1		256	1	3	Struct			
	CES SG removed	256	1	3	Bit	0x2 (2)	-	Signal: Command Execution Supervision: Switching Command unsuccessful, Switchgear removed.
SSV		273	1	3	Struct			
	System Error	273	1	3	Bit	0x1 (1)	-	Signal: Device Failure
DI Slot X1		1000	1	3	Struct			

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	DI 1	1000	1	3	Bit	0x10 (5)	-	Signal: Digital Input
	DI 2	1000	1	3	Bit	0x20 (6)	-	Signal: Digital Input
	DI 3	1000	1	3	Bit	0x40 (7)	-	Signal: Digital Input
	DI 4	1000	1	3	Bit	0x80 (8)	-	Signal: Digital Input
RO-3AI X2		1003	1	3	Struct			
	RO 1	1003	1	3	Bit	0x4 (3)	-	Signal: Relay Output
	RO 2	1003	1	3	Bit	0x8 (4)	-	Signal: Relay Output
	RO 3	1003	1	3	Bit	0x10 (5)	-	Signal: Relay Output
	DISARME D!	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: Zone Interlocking and Supervision Contact cannot be disarmed). YOU MUST ENSURE that the relays are ARMED AGAIN after maintenance

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	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.
Modbus		1005	1	3	Struct			
	Comm Cmd 1	1005	1	3	Bit	0x1 (1)	-	Communication Command
	Comm Cmd 2	1005	1	3	Bit	0x2 (2)	-	Communication Command
	Comm Cmd 3	1005	1	3	Bit	0x4 (3)	-	Communication Command
	Comm Cmd 4	1005	1	3	Bit	0x8 (4)	-	Communication Command
	Comm Cmd 5	1005	1	3	Bit	0x10 (5)	-	Communication Command
	Comm Cmd 6	1005	1	3	Bit	0x20 (6)	-	Communication Command
	Comm Cmd 7	1005	1	3	Bit	0x40 (7)	-	Communication Command
	Comm Cmd 8	1005	1	3	Bit	0x80 (8)	-	Communication Command
	Comm Cmd 9	1005	1	3	Bit	0x100 (9)	-	Communication Command
	Comm Cmd 10	1005	1	3	Bit	0x200 (10)	-	Communication Command

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	Comm Cmd 11	1005	1	3	Bit	0x400 (11)	-	Communication Command
	Comm Cmd 12	1005	1	3	Bit	0x800 (12)	-	Communication Command
	Comm Cmd 13	1005	1	3	Bit	0x1000 (13)	-	Communication Command
	Comm Cmd 14	1005	1	3	Bit	0x2000 (14)	-	Communication Command
	Comm Cmd 15	1005	1	3	Bit	0x4000 (15)	-	Communication Command
	Comm Cmd 16	1005	1	3	Bit	0x8000 (16)	-	Communication Command
Modbus		1006	1	3	Struct			
	Transmission	1006	1	3	Bit	0x1 (1)	-	Signal: Communication Active
URTD		1007	1	3	Struct			
	WD1 Superv	1007	1	3	Bit	0x1 (1)	-	Signal: Supervision Channel WD1
	WD2 Superv	1007	1	3	Bit	0x2 (2)	-	Signal: Supervision Channel WD2
	WD3 Superv	1007	1	3	Bit	0x4 (3)	-	Signal: Supervision Channel WD3
	WD4 Superv	1007	1	3	Bit	0x8 (4)	-	Signal: Supervision Channel WD4
	WD5 Superv	1007	1	3	Bit	0x10 (5)	-	Signal: Supervision Channel WD5

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	WD6 Superv	1007	1	3	Bit	0x20 (6)	-	Signal: Supervision Channel WD6
	MB1 Superv	1007	1	3	Bit	0x40 (7)	-	Signal: Supervision Channel MB1
	MB2 Superv	1007	1	3	Bit	0x80 (8)	-	Signal: Supervision Channel MB2
	LB1 Superv	1007	1	3	Bit	0x100 (9)	-	Signal: Supervision Channel LB1
	LB2 Superv	1007	1	3	Bit	0x200 (10)	-	Signal: Supervision Channel LB2
	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
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

<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>
	Ex Start Simulation -I	1012	1	3	Bit	0x100 (9)	-	State of the module input: External Start of Fault Simulation (Using the test parameters)
Logic		1100	1	3	Struct			
	LE1.Gate Out	1100	1	3	Bit	0x1 (1)	-	Signal: Output of the logic gate
	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-I	1100	1	3	Bit	0x10 (5)	-	State of the module input: Assignment of the Input Signal
	LE1.Gate In2-I	1100	1	3	Bit	0x20 (6)	-	State of the module input: Assignment of the Input Signal
	LE1.Gate In3-I	1100	1	3	Bit	0x40 (7)	-	State of the module input: Assignment of the Input Signal
	LE1.Gate In4-I	1100	1	3	Bit	0x80 (8)	-	State of the module input: Assignment of the Input Signal
	LE1.Reset Latch-I	1100	1	3	Bit	0x100 (9)	-	State of the module input: Reset Signal for the Latching
Logic		1101	1	3	Struct			
	LE2.Gate Out	1101	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
	LE2.Timer Out	1101	1	3	Bit	0x2 (2)	-	Signal: Timer Output
	LE2.Out	1101	1	3	Bit	0x4 (3)	-	Signal: Latched Output (Q)
	LE2.Out inverted	1101	1	3	Bit	0x8 (4)	-	Signal: Negated Latched Output (Q NOT)
	LE2.Gate In1-I	1101	1	3	Bit	0x10 (5)	-	State of the module input: Assignment of the Input Signal
	LE2.Gate In2-I	1101	1	3	Bit	0x20 (6)	-	State of the module input: Assignment of the Input Signal
	LE2.Gate In3-I	1101	1	3	Bit	0x40 (7)	-	State of the module input: Assignment of the Input Signal
	LE2.Gate In4-I	1101	1	3	Bit	0x80 (8)	-	State of the module input: Assignment of the Input Signal
	LE2.Reset Latch-I	1101	1	3	Bit	0x100 (9)	-	State of the module input: Reset Signal for the Latching
Logic		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)

