



EDR-3000 Modbus® Register Maps



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This manual applies to devices (version):

Build: 5976

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

The following times have to be considered by the control system and are to be fixed/adjusted in 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
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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 RTU Protocol” specification. An exception response table with examples is shown in that specification. For the EDR-3000, Eaton wants to supply more information. The table below contains just the actually used codes. In case the EDR-3000 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 EDR-3000 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

<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>
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

<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 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
	TripCmd	1	1	3	bit	0x4000 (15)	-	Signal: Trip Command
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

<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	3	1	3	bit	0x100 (9)	-	Signal: External Blocking of the Trip Command
50P[1]		4	1	3	struct			
	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 IA	4	1	3	bit	0x10 (5)	-	Signal: Trip IA
	Trip IB	4	1	3	bit	0x20 (6)	-	Signal: Trip IB
	Trip IC	4	1	3	bit	0x40 (7)	-	Signal: Trip IC
	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

<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	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
	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[2]		6	1	3	struct			
	Pickup IA	6	1	3	bit	0x1 (1)	-	Signal: Pickup IA
	Pickup IB	6	1	3	bit	0x2 (2)	-	Signal: Pickup IB
	Pickup IC	6	1	3	bit	0x4 (3)	-	Signal: Pickup IC
	Pickup	6	1	3	bit	0x8 (4)	-	Signal: Pickup
	Trip IA	6	1	3	bit	0x10 (5)	-	Signal: Trip IA
	Trip IB	6	1	3	bit	0x20 (6)	-	Signal: Trip IB

<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 IC	6	1	3	bit	0x40 (7)	-	Signal: Trip IC
	Trip	6	1	3	bit	0x80 (8)	-	Signal: Trip
	TripCmd	6	1	3	bit	0x100 (9)	-	Signal: 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

<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>
50P[3]		8	1	3	struct			
	Pickup IA	8	1	3	bit	0x1 (1)	-	Signal: Pickup IA
	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 IA	8	1	3	bit	0x10 (5)	-	Signal: Trip IA
	Trip IB	8	1	3	bit	0x20 (6)	-	Signal: Trip IB
	Trip IC	8	1	3	bit	0x40 (7)	-	Signal: Trip IC
	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

<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>
	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
	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 IA	10	1	3	bit	0x10 (5)	-	Signal: Trip IA
	Trip IB	10	1	3	bit	0x20 (6)	-	Signal: Trip IB
	Trip IC	10	1	3	bit	0x40 (7)	-	Signal: Trip IC
	Trip	10	1	3	bit	0x80 (8)	-	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>
	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
	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

<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 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 IA	12	1	3	bit	0x10 (5)	-	Signal: Trip IA
	Trip IB	12	1	3	bit	0x20 (6)	-	Signal: Trip IB
	Trip IC	12	1	3	bit	0x40 (7)	-	Signal: Trip IC
	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
	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

<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	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 IA	14	1	3	bit	0x10 (5)	-	Signal: Trip IA
	Trip IB	14	1	3	bit	0x20 (6)	-	Signal: Trip IB
	Trip IC	14	1	3	bit	0x40 (7)	-	Signal: Trip IC
	Trip	14	1	3	bit	0x80 (8)	-	Signal: Trip
	TripCmd	14	1	3	bit	0x100 (9)	-	Signal: Trip Command
50X[1]		15	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	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			

<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	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			

<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	17	1	3	bit	0x1 (1)	-	Module input state: External Blocking1
	ExBlo2-I	17	1	3	bit	0x2 (2)	-	Module input state: External Blocking2
	ExBlo TripCmd-I	17	1	3	bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	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			

<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	18	1	3	bit	0x1 (1)	-	Module input state: External Blocking1
	ExBlo2-I	18	1	3	bit	0x2 (2)	-	Module input state: External Blocking2
	ExBlo TripCmd-I	18	1	3	bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	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			

