PROTECTION MADE SIMPLE.

HighPROTEC

MRMV4

MODBUS Data Point List

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English

REFERENCE MANUAL MRMV4-3.10-EN-Modbus-Datapoints

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Revision A

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1 Modbus Parameters

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

NOTICE!

The Parameters are described within the Reference Manual of the device (separate document).

1.1 Notes for the SCADA-System

When using Modbus RTU the following times have to be considered by the control system and are fixed within the device:

The dwell times (t_D) before start of a telegram must be set at least to 3.5 characters.

Examples:

- 3.5 characters 9600 Baud = 4 ms
- 3.5 characters 19200 Baud = 2 ms
- 3.5 characters 38400 Baud = 1 ms

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

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

2 Specific Modbus Function Codes

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

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

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

2.1 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

Response

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

Register address (HI · 256 + LO) — The data word address from where reading should start.

Register number (HI · 256 + LO) — Number of data words to be read. Valid range: 1…125

Byte number — Number of subsequent Bytes containing data words.

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

2.2 Float Values IEEE 754

	Sign	Exponent	Mantissa
Value:	+1	2^{13}	1.34199857711792
Encoded as:	0	140	2868892
Binary:	☐	☑☐☐☐☑☑☐☐	☐☑☐☑☐☑☑☑☑☐☐☐☑☑☐☑☐☐☑☑☑☐☐
Decimal Representation:		10993.652	
Binary Representation:		01000110001010111100011010011100	
Hexadecimal Representation:		0x462bc69c	

For displaying a float value, it is important to save received bytes in a correct order. A float value in Modbus will be transmitted in “Big Endian” format (Motorola Format), that means the most significant byte is transmitted first.

For saving received bytes in Modbus master it must be considered which architecture is used. Is Modbus Master is a “Little Endian” architecture, the received frame needs to be swapped to corresponding memory addresses. If it is not saved in correct order it is possible that the displayed value is useless.

☼ **Example:**

The following value is transmitted:

Modbus transmit value			
0x46	0x2b	0xc6	0x9c

Then the representation in the receiving device's internal memory has to be as follows:

Memory Addresses	Big Endian		Little Endian	
Address	Hex	10993.65	Hex	10993.65
1000	0x46		0x9c	
1001	0x2b		0xc6	
1002	0xc6		0x2b	
1003	0x9c		0x46	

2.3 Function Code 5

Query

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

Response

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

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

Register data — Value of the data word to be written (High-byte and Low-byte).

Permitted value range:

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

2.4 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

Response

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

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

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

2.5 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

Response

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

Register address (HI · 256 + LO) — Data word address as from where writing should start.

Register number (HI · 256 + LO):

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

Byte number — Number of subsequent Bytes to contain data words.

Register — Data words read out of the device (High-byte and Low-byte).

2.6 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.

NOTICE!

The devices do not respond to a broadcast command.

2.7 Supported MODBUS Error Messages

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

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

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

Slave Address	0x80 + Function Code	Exception Code	Check-sum HI	Check-sum LO

In the second Byte of the response the Function Code is sent with the highest Bit set to 1. This is equivalent to an addition by 0x80. The third Byte holds the Exception Code of the error message.

3 Appendix – Data Point Lists

3.1 Signals

Legend: (*) = These signals have to be acknowledged by the Scada System.

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
/SG1		**256**	**1**	**3**	**Struct**			
	Removed-I	256	1	3	Bit	0x1 (1)	-	State of the module input: The withdrawable circuit breaker is Removed
	CES SG removed	256	1	3	Bit	0x2 (2)	-	Signal: Command Execution Supervision: Switching Command unsuccessful, Switchgear removed.
	Removed	256	1	3	Bit	0x4 (3)	-	Signal: The withdrawable circuit breaker is Removed
BO Slot X2		**1003**	**1**	**3**	**Struct**			
	BO 1	1003	1	3	Bit	0x1 (1)	-	Signal: Binary Output Relay
	BO 2	1003	1	3	Bit	0x2 (2)	-	Signal: Binary Output Relay
	BO 3	1003	1	3	Bit	0x4 (3)	-	Signal: Binary Output Relay
	BO 4	1003	1	3	Bit	0x8 (4)	-	Signal: Binary Output Relay