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	LE3.Gate In1-I	1102	1	3	Bit	0x10 (5)	-	State of the module input: Assignment of the Input Signal
	LE3.Gate In2-I	1102	1	3	Bit	0x20 (6)	-	State of the module input: Assignment of the Input Signal
	LE3.Gate In3-I	1102	1	3	Bit	0x40 (7)	-	State of the module input: Assignment of the Input Signal
	LE3.Gate In4-I	1102	1	3	Bit	0x80 (8)	-	State of the module input: Assignment of the Input Signal
	LE3.Reset Latch-I	1102	1	3	Bit	0x100 (9)	-	State of the module input: Reset Signal for the Latching
Logic		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-I	1103	1	3	Bit	0x10 (5)	-	State of the module input: Assignment of the Input Signal
	LE4.Gate In2-I	1103	1	3	Bit	0x20 (6)	-	State of the module input: Assignment of the Input Signal
	LE4.Gate In3-I	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-I	1103	1	3	Bit	0x80 (8)	-	State of the module input: Assignment of the Input Signal
	LE4.Reset Latch-I	1103	1	3	Bit	0x100 (9)	-	State of the module input: Reset Signal for the Latching
Logic		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-I	1104	1	3	Bit	0x10 (5)	-	State of the module input: Assignment of the Input Signal
	LE5.Gate In2-I	1104	1	3	Bit	0x20 (6)	-	State of the module input: Assignment of the Input Signal
	LE5.Gate In3-I	1104	1	3	Bit	0x40 (7)	-	State of the module input: Assignment of the Input Signal
	LE5.Gate In4-I	1104	1	3	Bit	0x80 (8)	-	State of the module input: Assignment of the Input Signal
	LE5.Reset Latch-I	1104	1	3	Bit	0x100 (9)	-	State of the module input: Reset Signal for the Latching
Logic		1105	1	3	Struct			

<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>
	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-I	1105	1	3	Bit	0x10 (5)	-	State of the module input: Assignment of the Input Signal
	LE6.Gate In2-I	1105	1	3	Bit	0x20 (6)	-	State of the module input: Assignment of the Input Signal
	LE6.Gate In3-I	1105	1	3	Bit	0x40 (7)	-	State of the module input: Assignment of the Input Signal
	LE6.Gate In4-I	1105	1	3	Bit	0x80 (8)	-	State of the module input: Assignment of the Input Signal
	LE6.Reset Latch-I	1105	1	3	Bit	0x100 (9)	-	State of the module input: Reset Signal for the Latching
Logic		1106	1	3	Struct			
	LE7.Gate Out	1106	1	3	Bit	0x1 (1)	-	Signal: Output of the logic gate
	LE7.Timer Out	1106	1	3	Bit	0x2 (2)	-	Signal: Timer Output
	LE7.Out	1106	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
	LE7.Out inverted	1106	1	3	Bit	0x8 (4)	-	Signal: Negated Latched Output (Q NOT)
	LE7.Gate In1-I	1106	1	3	Bit	0x10 (5)	-	State of the module input: Assignment of the Input Signal
	LE7.Gate In2-I	1106	1	3	Bit	0x20 (6)	-	State of the module input: Assignment of the Input Signal
	LE7.Gate In3-I	1106	1	3	Bit	0x40 (7)	-	State of the module input: Assignment of the Input Signal
	LE7.Gate In4-I	1106	1	3	Bit	0x80 (8)	-	State of the module input: Assignment of the Input Signal
	LE7.Reset Latch-I	1106	1	3	Bit	0x100 (9)	-	State of the module input: Reset Signal for the Latching
Logic		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)
	LE8.Out inverted	1107	1	3	Bit	0x8 (4)	-	Signal: Negated Latched Output (Q NOT)
	LE8.Gate In1-I	1107	1	3	Bit	0x10 (5)	-	State of the module input: Assignment of the Input Signal
	LE8.Gate In2-I	1107	1	3	Bit	0x20 (6)	-	State of the module input: Assignment of the Input Signal

<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>
	LE8.Gate In3-I	1107	1	3	Bit	0x40 (7)	-	State of the module input: Assignment of the Input Signal
	LE8.Gate In4-I	1107	1	3	Bit	0x80 (8)	-	State of the module input: Assignment of the Input Signal
	LE8.Reset Latch-I	1107	1	3	Bit	0x100 (9)	-	State of the module input: Reset Signal for the Latching
Logic		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-I	1108	1	3	Bit	0x10 (5)	-	State of the module input: Assignment of the Input Signal
	LE9.Gate In2-I	1108	1	3	Bit	0x20 (6)	-	State of the module input: Assignment of the Input Signal
	LE9.Gate In3-I	1108	1	3	Bit	0x40 (7)	-	State of the module input: Assignment of the Input Signal
	LE9.Gate In4-I	1108	1	3	Bit	0x80 (8)	-	State of the module input: Assignment of the Input Signal
	LE9.Reset Latch-I	1108	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
Logic		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-I	1109	1	3	Bit	0x10 (5)	-	State of the module input: Assignment of the Input Signal
	LE10.Gate In2-I	1109	1	3	Bit	0x20 (6)	-	State of the module input: Assignment of the Input Signal
	LE10.Gate In3-I	1109	1	3	Bit	0x40 (7)	-	State of the module input: Assignment of the Input Signal
	LE10.Gate In4-I	1109	1	3	Bit	0x80 (8)	-	State of the module input: Assignment of the Input Signal
	LE10.Reset Latch-I	1109	1	3	Bit	0x100 (9)	-	State of the module input: Reset Signal for the Latching
Logic		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)

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
	LE11.Out inverted	1110	1	3	Bit	0x8 (4)	-	Signal: Negated Latched Output (Q NOT)
	LE11.Gate In1-I	1110	1	3	Bit	0x10 (5)	-	State of the module input: Assignment of the Input Signal
	LE11.Gate In2-I	1110	1	3	Bit	0x20 (6)	-	State of the module input: Assignment of the Input Signal
	LE11.Gate In3-I	1110	1	3	Bit	0x40 (7)	-	State of the module input: Assignment of the Input Signal
	LE11.Gate In4-I	1110	1	3	Bit	0x80 (8)	-	State of the module input: Assignment of the Input Signal
	LE11.Reset Latch-I	1110	1	3	Bit	0x100 (9)	-	State of the module input: Reset Signal for the Latching
Logic		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-I	1111	1	3	Bit	0x10 (5)	-	State of the module input: Assignment of the Input Signal
	LE12.Gate In2-I	1111	1	3	Bit	0x20 (6)	-	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
	LE12.Gate In3-I	1111	1	3	Bit	0x40 (7)	-	State of the module input: Assignment of the Input Signal
	LE12.Gate In4-I	1111	1	3	Bit	0x80 (8)	-	State of the module input: Assignment of the Input Signal
	LE12.Reset Latch-I	1111	1	3	Bit	0x100 (9)	-	State of the module input: Reset Signal for the Latching
Logic		1112	1	3	Struct			
	LE13.Gate Out	1112	1	3	Bit	0x1 (1)	-	Signal: Output of the logic gate
	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-I	1112	1	3	Bit	0x10 (5)	-	State of the module input: Assignment of the Input Signal
	LE13.Gate In2-I	1112	1	3	Bit	0x20 (6)	-	State of the module input: Assignment of the Input Signal
	LE13.Gate In3-I	1112	1	3	Bit	0x40 (7)	-	State of the module input: Assignment of the Input Signal
	LE13.Gate In4-I	1112	1	3	Bit	0x80 (8)	-	State of the module input: Assignment of the Input Signal
	LE13.Reset Latch-I	1112	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
Logic		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)
	LE14.Out inverted	1113	1	3	Bit	0x8 (4)	-	Signal: Negated Latched Output (Q NOT)
	LE14.Gate In1-I	1113	1	3	Bit	0x10 (5)	-	State of the module input: Assignment of the Input Signal
	LE14.Gate In2-I	1113	1	3	Bit	0x20 (6)	-	State of the module input: Assignment of the Input Signal
	LE14.Gate In3-I	1113	1	3	Bit	0x40 (7)	-	State of the module input: Assignment of the Input Signal
	LE14.Gate In4-I	1113	1	3	Bit	0x80 (8)	-	State of the module input: Assignment of the Input Signal
	LE14.Reset Latch-I	1113	1	3	Bit	0x100 (9)	-	State of the module input: Reset Signal for the Latching
Logic		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)