<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	49	1	3	bit	0x1 (1)	-	Module input state: External Blocking1
	ExBlo2-I	49	1	3	bit	0x2 (2)	-	Module input state: External Blocking2
	ExBlo TripCmd-I	49	1	3	bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	Pickup-I	49	1	3	bit	0x8 (4)	-	Module input state: External Pickup
	Trip-I	49	1	3	bit	0x10 (5)	-	Module input state: External 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
	Pickup	49	1	3	bit	0x200 (10)	-	Signal: External Pickup
	Trip	49	1	3	bit	0x400 (11)	-	Signal: External Trip
	TripCmd	49	1	3	bit	0x800 (12)	-	Signal: External Trip Command
ExP[2]		50	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	50	1	3	bit	0x1 (1)	-	Module input state: External Blocking1
	ExBlo2-I	50	1	3	bit	0x2 (2)	-	Module input state: External Blocking2
	ExBlo TripCmd-I	50	1	3	bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	Pickup-I	50	1	3	bit	0x8 (4)	-	Module input state: External Pickup
	Trip-I	50	1	3	bit	0x10 (5)	-	Module input state: External 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
	Pickup	50	1	3	bit	0x200 (10)	-	Signal: External Pickup
	Trip	50	1	3	bit	0x400 (11)	-	Signal: External Trip
	TripCmd	50	1	3	bit	0x800 (12)	-	Signal: External Trip Command
ExP[3]		51	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	51	1	3	bit	0x1 (1)	-	Module input state: External Blocking1
	ExBlo2-I	51	1	3	bit	0x2 (2)	-	Module input state: External Blocking2
	ExBlo TripCmd-I	51	1	3	bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	Pickup-I	51	1	3	bit	0x8 (4)	-	Module input state: External Pickup
	Trip-I	51	1	3	bit	0x10 (5)	-	Module input state: External 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
	Pickup	51	1	3	bit	0x200 (10)	-	Signal: External Pickup
	Trip	51	1	3	bit	0x400 (11)	-	Signal: External Trip
	TripCmd	51	1	3	bit	0x800 (12)	-	Signal: External Trip Command
ExP[4]		52	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	52	1	3	bit	0x1 (1)	-	Module input state: External Blocking1
	ExBlo2-I	52	1	3	bit	0x2 (2)	-	Module input state: External Blocking2
	ExBlo TripCmd-I	52	1	3	bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	Pickup-I	52	1	3	bit	0x8 (4)	-	Module input state: External Pickup
	Trip-I	52	1	3	bit	0x10 (5)	-	Module input state: External 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
	Pickup	52	1	3	bit	0x200 (10)	-	Signal: External Pickup
	Trip	52	1	3	bit	0x400 (11)	-	Signal: External Trip
	TripCmd	52	1	3	bit	0x800 (12)	-	Signal: External Trip Command
BF		53	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	53	1	3	bit	0x1 (1)	-	Module input state: External Blocking1
	ExBlo2-I	53	1	3	bit	0x2 (2)	-	Module input state: External Blocking2
	Active	53	1	3	bit	0x4 (3)	-	Signal: Active
	ExBlo	53	1	3	bit	0x8 (4)	-	Signal: External Blocking
	Running	53	1	3	bit	0x10 (5)	-	Signal: BF- Module Started
	Pickup	53	1	3	bit	0x20 (6)	-	Signal: Breaker Failure
CTS		55	1	3	struct			
	ExBlo1-I	55	1	3	bit	0x1 (1)	-	Module input state: External Blocking1
	ExBlo2-I	55	1	3	bit	0x2 (2)	-	Module input state: External Blocking2
	Active	55	1	3	bit	0x4 (3)	-	Signal: Active
	ExBlo	55	1	3	bit	0x8 (4)	-	Signal: External Blocking
	Pickup	55	1	3	bit	0x10 (5)	-	Signal: Pickup Current Transformer Measuring Circuit Supervision
Prot		57	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>
	FaultNo	57	1	3	bit	0x1 (1)	-	Disturbance No
Prot		58	1	3	struct			
	MainsFaultNo	58	1	3	bit	0x1 (1)	-	Mains Fault No
/AppFrame/SingleSet/SetControl		59	1	3	struct			
	PS 1	59	1	3	bit	0x1 (1)	-	Signal: Parameter Set 1
	PS 2	59	1	3	bit	0x2 (2)	-	Signal: Parameter Set 2
	PS 3	59	1	3	bit	0x4 (3)	-	Signal: Parameter Set 3
	PS 4	59	1	3	bit	0x8 (4)	-	Signal: Parameter Set 4
	PSS manual	59	1	3	bit	0x10 (5)	-	Signal: Manual Switch over of a Parameter Set
	PSS via Comm	59	1	3	bit	0x20 (6)	-	Signal: Parameter Set Switch via Communication
	PSS via Inp fct	59	1	3	bit	0x40 (7)	-	Signal: Parameter Set Switch via input function