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	BO 5	1003	1	3	Bit	0x10 (5)	-	Signal: Binary Output Relay
	BO 6	1003	1	3	Bit	0x20 (6)	-	Signal: Binary Output Relay
	DISARMED!	1003	1	3	Bit	0x40 (7)	-	Signal: CAUTION! RELAYS DISARMED in order to safely perform maintenance while eliminating the risk of taking an entire process off-line. (Note: The Self Supervision Contact cannot be disarmed). YOU MUST ENSURE that the relays are ARMED AGAIN after maintenance
	Outs forced	1003	1	3	Bit	0x80 (8)	-	Signal: The State of at least one Relay Output has been set by force. That means that the state of at least one Relay is forced and hence does not show the state of the assigned signals.
BO Slot X6		**1004**	**1**	**3**	**Struct**			
	BO 1	1004	1	3	Bit	0x1 (1)	-	Signal: Binary Output Relay
	BO 2	1004	1	3	Bit	0x2 (2)	-	Signal: Binary Output Relay
	BO 3	1004	1	3	Bit	0x4 (3)	-	Signal: Binary Output Relay
	BO 4	1004	1	3	Bit	0x8 (4)	-	Signal: Binary Output Relay
	BO 5	1004	1	3	Bit	0x10	-	Signal: Binary Output Relay

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
						(5)		
	BO 6	1004	1	3	Bit	0x20 (6)	-	Signal: Binary Output Relay
	DISARMED!	1004	1	3	Bit	0x40 (7)	-	Signal: CAUTION! RELAYS DISARMED in order to safely perform maintenance while eliminating the risk of taking an entire process off-line. (Note: The Self Supervision Contact cannot be disarmed). YOU MUST ENSURE that the relays are ARMED AGAIN after maintenance
	Outs forced	1004	1	3	Bit	0x80 (8)	-	Signal: The State of at least one Relay Output has been set by force. That means that the state of at least one Relay is forced and hence does not show the state of the assigned signals.
CBF – 50BF, 62BF		**53**	**1**	**3**	**Struct**			
	ExBlo1-I	53	1	3	Bit	0x1 (1)	-	Module input state: External blocking1
	ExBlo2-I	53	1	3	Bit	0x2 (2)	-	Module input state: External blocking2
	Active	53	1	3	Bit	0x4 (3)	-	Signal: active
	ExBlo	53	1	3	Bit	0x8 (4)	-	Signal: External Blocking
	Trigger1-I	53	1	3	Bit	0x10 (5)	-	Module Input: Trigger that will start the CBF
	Trigger2-I	53	1	3	Bit	0x20	-	Module Input: Trigger that will start the CBF

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
						(6)		
	Trigger3-I	53	1	3	Bit	0x40 (7)	-	Module Input: Trigger that will start the CBF
	running	53	1	3	Bit	0x80 (8)	-	Signal: CBF-Module started
	Alarm (*)	53	1	3	Bit	0x100 (9)	-	Signal: Circuit Breaker Failure
	Lockout (*)	53	1	3	Bit	0x200 (10)	-	Signal: Lockout
	Waiting for Trigger (*)	53	1	3	Bit	0x400 (11)	-	Waiting for Trigger
CTS – 60L		**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

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	Alarm	137	1	3	Bit	0x10 (5)	-	Signal: Alarm Current Transformer Measuring Circuit Supervision
Ctrl		**176**	**1**	**3**	**Struct**			
	Local	176	1	3	Bit	0x1 (1)	-	Switching Authority: Local
	Remote	176	1	3	Bit	0x2 (2)	-	Switching Authority: Remote
	NonInterl	176	1	3	Bit	0x4 (3)	-	Non-Interlocking is active
	SG Disturb	176	1	3	Bit	0x8 (4)	-	(At least one) Switchgear is disturbed.
	SG Indeterm	176	1	3	Bit	0x10 (5)	-	(At least one) Switchgear is moving (Position cannot be determined).
DI Slot X1		**1000**	**1**	**3**	**Struct**			
	DI 1	1000	1	3	Bit	0x1 (1)	-	Signal: Digital Input
	DI 2	1000	1	3	Bit	0x2 (2)	-	Signal: Digital Input
	DI 3	1000	1	3	Bit	0x4 (3)	-	Signal: Digital Input
	DI 4	1000	1	3	Bit	0x8	-	Signal: Digital Input

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
						(4)		
	DI 5	1000	1	3	Bit	0x10 (5)	-	Signal: Digital Input
	DI 6	1000	1	3	Bit	0x20 (6)	-	Signal: Digital Input
	DI 7	1000	1	3	Bit	0x40 (7)	-	Signal: Digital Input
	DI 8	1000	1	3	Bit	0x80 (8)	-	Signal: Digital Input
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
	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	-	Signal: active

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
						(6)		
	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
	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	-	Module input state: Alarm

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
						(4)		
	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	-	Module input state: External blocking2

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
						(2)		
	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