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

<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>
	LE16.Gate In3-I	1115	1	3	Bit	0x40 (7)	-	State of the module input: Assignment of the Input Signal
	LE16.Gate In4-I	1115	1	3	Bit	0x80 (8)	-	State of the module input: Assignment of the Input Signal
	LE16.Reset Latch-I	1115	1	3	Bit	0x100 (9)	-	State of the module input: Reset Signal for the Latching
Logic		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-I	1116	1	3	Bit	0x10 (5)	-	State of the module input: Assignment of the Input Signal
	LE17.Gate In2-I	1116	1	3	Bit	0x20 (6)	-	State of the module input: Assignment of the Input Signal
	LE17.Gate In3-I	1116	1	3	Bit	0x40 (7)	-	State of the module input: Assignment of the Input Signal
	LE17.Gate In4-I	1116	1	3	Bit	0x80 (8)	-	State of the module input: Assignment of the Input Signal
	LE17.Reset Latch-I	1116	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
Logic		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-I	1117	1	3	Bit	0x10 (5)	-	State of the module input: Assignment of the Input Signal
	LE18.Gate In2-I	1117	1	3	Bit	0x20 (6)	-	State of the module input: Assignment of the Input Signal
	LE18.Gate In3-I	1117	1	3	Bit	0x40 (7)	-	State of the module input: Assignment of the Input Signal
	LE18.Gate In4-I	1117	1	3	Bit	0x80 (8)	-	State of the module input: Assignment of the Input Signal
	LE18.Reset Latch-I	1117	1	3	Bit	0x100 (9)	-	State of the module input: Reset Signal for the Latching
Logic		1118	1	3	Struct			
	LE19.Gate Out	1118	1	3	Bit	0x1 (1)	-	Signal: Output of the logic gate
	LE19.Timer Out	1118	1	3	Bit	0x2 (2)	-	Signal: Timer Output
	LE19.Out	1118	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
	LE19.Out inverted	1118	1	3	Bit	0x8 (4)	-	Signal: Negated Latched Output (Q NOT)
	LE19.Gate In1-I	1118	1	3	Bit	0x10 (5)	-	State of the module input: Assignment of the Input Signal
	LE19.Gate In2-I	1118	1	3	Bit	0x20 (6)	-	State of the module input: Assignment of the Input Signal
	LE19.Gate In3-I	1118	1	3	Bit	0x40 (7)	-	State of the module input: Assignment of the Input Signal
	LE19.Gate In4-I	1118	1	3	Bit	0x80 (8)	-	State of the module input: Assignment of the Input Signal
	LE19.Reset Latch-I	1118	1	3	Bit	0x100 (9)	-	State of the module input: Reset Signal for the Latching
Logic		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)
	LE20.Out inverted	1119	1	3	Bit	0x8 (4)	-	Signal: Negated Latched Output (Q NOT)
	LE20.Gate In1-I	1119	1	3	Bit	0x10 (5)	-	State of the module input: Assignment of the Input Signal
	LE20.Gate In2-I	1119	1	3	Bit	0x20 (6)	-	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
	LE20.Gate In3-I	1119	1	3	Bit	0x40 (7)	-	State of the module input: Assignment of the Input Signal
	LE20.Gate In4-I	1119	1	3	Bit	0x80 (8)	-	State of the module input: Assignment of the Input Signal
	LE20.Reset Latch-I	1119	1	3	Bit	0x100 (9)	-	State of the module input: Reset Signal for the Latching
Fast Status Register		5000	1	3	Struct			
	Device Type	5000	1	3	Bit	0xffff (1)	-	Device Type: Eaton: EDR-3000 - 2 EDR-5000 - 3 EMR-3000 - 4 EMR-4000 - 5 EMR-5000 - 6 ETR-4000 - 8 ETR-5000 - 9 EGR-5000 - 12
Fast Status Register		5001	1	3	Struct			
	Comm Version	5001	1	3	Bit	0xffff (1)	-	Modbus Communication version. This version number changes if something becomes incompatible between different Modbus releases.
Fast Status Register		5002	1	3	Struct			
	Config Bin Inp1-I	5002	1	3	Bit	0x1 (1)	-	State of the module input: Config Bin Inp
	Config Bin Inp2-I	5002	1	3	Bit	0x2 (2)	-	State of the module input: Config Bin Inp

<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>
	Config Bin Inp3-l	5002	1	3	Bit	0x4 (3)	-	State of the module input: Config Bin Inp
	Config Bin Inp4-l	5002	1	3	Bit	0x8 (4)	-	State of the module input: Config Bin Inp
	Config Bin Inp5-l	5002	1	3	Bit	0x10 (5)	-	State of the module input: Config Bin Inp
	Config Bin Inp6-l	5002	1	3	Bit	0x20 (6)	-	State of the module input: Config Bin Inp
	Config Bin Inp7-l	5002	1	3	Bit	0x40 (7)	-	State of the module input: Config Bin Inp
	Config Bin Inp8-l	5002	1	3	Bit	0x80 (8)	-	State of the module input: Config Bin Inp
	Config Bin Inp9-l	5002	1	3	Bit	0x100 (9)	-	State of the module input: Config Bin Inp
	Config Bin Inp10-l	5002	1	3	Bit	0x200 (10)	-	State of the module input: Config Bin Inp
	Config Bin Inp11-l	5002	1	3	Bit	0x400 (11)	-	State of the module input: Config Bin Inp
	Config Bin Inp12-l	5002	1	3	Bit	0x800 (12)	-	State of the module input: Config Bin Inp
	Config Bin Inp13-l	5002	1	3	Bit	0x1000 (13)	-	State of the module input: Config Bin Inp
	Config Bin Inp14-l	5002	1	3	Bit	0x2000 (14)	-	State of the module input: Config Bin Inp
	Config Bin Inp15-l	5002	1	3	Bit	0x4000 (15)	-	State of the module input: Config Bin Inp