<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>
	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.
	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

<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	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
	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

<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	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
	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

<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	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
51R[2]		64	1	3	struct			
	ExBlo1-I	64	1	3	bit	0x1 (1)	-	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	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
DI Slot X1		1000	1	3	struct			
	DI 1	1000	1	3	bit	0x10 (5)	-	Signal: Digital Input

<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>
	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
BO Slot X2		1003	1	3	struct			
	BO 1	1003	1	3	bit	0x4 (3)	-	Signal: Binary Output Relay
	BO 2	1003	1	3	bit	0x8 (4)	-	Signal: Binary Output Relay
	BO 3	1003	1	3	bit	0x10 (5)	-	Signal: Binary Output Relay
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

<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 9	1005	1	3	bit	0x100 (9)	-	Communication Command
	Comm Cmd 10	1005	1	3	bit	0x200 (10)	-	Communication Command
	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

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
Prot	TripCmd Cr	20006	2	4	float IEE754		-	Counter: Total number of trips of the switchgear (circuit breaker, load break switch...).
/Device/Views/UserInterface/Main	Build	20008	2	4	float IEE754		-	Build
Values	Operating hours Cr	20010	2	4	float IEE754		h	Operating hours counter
Measured values	IA fund	20100	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>
Measured values	IB fund	20102	2	4	float IEE754		A	Measured value: Phase current (fundamental)
Measured values	IC fund	20104	2	4	float IEE754		A	Measured value: Phase current (fundamental)
Measured values	IX meas fund	20106	2	4	float IEE754		A	Measured value (measured): IX (fundamental)
Measured values	I0 fund	20114	2	4	float IEE754		A	Measured value (calculated): Zero current (fundamental)
Measured values	I1 fund	20116	2	4	float IEE754		A	Measured value (calculated): Positive phase sequence current (fundamental)
Measured values	I2 fund	20118	2	4	float IEE754		A	Measured value (calculated): Unbalanced load current (fundamental)
Measured values	IA H2	20120	2	4	float IEE754		%	Measured value: 2nd harmonic/1st harmonic of IA
Measured values	IB H2	20122	2	4	float IEE754		%	Measured value: 2nd harmonic/1st harmonic of IB