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
ExP[4]		**52**	**1**	**3**	**Struct**			
	ExBlo1-I	52	1	3	Bit	0x1 (1)	-	Module input state: External blocking1
	ExBlo2-I	52	1	3	Bit	0x2 (2)	-	Module input state: External blocking2
	ExBlo TripCmd-I	52	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	Alarm-I	52	1	3	Bit	0x8 (4)	-	Module input state: Alarm
	Trip-I	52	1	3	Bit	0x10 (5)	-	Module input state: Trip
	Active	52	1	3	Bit	0x20 (6)	-	Signal: active
	ExBlo	52	1	3	Bit	0x40 (7)	-	Signal: External Blocking
	Blo TripCmd	52	1	3	Bit	0x80 (8)	-	Signal: Trip Command blocked
	ExBlo TripCmd	52	1	3	Bit	0x100 (9)	-	Signal: External Blocking of the Trip Command
	Alarm	52	1	3	Bit	0x200 (10)	-	Signal: Alarm

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	Trip (*)	52	1	3	Bit	0x400 (11)	-	Signal: Trip
	TripCmd (*)	52	1	3	Bit	0x800 (12)	-	Signal: Trip Command
Fast Status Register		**5000**	**1**	**3**	**Struct**			
	Device Type	5000	1	3	Bit	0xffff (1)	-	Device type code for relationship between device name and its Modbus code. HighPROTEC: MRI4 - 1000 MRU4 - 1001 MRA4 - 1002 MCA4 - 1003 MRDT4 - 1005 MCDTV4 - 1006 MCDGV4 - 1007 MRM4 - 1009 MRMV4 - 1010 MCDLV4 - 1011
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.

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
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
	Config Bin Inp3-I	5002	1	3	Bit	0x4 (3)	-	State of the module input: Config Bin Inp
	Config Bin Inp4-I	5002	1	3	Bit	0x8 (4)	-	State of the module input: Config Bin Inp
	Config Bin Inp5-I	5002	1	3	Bit	0x10 (5)	-	State of the module input: Config Bin Inp
	Config Bin Inp6-I	5002	1	3	Bit	0x20 (6)	-	State of the module input: Config Bin Inp
	Config Bin Inp7-I	5002	1	3	Bit	0x40 (7)	-	State of the module input: Config Bin Inp
	Config Bin Inp8-I	5002	1	3	Bit	0x80 (8)	-	State of the module input: Config Bin Inp
	Config Bin Inp9-I	5002	1	3	Bit	0x100 (9)	-	State of the module input: Config Bin Inp
	Config Bin Inp10-I	5002	1	3	Bit	0x200	-	State of the module input: Config Bin Inp

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
						(10)		
	Config Bin Inp11-I	5002	1	3	Bit	0x400 (11)	-	State of the module input: Config Bin Inp
	Config Bin Inp12-I	5002	1	3	Bit	0x800 (12)	-	State of the module input: Config Bin Inp
	Config Bin Inp13-I	5002	1	3	Bit	0x1000 (13)	-	State of the module input: Config Bin Inp
	Config Bin Inp14-I	5002	1	3	Bit	0x2000 (14)	-	State of the module input: Config Bin Inp
	Config Bin Inp15-I	5002	1	3	Bit	0x4000 (15)	-	State of the module input: Config Bin Inp
	Config Bin Inp16-I	5002	1	3	Bit	0x8000 (16)	-	State of the module input: Config Bin Inp
Fast Status Register		**5003**	**1**	**3**	**Struct**			
	Config Bin Inp17-I	5003	1	3	Bit	0x1 (1)	-	State of the module input: Config Bin Inp
	Config Bin Inp18-I	5003	1	3	Bit	0x2 (2)	-	State of the module input: Config Bin Inp
	Config Bin Inp19-I	5003	1	3	Bit	0x4 (3)	-	State of the module input: Config Bin Inp

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	Config Bin Inp20-I	5003	1	3	Bit	0x8 (4)	-	State of the module input: Config Bin Inp
	Config Bin Inp21-I	5003	1	3	Bit	0x10 (5)	-	State of the module input: Config Bin Inp
	Config Bin Inp22-I	5003	1	3	Bit	0x20 (6)	-	State of the module input: Config Bin Inp
	Config Bin Inp23-I	5003	1	3	Bit	0x40 (7)	-	State of the module input: Config Bin Inp
	Config Bin Inp24-I	5003	1	3	Bit	0x80 (8)	-	State of the module input: Config Bin Inp
	Config Bin Inp25-I	5003	1	3	Bit	0x100 (9)	-	State of the module input: Config Bin Inp
	Config Bin Inp26-I	5003	1	3	Bit	0x200 (10)	-	State of the module input: Config Bin Inp
	Config Bin Inp27-I	5003	1	3	Bit	0x400 (11)	-	State of the module input: Config Bin Inp
	Config Bin Inp28-I	5003	1	3	Bit	0x800 (12)	-	State of the module input: Config Bin Inp
	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	-	State of the module input: Config Bin Inp