<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>
	Config Bin Inp16-l	5002	1	3	Bit	0x8000 (16)	-	State of the module input: Config Bin Inp
Fast Status Register		5003	1	3	Struct			
	Config Bin Inp17-l	5003	1	3	Bit	0x1 (1)	-	State of the module input: Config Bin Inp
	Config Bin Inp18-l	5003	1	3	Bit	0x2 (2)	-	State of the module input: Config Bin Inp
	Config Bin Inp19-l	5003	1	3	Bit	0x4 (3)	-	State of the module input: Config Bin Inp
	Config Bin Inp20-l	5003	1	3	Bit	0x8 (4)	-	State of the module input: Config Bin Inp
	Config Bin Inp21-l	5003	1	3	Bit	0x10 (5)	-	State of the module input: Config Bin Inp
	Config Bin Inp22-l	5003	1	3	Bit	0x20 (6)	-	State of the module input: Config Bin Inp
	Config Bin Inp23-l	5003	1	3	Bit	0x40 (7)	-	State of the module input: Config Bin Inp
	Config Bin Inp24-l	5003	1	3	Bit	0x80 (8)	-	State of the module input: Config Bin Inp
	Config Bin Inp25-l	5003	1	3	Bit	0x100 (9)	-	State of the module input: Config Bin Inp
	Config Bin Inp26-l	5003	1	3	Bit	0x200 (10)	-	State of the module input: Config Bin Inp
	Config Bin Inp27-l	5003	1	3	Bit	0x400 (11)	-	State of the module input: Config Bin Inp
	Config Bin Inp28-l	5003	1	3	Bit	0x800 (12)	-	State of the module input: Config Bin Inp

<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>
	Config Bin Inp29-I	5003	1	3	Bit	0x1000 (13)	-	State of the module input: Config Bin Inp
	Config Bin Inp30-I	5003	1	3	Bit	0x2000 (14)	-	State of the module input: Config Bin Inp
	Config Bin Inp31-I	5003	1	3	Bit	0x4000 (15)	-	State of the module input: Config Bin Inp
	Config Bin Inp32-I	5003	1	3	Bit	0x8000 (16)	-	State of the module input: Config Bin Inp
Fast Status Register		5004	1	3	Struct			
	Trip (*)	5004	1	3	Bit	0xffff (1)	-	First trip cause which is the same as listed in fault record: See SCADA doc for code (section Cause of Trip). See manual (section Fault Recorder) for more information.

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>
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
Bkr	TripCmd Cr	20006	2	4	Float IEE754		-	Counter: Total number of trips of the switchgear (breaker, load break switch...). Resettable with Total or All.
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
CT	IA Fund.	20100	2	4	Float IEE754		A	Measured value: Phase current (Fundamental)
CT	IB Fund.	20102	2	4	Float IEE754		A	Measured value: Phase current (Fundamental)

<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>
CT	IC Fund.	20104	2	4	Float IEE754		A	Measured value: Phase current (Fundamental)
CT	IX meas Fund.	20106	2	4	Float IEE754		A	Measured value (measured): IX (Fundamental)
CT	I0 Fund.	20114	2	4	Float IEE754		A	Measured value (calculated): Zero current (Fundamental)
CT	I1 Fund.	20116	2	4	Float IEE754		A	Measured value (calculated): Positive phase sequence current (Fundamental)
CT	I2 Fund.	20118	2	4	Float IEE754		A	Measured value (calculated): Unbalanced load current (Fundamental)
CT	IR calc Fund.	20160	2	4	Float IEE754		A	Measured value (calculated): IR (Fundamental)
Bkr	Isum trip IA	20182	2	4	Float IEE754		A	Summation of the tripping currents phase
Bkr	Isum trip IB	20184	2	4	Float IEE754		A	Summation of the tripping currents phase
Bkr	Isum trip IC	20186	2	4	Float IEE754		A	Summation of the tripping currents phase
CT	Angle IR calc	20200	2	4	Float IEE754		°	Measured Value (Calculated): Angle of Phasor IR calc
CT	Angle IX meas	20202	2	4	Float IEE754		°	Measured Value (Calculated): Angle of Phasor IX meas
CT	Angle IA	20204	2	4	Float IEE754		°	Measured Value (Calculated): Angle of Phasor IA

<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>
CT	Angle IB	20206	2	4	Float IEE754		°	Measured Value (Calculated): Angle of Phasor IB
CT	Angle IC	20208	2	4	Float IEE754		°	Measured Value (Calculated): Angle of Phasor IC
CT	IA THD	20210	2	4	Float IEE754		A	Measured Value (Calculated): IA Total Harmonic Current
CT	IB THD	20212	2	4	Float IEE754		A	Measured Value (Calculated): IB Total Harmonic Current
CT	IC THD	20214	2	4	Float IEE754		A	Measured Value (Calculated): IC Total Harmonic Current
CT	%IA THD	20216	2	4	Float IEE754		%	Measured Value (Calculated): IA Total Harmonic Distortion
CT	%IB THD	20218	2	4	Float IEE754		%	Measured Value (Calculated): IB Total Harmonic Distortion
CT	%IC THD	20220	2	4	Float IEE754		%	Measured Value (Calculated): IC Total Harmonic Distortion
IRIG-B	Edges	20298	2	4	Float IEE754		-	Edges: Total number of rising and falling edges. This signal indicates if a signal is available at the IRIG-B input.
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>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>
CT	IA RMS	20316	2	4	Float IEE754		A	Measured value: Phase current (RMS)
CT	IB RMS	20318	2	4	Float IEE754		A	Measured value: Phase current (RMS)
CT	IC RMS	20320	2	4	Float IEE754		A	Measured value: Phase current (RMS)
CT	IX meas RMS	20322	2	4	Float IEE754		A	Measured value (measured): IX (RMS)
CT	IR calc RMS	20324	2	4	Float IEE754		A	Measured value (calculated): IR (RMS)
URTD	Aux2	20328	2	4	Float IEE754		°C	Auxiliary2
URTD	WD1	20330	2	4	Float IEE754		°C	Winding 1
URTD	WD2	20332	2	4	Float IEE754		°C	Winding 2
URTD	WD3	20334	2	4	Float IEE754		°C	Winding 3
URTD	WD4	20336	2	4	Float IEE754		°C	Winding 4
URTD	WD5	20338	2	4	Float IEE754		°C	Winding 5
URTD	WD6	20340	2	4	Float IEE754		°C	Winding 6
URTD	MB1	20342	2	4	Float IEE754		°C	Motor Bearing 1