<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>
Measured values	IC H2	20124	2	4	float IEE754		%	Measured value: 2nd harmonic/1st harmonic of IC
Measured values	IG H2	20126	2	4	float IEE754		%	Measured value: 2nd harmonic/1st harmonic of IG
Measured values	IR calc fund	20160	2	4	float IEE754		A	Measured value (calculated): IR (fundamental)
Measured values	Sum trip I L1	20182	2	4	float IEE754		A	Summation of the tripping currents phase1
Measured values	Sum trip I L2	20184	2	4	float IEE754		A	Summation of the tripping currents phase2
Measured values	Sum trip I L3	20186	2	4	float IEE754		A	Summation of the tripping currents phase3
Statistics	IA avg fund	20254	2	4	float IEE754		A	IA average value (fundamental)
Statistics	IA max fund	20256	2	4	float IEE754		A	IA maximum value (fundamental)
Statistics	IA min fund	20258	2	4	float IEE754		A	IA minimum value (fundamental)
Statistics	IB avg fund	20260	2	4	float IEE754		A	IB average value (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>
Statistics	IB max fund	20262	2	4	float IEE754		A	IB maximum value (fundamental)
Statistics	IB min fund	20264	2	4	float IEE754		A	IB minimum value (fundamental)
Statistics	IC avg fund	20266	2	4	float IEE754		A	IC average value (fundamental)
Statistics	IC max fund	20268	2	4	float IEE754		A	IC maximum value (fundamental)
Statistics	IC min fund	20270	2	4	float IEE754		A	IC minimum value (fundamental)
Statistics	I1 avg fund	20272	2	4	float IEE754		A	Average value positive phase sequence current (fundamental)
Statistics	I1 max fund	20274	2	4	float IEE754		A	Maximum value positive phase sequence current (fundamental)
Statistics	I1 min fund	20276	2	4	float IEE754		A	Minimum value positive phase sequence current (fundamental)
Statistics	I2 avg fund	20278	2	4	float IEE754		A	Average value unbalanced load 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>
Statistics	I2 max fund	20280	2	4	float IEE754		A	Maximum value unbalanced load current (fundamental)
Statistics	I2 min fund	20282	2	4	float IEE754		A	Minimum value unbalanced load current (fundamental)
Statistics	MeasPointNo	20314	2	4	float IEE754		-	Each measuring point that is taken over by the statistics increments this counter. By means of this counter, the User can check whether the statistics are alive and if data are being acquired.
Measured values	IA RMS	20316	2	4	float IEE754		A	Measured value: Phase current (RMS)
Measured values	IB RMS	20318	2	4	float IEE754		A	Measured value: Phase current (RMS)
Measured values	IC RMS	20320	2	4	float IEE754		A	Measured value: Phase current (RMS)
Measured values	IX meas RMS	20322	2	4	float IEE754		A	Measured value (measured): IX (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>
Measured values	IR calc RMS	20324	2	4	float IEE754		A	Measured value (calculated): IR (RMS)
Statistics	IA avg RMS	20330	2	4	float IEE754		A	IA average value (RMS)
Statistics	IB avg RMS	20332	2	4	float IEE754		A	IB average value (RMS)
Statistics	IC avg RMS	20334	2	4	float IEE754		A	IC average value (RMS)
Statistics	IA max RMS	20336	2	4	float IEE754		A	IA maximum value (RMS)
Statistics	IB max RMS	20338	2	4	float IEE754		A	IB maximum value (RMS)
Statistics	IC max RMS	20340	2	4	float IEE754		A	IC maximum value (RMS)
Statistics	IA min RMS	20342	2	4	float IEE754		A	IA minimum value (RMS)
Statistics	IB min RMS	20344	2	4	float IEE754		A	IB minimum value (RMS)
Statistics	IC min RMS	20346	2	4	float IEE754		A	IC minimum value (RMS)

Commands

Module	Subgroup Names <i>Functions</i>	Start Register Address	No. of Modbus Registers	Function Code	Format	Bit Mask / {Bit Position}	Unit	Description
Acknowledge Reset	LEDs	22000	1	5	0xFF00		-	LEDs
Acknowledge Reset	Binary Outputs	22001	1	5	0xFF00		-	Binary Outputs
Acknowledge Reset	Comm	22002	1	5	0xFF00		-	Communication
Acknowledge Reset	Device	22003	1	5	0xFF00		-	Device
Acknowledge Reset	Counter	22004	1	5	0xFF00		-	Counter
Acknowledge Reset	Ack TripCmd	22005	1	5	0xFF00		-	Signal: Acknowledge Trip Command
Acknowledge Reset	Modbus diagnosis counter	22006	1	5	0xFF00		-	Modbus diagnosis counter
Acknowledge Reset	Res Sum trip	22012	1	5	short		-	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

<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 3	22022	1	5	0xFF00=On 0x0000=Off		-	Assignable Communication Command
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
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

<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 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
/AppFrame/SingleSet/ParameterSet	Comm PS1	22050	1	5	0xFF00		-	Communication Setting Group1
/AppFrame/SingleSet/ParameterSet	Comm PS2	22051	1	5	0xFF00		-	Communication Setting Group2
/AppFrame/SingleSet/ParameterSet	Comm PS3	22052	1	5	0xFF00		-	Communication Setting Group3
/AppFrame/SingleSet/ParameterSet	Comm PS4	22053	1	5	0xFF00		-	Communication Setting Group4

Settings

<i>Module</i>	<i>Subgroup Names Functions</i>	<i>Start Register Address</i>	<i>No. of Modbus Registers</i>	<i>Function Code</i>	<i>Format</i>	<i>Bit Mask / {Bit Position}</i>	<i>Unit</i>	<i>Description</i>
Date and Time		32500	6	3 16	struct			
	y	32500	6	3 16	short	Word 0 (1)	-	Year
	m	32500	6	3 16	short	Word 1 (17)	-	Month
	d	32500	6	3 16	short	Word 2 (33)	-	Days
	h	32500	6	3 16	short	Word 3 (49)	-	Hours
	min	32500	6	3 16	short	Word 4 (65)	-	Minute
	ms	32500	6	3 16	short	Word 5 (81)	-	Milliseconds

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