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
						(14)		
	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 Cause (*)	5004	1	3	Bit	0xffff (1)	-	Initial reason of trip. It is presented as an integer value and corresponds to the “Trip” entry in the fault record, which refers to the name of the protective module that tripped first. Look up the definition of these integer values (i. e. the mapping trip code number-->module name) in the “Cause of Trip” table within the SCADA documentation.
I2>[1] – 46		**82**	**1**	**3**	**Struct**			
	ExBlo1-I	82	1	3	Bit	0x1 (1)	-	Module input state: External blocking1
	ExBlo2-I	82	1	3	Bit	0x2 (2)	-	Module input state: External blocking2
	ExBlo TripCmd-I	82	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	Active	82	1	3	Bit	0x8 (4)	-	Signal: active
	ExBlo	82	1	3	Bit	0x10	-	Signal: External Blocking

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
						(5)		
	Blo TripCmd	82	1	3	Bit	0x20 (6)	-	Signal: Trip Command blocked
	ExBlo TripCmd	82	1	3	Bit	0x40 (7)	-	Signal: External Blocking of the Trip Command
	Alarm	82	1	3	Bit	0x80 (8)	-	Signal: Alarm Negative Sequence
	Trip (*)	82	1	3	Bit	0x100 (9)	-	Signal: Trip
	TripCmd (*)	82	1	3	Bit	0x200 (10)	-	Signal: Trip Command
I2>[2] – 46		**83**	**1**	**3**	**Struct**			
	ExBlo1-I	83	1	3	Bit	0x1 (1)	-	Module input state: External blocking1
	ExBlo2-I	83	1	3	Bit	0x2 (2)	-	Module input state: External blocking2
	ExBlo TripCmd-I	83	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	Active	83	1	3	Bit	0x8 (4)	-	Signal: active
	ExBlo	83	1	3	Bit	0x10	-	Signal: External Blocking

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
						(5)		
	Blo TripCmd	83	1	3	Bit	0x20 (6)	-	Signal: Trip Command blocked
	ExBlo TripCmd	83	1	3	Bit	0x40 (7)	-	Signal: External Blocking of the Trip Command
	Alarm	83	1	3	Bit	0x80 (8)	-	Signal: Alarm Negative Sequence
	Trip (*)	83	1	3	Bit	0x100 (9)	-	Signal: Trip
	TripCmd (*)	83	1	3	Bit	0x200 (10)	-	Signal: Trip Command
I<[1] – 37		**167**	**1**	**3**	**Struct**			
	ExBlo1-I	167	1	3	Bit	0x1 (1)	-	Module input state: External blocking1
	ExBlo2-I	167	1	3	Bit	0x2 (2)	-	Module input state: External blocking2
	ExBlo TripCmd-I	167	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	Active	167	1	3	Bit	0x10 (5)	-	Signal: active
	ExBlo	167	1	3	Bit	0x20	-	Signal: External Blocking

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
						(6)		
	Blo TripCmd	167	1	3	Bit	0x40 (7)	-	Signal: Trip Command blocked
	ExBlo TripCmd	167	1	3	Bit	0x80 (8)	-	Signal: External Blocking of the Trip Command
	Alarm	167	1	3	Bit	0x200 (10)	-	Signal: Alarm
	Trip (*)	167	1	3	Bit	0x400 (11)	-	Signal: Trip
	TripCmd (*)	167	1	3	Bit	0x800 (12)	-	Signal: Trip Command
I<[2] – 37		**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	-	Signal: External Blocking

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
						(6)		
	Blo TripCmd	168	1	3	Bit	0x40 (7)	-	Signal: Trip Command blocked
	ExBlo TripCmd	168	1	3	Bit	0x80 (8)	-	Signal: External Blocking of the Trip Command
	Alarm	168	1	3	Bit	0x200 (10)	-	Signal: Alarm
	Trip (*)	168	1	3	Bit	0x400 (11)	-	Signal: Trip
	TripCmd (*)	168	1	3	Bit	0x800 (12)	-	Signal: Trip Command
I<[3] – 37		**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	-	Signal: External Blocking

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
						(6)		
	Blo TripCmd	169	1	3	Bit	0x40 (7)	-	Signal: Trip Command blocked
	ExBlo TripCmd	169	1	3	Bit	0x80 (8)	-	Signal: External Blocking of the Trip Command
	Alarm	169	1	3	Bit	0x200 (10)	-	Signal: Alarm
	Trip (*)	169	1	3	Bit	0x400 (11)	-	Signal: Trip
	TripCmd (*)	169	1	3	Bit	0x800 (12)	-	Signal: Trip Command
IG[1] – 50N, 51N		**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
	Ex rev Interl-I	15	1	3	Bit	0x8 (4)	-	Module input state: External reverse interlocking
	Active	15	1	3	Bit	0x10	-	Signal: active