<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>
URTD	MB2	20344	2	4	Float IEE754		°C	Motor Bearing 2
URTD	LB1	20346	2	4	Float IEE754		°C	Load Bearing 1
URTD	LB2	20348	2	4	Float IEE754		°C	Load Bearing 2
URTD	Aux1	20350	2	4	Float IEE754		°C	Auxiliary1
CT	%(I2/I1)	20376	2	4	Float IEE754		%	Measured value (calculated): I2/I1, phase sequence will be taken into account automatically.
CT	Angle I0	20378	2	4	Float IEE754		°	Measured Value (calculated): Angle of Zero Sequence System
CT	Angle I1	20380	2	4	Float IEE754		°	Measured Value (calculated): Angle of Positive Sequence System
CT	Angle I2	20382	2	4	Float IEE754		°	Measured value (calculated): Angle of Negative Sequence System
MStart	AntiBackSpin	20466	2	4	Float IEE754		s	Anti-BackspinTimer
MStart	IA FLA	20468	2	4	Float IEE754		FLA	Measured value: Phase current multiples of FLA
MStart	IB FLA	20470	2	4	Float IEE754		FLA	Measured value: Phase current multiples of FLA
MStart	IC FLA	20472	2	4	Float IEE754		FLA	Measured value: Phase current multiples of FLA
MStart	ColdStartPermit	20474	2	4	Float IEE754		-	Number of cold starts remaining

<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>
MStart	StartPerHour	20476	2	4	Float IEE754		-	StartPerHour
MStart	WaitTime Starts	20478	2	4	Float IEE754		s	Wait time between starts remained
49	I2T Used	20482	2	4	Float IEE754		%	Thermal capacity used.
49	I2T Remained	20484	2	4	Float IEE754		%	Thermal capacity remained.
URTD	RTD Max	20486	2	4	Float IEE754		°C	Maximum temperature of all channels.
RTD	Hottest WD	20504	2	4	Float IEE754		°C	Hottest motor winding temperature in degrees C.
RTD	Hottest MB	20506	2	4	Float IEE754		°C	Hottest motor bearing temperature in degrees C. Resettable with "Sys Res OperationsCr" or "All".
RTD	Hottest LB	20508	2	4	Float IEE754		°C	Hottest load bearing temperature in degrees C. Resettable with "Sys Res OperationsCr" or "All".
MStart	I3 PRMS avg	20510	2	4	Float IEE754		A	Average RMS current of all 3 phases
MStart	I3 PFLA avg	20512	2	4	Float IEE754		FLA	Average RMS current of all 3 phases as multiples of FLA
Values	Hours Counter	20514	2	4	Float IEE754		h	Resettable device operation hours counter
Bkr	Bkr OPEN capacity	20516	2	4	Float IEE754		%	CB OPEN capacity. 100% means, that the breaker is to be maintained.
Bkr	Isum Intr per hour	20518	2	4	Float IEE754		kA	Sum per hour of interrupting currents.

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
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.
CT	I1 max Fund.	21074	2	4	Float IEE754		A	Maximum value positive phase sequence current (Fundamental)
CT	I1 min Fund.	21076	2	4	Float IEE754		A	Minimum value positive phase sequence current (Fundamental)
CT	I2 max Fund.	21080	2	4	Float IEE754		A	Maximum value unbalanced load current (Fundamental)
CT	I2 min Fund.	21082	2	4	Float IEE754		A	Minimum value unbalanced load current (Fundamental)
CT	IA avg RMS	21130	2	4	Float IEE754		A	IA average value (RMS)
CT	IB avg RMS	21132	2	4	Float IEE754		A	IB average value (RMS)
CT	IC avg RMS	21134	2	4	Float IEE754		A	IC average value (RMS)
CT	IA max RMS	21136	2	4	Float IEE754		A	IA maximum value (RMS)
CT	IB max RMS	21138	2	4	Float IEE754		A	IB maximum value (RMS)
CT	IC max RMS	21140	2	4	Float IEE754		A	IC maximum value (RMS)

<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>
CT	IA min RMS	21142	2	4	Float IEE754		A	IA minimum value (RMS)
CT	IB min RMS	21144	2	4	Float IEE754		A	IB minimum value (RMS)
CT	IC min RMS	21146	2	4	Float IEE754		A	IC minimum value (RMS)
URTD	WD1 max	21194	2	4	Float IEE754		°C	Winding1 Maximum Value
URTD	WD2 max	21196	2	4	Float IEE754		°C	Winding2 Maximum Value
URTD	WD3 max	21198	2	4	Float IEE754		°C	Winding3 Maximum Value
URTD	WD4 max	21200	2	4	Float IEE754		°C	Winding4 Maximum Value
URTD	WD5 max	21202	2	4	Float IEE754		°C	Winding5 Maximum Value
URTD	WD6 max	21204	2	4	Float IEE754		°C	Winding6 Maximum Value
URTD	MB1 max	21206	2	4	Float IEE754		°C	Motor Bearing1 Maximum Value
URTD	MB2 max	21208	2	4	Float IEE754		°C	Motor Bearing2 Maximum Value
URTD	LB1 max	21210	2	4	Float IEE754		°C	Load Bearing1 Maximum Value
URTD	LB2 max	21212	2	4	Float IEE754		°C	Load Bearing2 Maximum Value

<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>
URTD	Aux1 max	21214	2	4	Float IEE754		°C	Auxiliary1 Maximum Value
CT	IR calc max RMS	21456	2	4	Float IEE754		A	Measured value (calculated): IR maximum value (RMS)
CT	IR calc min RMS	21458	2	4	Float IEE754		A	Measured value (calculated): IR minimum value (RMS)
CT	IX meas max RMS	21462	2	4	Float IEE754		A	Measured value: IX maximum value (RMS)
CT	IX meas min RMS	21464	2	4	Float IEE754		A	Measured value: IX minimum value (RMS)
CT	%(I2/I1) max	21468	2	4	Float IEE754		%	Measured value (calculated): I2/I1 maximum value, phase sequence will be taken into account automatically
CT	%(I2/I1) min	21470	2	4	Float IEE754		%	Measured value (calculated): I2/I1 minimum value, phase sequence will be taken into account automatically
50J[1]	nTripCmds	21580	2	4	Float IEE754		-	Number of trip commands since last reset.
50J[2]	nTripCmds	21582	2	4	Float IEE754		-	Number of trip commands since last reset.
MStart	HighestRun	21584	2	4	Float IEE754		A	Highest running phase current. The time stamp indicates the point in time when the maximum current has occurred. Resettable with "Sys. Res Operations Cr" or "All".