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
						(5)		
	ExBlo	15	1	3	Bit	0x20 (6)	-	Signal: External Blocking
	Ex rev Interl	15	1	3	Bit	0x40 (7)	-	Signal: External reverse Interlocking
	Blo TripCmd	15	1	3	Bit	0x80 (8)	-	Signal: Trip Command blocked
	ExBlo TripCmd	15	1	3	Bit	0x100 (9)	-	Signal: External Blocking of the Trip Command
	Alarm	15	1	3	Bit	0x400 (11)	-	Signal: The alarm threshold has been exceeded.
	Trip (*)	15	1	3	Bit	0x800 (12)	-	Signal: Trip
	TripCmd (*)	15	1	3	Bit	0x1000 (13)	-	Signal: Trip Command
IG[2] – 50N, 51N		**16**	**1**	**3**	**Struct**			
	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

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	ExBlo TripCmd-I	16	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	Ex rev Interl-I	16	1	3	Bit	0x8 (4)	-	Module input state: External reverse interlocking
	Active	16	1	3	Bit	0x10 (5)	-	Signal: active
	ExBlo	16	1	3	Bit	0x20 (6)	-	Signal: External Blocking
	Ex rev Interl	16	1	3	Bit	0x40 (7)	-	Signal: External reverse Interlocking
	Blo TripCmd	16	1	3	Bit	0x80 (8)	-	Signal: Trip Command blocked
	ExBlo TripCmd	16	1	3	Bit	0x100 (9)	-	Signal: External Blocking of the Trip Command
	Alarm	16	1	3	Bit	0x400 (11)	-	Signal: The alarm threshold has been exceeded.
	Trip (*)	16	1	3	Bit	0x800 (12)	-	Signal: Trip
	TripCmd (*)	16	1	3	Bit	0x1000 (13)	-	Signal: Trip Command
IG[3] – 50N, 51N		**17**	**1**	**3**	**Struct**			

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	ExBlo1-I	17	1	3	Bit	0x1 (1)	-	Module input state: External blocking1
	ExBlo2-I	17	1	3	Bit	0x2 (2)	-	Module input state: External blocking2
	ExBlo TripCmd-I	17	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	Ex rev Interl-I	17	1	3	Bit	0x8 (4)	-	Module input state: External reverse interlocking
	Active	17	1	3	Bit	0x10 (5)	-	Signal: active
	ExBlo	17	1	3	Bit	0x20 (6)	-	Signal: External Blocking
	Ex rev Interl	17	1	3	Bit	0x40 (7)	-	Signal: External reverse Interlocking
	Blo TripCmd	17	1	3	Bit	0x80 (8)	-	Signal: Trip Command blocked
	ExBlo TripCmd	17	1	3	Bit	0x100 (9)	-	Signal: External Blocking of the Trip Command
	Alarm	17	1	3	Bit	0x400 (11)	-	Signal: The alarm threshold has been exceeded.
	Trip (*)	17	1	3	Bit	0x800	-	Signal: Trip

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
						(12)		
	TripCmd (*)	17	1	3	Bit	0x1000 (13)	-	Signal: Trip Command
IG[4] – 50N, 51N		**18**	**1**	**3**	**Struct**			
	ExBlo1-I	18	1	3	Bit	0x1 (1)	-	Module input state: External blocking1
	ExBlo2-I	18	1	3	Bit	0x2 (2)	-	Module input state: External blocking2
	ExBlo TripCmd-I	18	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	Ex rev Interl-I	18	1	3	Bit	0x8 (4)	-	Module input state: External reverse interlocking
	Active	18	1	3	Bit	0x10 (5)	-	Signal: active
	ExBlo	18	1	3	Bit	0x20 (6)	-	Signal: External Blocking
	Ex rev Interl	18	1	3	Bit	0x40 (7)	-	Signal: External reverse Interlocking
	Blo TripCmd	18	1	3	Bit	0x80 (8)	-	Signal: Trip Command blocked

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	ExBlo TripCmd	18	1	3	Bit	0x100 (9)	-	Signal: External Blocking of the Trip Command
	Alarm	18	1	3	Bit	0x400 (11)	-	Signal: The alarm threshold has been exceeded.
	Trip (*)	18	1	3	Bit	0x800 (12)	-	Signal: Trip
	TripCmd (*)	18	1	3	Bit	0x1000 (13)	-	Signal: Trip Command
IRIG-B		**148**	**1**	**3**	**Struct**			
	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.
I[1] – 50, 51		**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