<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>
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. Resettable with "Sys. Res Operations Cr" or "All".
MStart	OCNT	21588	2	4	Float IEE754		-	Motor Operation count since last reset. Resettable with "Sys Res Operations Cr" or "All".
MStart	RunTime	21590	2	4	Float IEE754		h	Motor Operation time since last reset. Resettable with "Sys. Res Operations Cr" or "All".
MStart	TOCS	21592	2	4	Float IEE754		-	Total Motor Operation count since last reset. Resettable with "Sys. Res TotalCr" or "All".
MStart	TRunTime	21594	2	4	Float IEE754		h	Motor Operation (Motor run time) time since last reset. Resettable with "Sys. Res TotalCr" or "All".
MStart	nEmrgOvr	21596	2	4	Float IEE754		-	Number of emergency overrides since last reset. Resettable with "Sys. Res Operations Cr" or "All".
MStart	nISQT	21598	2	4	Float IEE754		-	Number of incomplete sequence trips since last reset. Resettable with "Sys. Res TripCr" or "All".
MStart	nTRNTrips	21606	2	4	Float IEE754		-	Number of transition trips since last reset. Resettable with "Sys. Res TripCr" or "All".

<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>
MStart	nZSWTrips	21608	2	4	Float IEE754		-	Number of zero speed switch trips since last reset. Resettable with "Sys. Res TripCr" or "All".
46[1]	nRevTrips	21614	2	4	Float IEE754		-	Number of reverse spinning trips since last reset. Resettable with "Sys. Res TripCr" or "All".
RTD	HighestLbTemp	21618	2	4	Float IEE754		°C	Highest load bearing temperature in degrees. Resettable with "Sys Res OperationsCr" or "All".
RTD	HighestMbTemp	21620	2	4	Float IEE754		°C	Highest motor bearing temperature in degrees. Resettable with "Sys Res OperationsCr" or "All".
RTD	HighestWdTemp	21622	2	4	Float IEE754		°C	Highest motor winding temperature in degrees. Resettable with "Sys Res OperationsCr" or "All".
RTD	nAuxAlarms	21624	2	4	Float IEE754		-	Number of auxiliary temperature alarms since last reset. Resettable with "Sys Res Alarm" or "All".
RTD	nAuxTrips	21626	2	4	Float IEE754		-	Number of auxiliary temperature trips since last reset. Resettable with "Sys Res TripCr" or "All".
RTD	nChannel Fails	21628	2	4	Float IEE754		-	Number of RTD channel failures.
RTD	nLbAlarms	21630	2	4	Float IEE754		-	Number of load bearing temperature alarms since last reset. Resettable with "Sys Res Alarm" or "All".

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
RTD	nLbTrips	21632	2	4	Float IEE754		-	Number of load bearing temperature trips since last reset. Resettable with "Sys Res TripCr" or "All".
RTD	nMbAlarms	21634	2	4	Float IEE754		-	Number of motor bearing temperature alarms since last reset. Resettable with "Sys Res Alarm" or "All".
RTD	nMbTrips	21636	2	4	Float IEE754		-	Number of motor bearing temperature trips since last reset. Resettable with "Sys Res TripCr" or "All".
RTD	nWdAlarms	21638	2	4	Float IEE754		-	Number of winding temperature alarms since last reset. Resettable with "Sys Res Alarm" or "All".
RTD	nWdTrips	21640	2	4	Float IEE754		-	Number of winding temperature trips since last reset. Resettable with "Sys Res TripCr" or "All".
37[1]	nTripCmds	21642	2	4	Float IEE754		-	Number of trip commands since last reset.
37[2]	nTripCmds	21644	2	4	Float IEE754		-	Number of trip commands since last reset.
37[3]	nTripCmds	21646	2	4	Float IEE754		-	Number of trip commands since last reset.
37[1]	nPickups	21648	2	4	Float IEE754		-	Number of alarms since last reset.
37[2]	nPickups	21650	2	4	Float IEE754		-	Number of alarms since last reset.
37[3]	nPickups	21652	2	4	Float IEE754		-	Number of alarms since last reset.

<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>
MStart	nSPHBlocks	21654	2	4	Float IEE754		-	Number of start per hour blocks since last reset. Resettable with "Sys. Res Operations Cr" or "All".
MStart	nTBSBlocks	21656	2	4	Float IEE754		-	Number of time between start blocks since last reset. Resettable with "Sys. Res Operations Cr" or "All".
49	nAlarms	21658	2	4	Float IEE754		-	nAlarms
49	nTripCommands	21660	2	4	Float IEE754		-	Number of trip commands since last reset.
50J[1]	nPickups	21662	2	4	Float IEE754		-	Number of alarms since last reset.
50J[2]	nPickups	21664	2	4	Float IEE754		-	Number of alarms since last reset.
50P[1]	nPickups	21666	2	4	Float IEE754		-	Number of alarms since last reset.
50P[1]	nTripCommands	21668	2	4	Float IEE754		-	Number of trip commands since last reset.
50P[2]	nPickups	21670	2	4	Float IEE754		-	Number of alarms since last reset.
50P[2]	nTripCommands	21672	2	4	Float IEE754		-	Number of trip commands since last reset.
50P[3]	nPickups	21674	2	4	Float IEE754		-	Number of alarms since last reset.
50P[3]	nTripCommands	21676	2	4	Float IEE754		-	Number of trip commands since last reset.
51P[1]	nPickups	21678	2	4	Float IEE754		-	Number of alarms since last reset.
51P[1]	nTripCommands	21680	2	4	Float IEE754		-	Number of trip commands since last reset.
51P[2]	nPickups	21682	2	4	Float IEE754		-	Number of alarms since last reset.

<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>
51P[2]	nTripCmds	21684	2	4	Float IEE754		-	Number of trip commands since last reset.
51P[3]	nPickups	21686	2	4	Float IEE754		-	Number of alarms since last reset.
51P[3]	nTripCmds	21688	2	4	Float IEE754		-	Number of trip commands since last reset.
50X[1]	nPickups	21690	2	4	Float IEE754		-	Number of alarms since last reset.
50X[1]	nTripCmds	21692	2	4	Float IEE754		-	Number of trip commands since last reset.
50X[2]	nPickups	21694	2	4	Float IEE754		-	Number of alarms since last reset.
50X[2]	nTripCmds	21696	2	4	Float IEE754		-	Number of trip commands since last reset.
51X[1]	nPickups	21698	2	4	Float IEE754		-	Number of alarms since last reset.
51X[1]	nTripCmds	21700	2	4	Float IEE754		-	Number of trip commands since last reset.
51X[2]	nPickups	21702	2	4	Float IEE754		-	Number of alarms since last reset.
51X[2]	nTripCmds	21704	2	4	Float IEE754		-	Number of trip commands since last reset.
50R[1]	nPickups	21706	2	4	Float IEE754		-	Number of alarms since last reset.
50R[1]	nTripCmds	21708	2	4	Float IEE754		-	Number of trip commands since last reset.
50R[2]	nPickups	21710	2	4	Float IEE754		-	Number of alarms since last reset.
50R[2]	nTripCmds	21712	2	4	Float IEE754		-	Number of trip commands since last reset.
51R[1]	nPickups	21714	2	4	Float IEE754		-	Number of alarms since last reset.

Module	Subgroup Names Functions	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / (Bit Position)	Unit	Description
51R[1]	nTripCmds	21716	2	4	Float IEE754		-	Number of trip commands since last reset.
51R[2]	nPickups	21718	2	4	Float IEE754		-	Number of alarms since last reset.
51R[2]	nTripCmds	21720	2	4	Float IEE754		-	Number of trip commands 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. Resettable with "Sys. Res Operations Cr" or "All".
46[1]	nPickups	21724	2	4	Float IEE754		-	Number of alarms since last reset.
46[1]	nTripCmds	21726	2	4	Float IEE754		-	Number of trip commands since last reset.
46[2]	nPickups	21730	2	4	Float IEE754		-	Number of alarms since last reset.
46[2]	nTripCmds	21732	2	4	Float IEE754		-	Number of trip commands since last reset.
MStart	I3P Fla Demand	21734	2	4	Float IEE754		FLA	RMS current of all 3 phases calculated in a fixed demand window as multiples of FLA
MStart	IA avg FLA	21736	2	4	Float IEE754		FLA	IA average value multiples of FLA
MStart	IA max FLA	21738	2	4	Float IEE754		FLA	IA maximum value multiples of FLA
MStart	IA min FLA	21740	2	4	Float IEE754		FLA	IA minimum value multiples of FLA
MStart	IB avg FLA	21742	2	4	Float IEE754		FLA	IB average value multiples of FLA

<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>
MStart	IB max FLA	21744	2	4	Float IEE754		FLA	IB maximum value multiples of FLA
MStart	IB min FLA	21746	2	4	Float IEE754		FLA	IB minimum value multiples of FLA
MStart	IC avg FLA	21748	2	4	Float IEE754		FLA	IC average value multiples of FLA
MStart	IC max FLA	21750	2	4	Float IEE754		FLA	IC maximum value multiples of FLA
MStart	IC min FLA	21752	2	4	Float IEE754		FLA	IC minimum value multiples of FLA
CT	IA Peak demand	21784	2	4	Float IEE754		A	IA Peak value, RMS value
CT	IB Peak demand	21786	2	4	Float IEE754		A	IB Peak value, RMS value
CT	IC Peak demand	21788	2	4	Float IEE754		A	IC Peak value, RMS value
URTD	Aux2 max	21800	2	4	Float IEE754		°C	Auxiliary2 Maximum Value
RTD	Hottest Aux	21820	2	4	Float IEE754		°C	Hottest Auxiliary temperature in degrees C. Resettable with "Sys Res OperationsCr" or "All".
RTD	HighestAuxTemp	21822	2	4	Float IEE754		°C	Highest Auxiliary temperature in degrees. Resettable with "Sys Res OperationsCr" or "All".
Modbus	Mapped Meas 1	23000	2	4	Float IEE754		-	Mapped Measured Values. They can be used to provide measured values to the Modbus Master.

<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>
Modbus	Mapped Meas 2	23002	2	4	Float IEE754		-	Mapped Measured Values. They can be used to provide measured values to the Modbus Master.
Modbus	Mapped Meas 3	23004	2	4	Float IEE754		-	Mapped Measured Values. They can be used to provide measured values to the Modbus Master.
Modbus	Mapped Meas 4	23006	2	4	Float IEE754		-	Mapped Measured Values. They can be used to provide measured values to the Modbus Master.
Modbus	Mapped Meas 5	23008	2	4	Float IEE754		-	Mapped Measured Values. They can be used to provide measured values to the Modbus Master.
Modbus	Mapped Meas 6	23010	2	4	Float IEE754		-	Mapped Measured Values. They can be used to provide measured values to the Modbus Master.
Modbus	Mapped Meas 7	23012	2	4	Float IEE754		-	Mapped Measured Values. They can be used to provide measured values to the Modbus Master.
Modbus	Mapped Meas 8	23014	2	4	Float IEE754		-	Mapped Measured Values. They can be used to provide measured values to the Modbus Master.
Modbus	Mapped Meas 9	23016	2	4	Float IEE754		-	Mapped Measured Values. They can be used to provide measured values to the Modbus Master.
Modbus	Mapped Meas 10	23018	2	4	Float IEE754		-	Mapped Measured Values. They can be used to provide measured values to the Modbus Master.

<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>
Modbus	Mapped Meas 11	23020	2	4	Float IEE754		-	Mapped Measured Values. They can be used to provide measured values to the Modbus Master.
Modbus	Mapped Meas 12	23022	2	4	Float IEE754		-	Mapped Measured Values. They can be used to provide measured values to the Modbus Master.
Modbus	Mapped Meas 13	23024	2	4	Float IEE754		-	Mapped Measured Values. They can be used to provide measured values to the Modbus Master.
Modbus	Mapped Meas 14	23026	2	4	Float IEE754		-	Mapped Measured Values. They can be used to provide measured values to the Modbus Master.
Modbus	Mapped Meas 15	23028	2	4	Float IEE754		-	Mapped Measured Values. They can be used to provide measured values to the Modbus Master.
Modbus	Mapped Meas 16	23030	2	4	Float IEE754		-	Mapped Measured Values. They can be used to provide measured values to the Modbus Master.
Exp[1]	nPickups	24018	2	4	Float IEE754		-	Number of alarms since last reset.
Exp[1]	nTripCmds	24020	2	4	Float IEE754		-	Number of trip commands since last reset.
Exp[2]	nPickups	24022	2	4	Float IEE754		-	Number of alarms since last reset.
Exp[2]	nTripCmds	24024	2	4	Float IEE754		-	Number of trip commands since last reset.

<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>
Exp[3]	nPickups	24026	2	4	Float IEE754		-	Number of alarms since last reset.
Exp[3]	nTripCmds	24028	2	4	Float IEE754		-	Number of trip commands since last reset.
Exp[4]	nPickups	24030	2	4	Float IEE754		-	Number of alarms since last reset.
Exp[4]	nTripCmds	24032	2	4	Float IEE754		-	Number of trip commands since last reset.
Remote Trip	nPickups	24058	2	4	Float IEE754		-	Number of alarms since last reset.
Remote Trip	nTripCmds	24060	2	4	Float IEE754		-	Number of trip commands since last reset.