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	Ex rev Interl-I	3	1	3	Bit	0x8 (4)	-	Module input state: External reverse interlocking
	Active	3	1	3	Bit	0x10 (5)	-	Signal: active
	ExBlo	3	1	3	Bit	0x20 (6)	-	Signal: External Blocking
	Ex rev Interl	3	1	3	Bit	0x40 (7)	-	Signal: External reverse Interlocking
	Blo TripCmd	3	1	3	Bit	0x80 (8)	-	Signal: Trip Command blocked
	ExBlo TripCmd	3	1	3	Bit	0x100 (9)	-	Signal: External Blocking of the Trip Command
I[1] – 50, 51		**4**	**1**	**3**	**Struct**			
	Alarm L1	4	1	3	Bit	0x1 (1)	-	Signal: Alarm L1
	Alarm L2	4	1	3	Bit	0x2 (2)	-	Signal: Alarm L2
	Alarm L3	4	1	3	Bit	0x4 (3)	-	Signal: Alarm L3
	Alarm	4	1	3	Bit	0x8 (4)	-	Signal: Alarm

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	Trip L1 (*)	4	1	3	Bit	0x10 (5)	-	Signal: General Trip Phase L1
	Trip L2 (*)	4	1	3	Bit	0x20 (6)	-	Signal: General Trip Phase L2
	Trip L3 (*)	4	1	3	Bit	0x40 (7)	-	Signal: General Trip Phase L3
	Trip (*)	4	1	3	Bit	0x80 (8)	-	Signal: Trip
	TripCmd (*)	4	1	3	Bit	0x100 (9)	-	Signal: Trip Command
I[2] – 50, 51		**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
	Ex rev Interl-I	5	1	3	Bit	0x8 (4)	-	Module input state: External reverse interlocking
	Active	5	1	3	Bit	0x10 (5)	-	Signal: active

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	ExBlo	5	1	3	Bit	0x20 (6)	-	Signal: External Blocking
	Ex rev Interl	5	1	3	Bit	0x40 (7)	-	Signal: External reverse Interlocking
	Blo TripCmd	5	1	3	Bit	0x80 (8)	-	Signal: Trip Command blocked
	ExBlo TripCmd	5	1	3	Bit	0x100 (9)	-	Signal: External Blocking of the Trip Command
I[2] – 50, 51		**6**	**1**	**3**	**Struct**			
	Alarm L1	6	1	3	Bit	0x1 (1)	-	Signal: Alarm L1
	Alarm L2	6	1	3	Bit	0x2 (2)	-	Signal: Alarm L2
	Alarm L3	6	1	3	Bit	0x4 (3)	-	Signal: Alarm L3
	Alarm	6	1	3	Bit	0x8 (4)	-	Signal: Alarm
	Trip L1 (*)	6	1	3	Bit	0x10 (5)	-	Signal: General Trip Phase L1
	Trip L2 (*)	6	1	3	Bit	0x20 (6)	-	Signal: General Trip Phase L2

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	Trip L3 (*)	6	1	3	Bit	0x40 (7)	-	Signal: General Trip Phase L3
	Trip (*)	6	1	3	Bit	0x80 (8)	-	Signal: Trip
	TripCmd (*)	6	1	3	Bit	0x100 (9)	-	Signal: Trip Command
I[3] – 50, 51		**7**	**1**	**3**	**Struct**			
	ExBlo1-I	7	1	3	Bit	0x1 (1)	-	Module input state: External blocking1
	ExBlo2-I	7	1	3	Bit	0x2 (2)	-	Module input state: External blocking2
	ExBlo TripCmd-I	7	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	Ex rev Interl-I	7	1	3	Bit	0x8 (4)	-	Module input state: External reverse interlocking
	Active	7	1	3	Bit	0x10 (5)	-	Signal: active
	ExBlo	7	1	3	Bit	0x20 (6)	-	Signal: External Blocking
	Ex rev Interl	7	1	3	Bit	0x40 (7)	-	Signal: External reverse Interlocking

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	Blo TripCmd	7	1	3	Bit	0x80 (8)	-	Signal: Trip Command blocked
	ExBlo TripCmd	7	1	3	Bit	0x100 (9)	-	Signal: External Blocking of the Trip Command
I[3] – 50, 51		**8**	**1**	**3**	**Struct**			
	Alarm L1	8	1	3	Bit	0x1 (1)	-	Signal: Alarm L1
	Alarm L2	8	1	3	Bit	0x2 (2)	-	Signal: Alarm L2
	Alarm L3	8	1	3	Bit	0x4 (3)	-	Signal: Alarm L3
	Alarm	8	1	3	Bit	0x8 (4)	-	Signal: Alarm
	Trip L1 (*)	8	1	3	Bit	0x10 (5)	-	Signal: General Trip Phase L1
	Trip L2 (*)	8	1	3	Bit	0x20 (6)	-	Signal: General Trip Phase L2
	Trip L3 (*)	8	1	3	Bit	0x40 (7)	-	Signal: General Trip Phase L3
	Trip (*)	8	1	3	Bit	0x80 (8)	-	Signal: Trip

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	TripCmd (*)	8	1	3	Bit	0x100 (9)	-	Signal: Trip Command
I[4] – 50, 51		**9**	**1**	**3**	**Struct**			
	ExBlo1-I	9	1	3	Bit	0x1 (1)	-	Module input state: External blocking1
	ExBlo2-I	9	1	3	Bit	0x2 (2)	-	Module input state: External blocking2
	ExBlo TripCmd-I	9	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	Ex rev Interl-I	9	1	3	Bit	0x8 (4)	-	Module input state: External reverse interlocking
	Active	9	1	3	Bit	0x10 (5)	-	Signal: active
	ExBlo	9	1	3	Bit	0x20 (6)	-	Signal: External Blocking
	Ex rev Interl	9	1	3	Bit	0x40 (7)	-	Signal: External reverse Interlocking
	Blo TripCmd	9	1	3	Bit	0x80 (8)	-	Signal: Trip Command blocked
	ExBlo TripCmd	9	1	3	Bit	0x100 (9)	-	Signal: External Blocking of the Trip Command

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
I[4] – 50, 51		**10**	**1**	**3**	**Struct**			
	Alarm L1	10	1	3	Bit	0x1 (1)	-	Signal: Alarm L1
	Alarm L2	10	1	3	Bit	0x2 (2)	-	Signal: Alarm L2
	Alarm L3	10	1	3	Bit	0x4 (3)	-	Signal: Alarm L3
	Alarm	10	1	3	Bit	0x8 (4)	-	Signal: Alarm
	Trip L1 (*)	10	1	3	Bit	0x10 (5)	-	Signal: General Trip Phase L1
	Trip L2 (*)	10	1	3	Bit	0x20 (6)	-	Signal: General Trip Phase L2
	Trip L3 (*)	10	1	3	Bit	0x40 (7)	-	Signal: General Trip Phase L3
	Trip (*)	10	1	3	Bit	0x80 (8)	-	Signal: Trip
	TripCmd (*)	10	1	3	Bit	0x100 (9)	-	Signal: Trip Command
I[5] – 50, 51		**11**	**1**	**3**	**Struct**			
	ExBlo1-I	11	1	3	Bit	0x1	-	Module input state: External blocking1

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
						(1)		
	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
	Ex rev Interl-I	11	1	3	Bit	0x8 (4)	-	Module input state: External reverse interlocking
	Active	11	1	3	Bit	0x10 (5)	-	Signal: active
	ExBlo	11	1	3	Bit	0x20 (6)	-	Signal: External Blocking
	Ex rev Interl	11	1	3	Bit	0x40 (7)	-	Signal: External reverse Interlocking
	Blo TripCmd	11	1	3	Bit	0x80 (8)	-	Signal: Trip Command blocked
	ExBlo TripCmd	11	1	3	Bit	0x100 (9)	-	Signal: External Blocking of the Trip Command
I[5] – 50, 51		**12**	**1**	**3**	**Struct**			
	Alarm L1	12	1	3	Bit	0x1 (1)	-	Signal: Alarm L1
	Alarm L2	12	1	3	Bit	0x2	-	Signal: Alarm L2

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
						(2)		
	Alarm L3	12	1	3	Bit	0x4 (3)	-	Signal: Alarm L3
	Alarm	12	1	3	Bit	0x8 (4)	-	Signal: Alarm
	Trip L1 (*)	12	1	3	Bit	0x10 (5)	-	Signal: General Trip Phase L1
	Trip L2 (*)	12	1	3	Bit	0x20 (6)	-	Signal: General Trip Phase L2
	Trip L3 (*)	12	1	3	Bit	0x40 (7)	-	Signal: General Trip Phase L3
	Trip (*)	12	1	3	Bit	0x80 (8)	-	Signal: Trip
	TripCmd (*)	12	1	3	Bit	0x100 (9)	-	Signal: Trip Command
I[6] – 50, 51		**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 (ANSI / IEEE)	Name Function	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
	Ex rev Interl-I	13	1	3	Bit	0x8 (4)	-	Module input state: External reverse interlocking
	Active	13	1	3	Bit	0x10 (5)	-	Signal: active
	ExBlo	13	1	3	Bit	0x20 (6)	-	Signal: External Blocking
	Ex rev Interl	13	1	3	Bit	0x40 (7)	-	Signal: External reverse Interlocking
	Blo TripCmd	13	1	3	Bit	0x80 (8)	-	Signal: Trip Command blocked
	ExBlo TripCmd	13	1	3	Bit	0x100 (9)	-	Signal: External Blocking of the Trip Command
I[6] – 50, 51		**14**	**1**	**3**	**Struct**			
	Alarm L1	14	1	3	Bit	0x1 (1)	-	Signal: Alarm L1
	Alarm L2	14	1	3	Bit	0x2 (2)	-	Signal: Alarm L2
	Alarm L3	14	1	3	Bit	0x4 (3)	-	Signal: Alarm L3