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	Relay Outputs	22001	1	5	0xFF00		-	Relay Outputs
Acknowledge	Comm	22002	1	5	0xFF00		-	Communication
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 Isum trip	22012	1	5	0xFF00		-	Reset summation of the tripping currents
Comm Cmd	Assbl Comm Cmd 1	22020	1	5	0xFF00= On 0x0000= Off		-	Assignable Communication Command
Comm Cmd	Assbl Comm Cmd 2	22021	1	5	0xFF00= On 0x0000= Off		-	Assignable Communication Command
Comm Cmd	Assbl Comm Cmd 3	22022	1	5	0xFF00= On 0x0000= Off		-	Assignable Communication Command

<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>
Comm Cmd	Assbl Comm Cmd 4	22023	1	5	0xFF00= On 0x0000= Off		-	Assignable Communication Command
Comm Cmd	Assbl Comm Cmd 5	22024	1	5	0xFF00= On 0x0000= Off		-	Assignable Communication Command
Comm Cmd	Assbl Comm Cmd 6	22025	1	5	0xFF00= On 0x0000= Off		-	Assignable Communication Command
Comm Cmd	Assbl Comm Cmd 7	22026	1	5	0xFF00= On 0x0000= Off		-	Assignable Communication Command
Comm Cmd	Assbl Comm Cmd 8	22027	1	5	0xFF00= On 0x0000= Off		-	Assignable Communication Command
Comm Cmd	Assbl Comm Cmd 9	22028	1	5	0xFF00= On 0x0000= Off		-	Assignable Communication Command
Comm Cmd	Assbl Comm Cmd 10	22029	1	5	0xFF00= On 0x0000= Off		-	Assignable Communication Command
Comm Cmd	Assbl Comm Cmd 11	22030	1	5	0xFF00= On 0x0000= Off		-	Assignable Communication Command

<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>
Comm Cmd	Assbl Comm Cmd 12	22031	1	5	0xFF00= On 0x0000= Off		-	Assignable Communication Command
Comm Cmd	Assbl Comm Cmd 13	22032	1	5	0xFF00= On 0x0000= Off		-	Assignable Communication Command
Comm Cmd	Assbl Comm Cmd 14	22033	1	5	0xFF00= On 0x0000= Off		-	Assignable Communication Command
Comm Cmd	Assbl Comm Cmd 15	22034	1	5	0xFF00= On 0x0000= Off		-	Assignable Communication Command
Comm Cmd	Assbl Comm Cmd 16	22035	1	5	0xFF00= On 0x0000= Off		-	Assignable Communication Command
PSet-Switch	Comm PS1	22050	1	5	0xFF00		-	Communication Setting Group1
PSet-Switch	Comm PS2	22051	1	5	0xFF00		-	Communication Setting Group2
PSet-Switch	Comm PS3	22052	1	5	0xFF00		-	Communication Setting Group3
PSet-Switch	Comm PS4	22053	1	5	0xFF00		-	Communication Setting Group4

<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>
Maint Mode	Maint Mode Comm	22054	1	5	0xFF00= On 0x0000= Off		-	Signal: Arc Flash Reduction Maintenance Comm Mode
Res I2T Used	Res I2T Used	22055	1	5	0xFF00		-	Reset thermal capacity used.
Res OperationsCr	Res OperationsCr	22056	1	5	0xFF00		-	Reset all counters in history group operations
Res AlarmCr	Res AlarmCr	22057	1	5	0xFF00		-	Reset all counters in history group alarms
Res TripCmdCr	Res TripCmdCr	22058	1	5	0xFF00		-	Reset all counters in history group trips
Res TotalCr	Res TotalCr	22059	1	5	0xFF00		-	Reset all counters in history group total
Res All	Res All	22060	1	5	0xFF00		-	Reset of all Counters
Bkr	SG ControlCmd1	22100	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
/ Modbus/Descriptions/FaultRecord		50000	9	3 16	Struct			
	RecordNo	50000	9	3 16	Short	Word 0 (1)	-	Record Number
	Trip Cause	50000	9	3 16	Short	Word 1 (17)	-	Last trip cause which is the same as listed in fault record: See scada doc for code; See scada doc for correlation between trip reason and code
	Pickup Cause	50000	9	3 16	Short	Word 2 (33)	-	Code for last Pickup cause corresponds to fault record: See scada doc for correlation between pickup reason and code

<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>
	FaultNo	50000	9	3 16	Short	Word 3 (49)	-	Waveform No.
	No of GridFaults	50000	9	3 16	Short	Word 4 (65)	-	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.
	Time stamp:	50000	9	3 16	long long	Word 5- Word 9 (81)	-	Timestamp in milliseconds since 1970

Cause of trip

Trip cause reason is provided at two Addresses. At address 5004 last trip cause is available as long as a trip reason is present. But the content of this register can be latched. The trip cause is latched in the same way as other trip signals, that means if corresponding latch setting is active, the content of register is memorized until it is acknowledged by command.

At address 50000 and up the last trip and alarm reason is available with related record, fault, net number and time stamp. It is possible to read a arbitrary saved records by requesting corresponding record number. For requesting of a certain saved record user has to send the record number on corresponding register. Be aware that the content of these registers can only read entirely and it will change each time a new fault occur in fault recorder.

The following table is showing the “trip cause code” and its relation to the “trip cause reason”.

<i>Cause of trip code</i>	<i>Description</i>	<i>Module</i>
0	?	37[1], 37[2], 37[3], 49, 50J[1], 50J[2], MLS, RTD, ZI
1	NORM	
2	EXTERNAL	Ex87, ExP[1], ExP[2], ExP[3], ExP[4], Remote Trip
3	PH IOC	50P[1], 50P[2], 50P[3]
4	IG IOC	50X[1], 50X[2]
6	IR IOC	50R[1], 50R[2]
7	PH TOC	51P[1], 51P[2], 51P[3]
8	IG TOC	51X[1], 51X[2]
10	IR TOC	51R[1], 51R[2]
17	I UNBAL	46[1], 46[2]

Fast Status Register

At Register 5000 and up a area is provided where common status indicator bits can be read from one location. See data point list to see which information are available in general. At registers 5002 and 5003 the user has the option to collect arbitrary device status information together. Purpose is to get a customer set of device states in a single request. Some of these positions are already pre-configured. Below you find the pre-configuration list:

General function	Bit position	Short Description	Long Description
Relay Health	0	Health status	
General Trips / General Pickups	1	Pickup	General pickup of any type, none element specific.
	2	Trip	General Trip of any type, none element specific.
	3		
	4		
	5		
	6		
	7		
Breaker Closed	8	Pos Open	Breaker is in Open position
	9	Pos Close	Breaker is in Closed position
	10	Pickup	Breaker failure detected and timer in progress.
	11	Trip	Breaker failure detected and trip initiated.
	12	Lockout	Breaker failure lockout.
	13		
	14		
	15		
Sgen status	16	Running	Test simulation signal generation "Running".
ARMS	17	Maintenance	- Maintenance mode active
Motor	18	Motor Relay Ready - (stopped)	Only available in Motor Relays
	19	Motor Relay Start	Only available in Motor Relays
	20	Motor Relay Running	Only available in Motor Relays

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Eaton Corporation

Electrical Group
1000 Cherrington Parkway
Moon Township, PA 15108
United States
877-ETN-CARE (877-386-2273)
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