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	Alarm	14	1	3	Bit	0x8 (4)	-	Signal: Alarm
	Trip L1 (*)	14	1	3	Bit	0x10 (5)	-	Signal: General Trip Phase L1
	Trip L2 (*)	14	1	3	Bit	0x20 (6)	-	Signal: General Trip Phase L2
	Trip L3 (*)	14	1	3	Bit	0x40 (7)	-	Signal: General Trip Phase L3
	Trip (*)	14	1	3	Bit	0x80 (8)	-	Signal: Trip
	TripCmd (*)	14	1	3	Bit	0x100 (9)	-	Signal: Trip Command
Jam[1] – 51LR		**165**	**1**	**3**	**Struct**			
	ExBlo1-I	165	1	3	Bit	0x1 (1)	-	Module input state: External blocking1
	ExBlo2-I	165	1	3	Bit	0x2 (2)	-	Module input state: External blocking2
	ExBlo TripCmd-I	165	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	Active	165	1	3	Bit	0x10 (5)	-	Signal: active

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	ExBlo	165	1	3	Bit	0x20 (6)	-	Signal: External Blocking
	Blo TripCmd	165	1	3	Bit	0x40 (7)	-	Signal: Trip Command blocked
	ExBlo TripCmd	165	1	3	Bit	0x80 (8)	-	Signal: External Blocking of the Trip Command
	Alarm	165	1	3	Bit	0x200 (10)	-	Signal: Alarm
	Trip (*)	165	1	3	Bit	0x400 (11)	-	Signal: Trip
	TripCmd (*)	165	1	3	Bit	0x800 (12)	-	Signal: Trip Command
Jam[2] – 51LR		**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
	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

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	ExBlo	166	1	3	Bit	0x20 (6)	-	Signal: External Blocking
	Blo TripCmd	166	1	3	Bit	0x40 (7)	-	Signal: Trip Command blocked
	ExBlo TripCmd	166	1	3	Bit	0x80 (8)	-	Signal: External Blocking of the Trip Command
	Alarm	166	1	3	Bit	0x200 (10)	-	Signal: Alarm
	Trip (*)	166	1	3	Bit	0x400 (11)	-	Signal: Trip
	TripCmd (*)	166	1	3	Bit	0x800 (12)	-	Signal: Trip Command
LOP		**81**	**1**	**3**	**Struct**			
	ExBlo1-I	81	1	3	Bit	0x1 (1)	-	Module input state: External blocking1
	ExBlo2-I	81	1	3	Bit	0x2 (2)	-	Module input state: External blocking2
	Active	81	1	3	Bit	0x4 (3)	-	Signal: active
	ExBlo	81	1	3	Bit	0x8 (4)	-	Signal: External Blocking

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	LOP Blo	81	1	3	Bit	0x10 (5)	-	Signal: Loss of Potential blocks other elements.
	Alarm	81	1	3	Bit	0x20 (6)	-	Signal: Alarm Loss of Potential
	Ex FF EVT	81	1	3	Bit	0x1000 (13)	-	Signal: Alarm Fuse Failure Earth Voltage Transformers
	Ex FF VT	81	1	3	Bit	0x2000 (14)	-	Signal: Ex FF VT
LOP		**202**	**1**	**3**	**Struct**			
	Ex FF EVT-I	202	1	3	Bit	0x1 (1)	-	State of the module input: Alarm Fuse Failure Earth Voltage Transformers
	Ex FF VT-I	202	1	3	Bit	0x2 (2)	-	State of the module input: Alarm Fuse Failure Voltage Transformers
	Blo Trigger1-I	202	1	3	Bit	0x4 (3)	-	State of the module input: An Alarm of this protective element will block the Loss of Potential Detection.
	Blo Trigger2-I	202	1	3	Bit	0x8 (4)	-	State of the module input: An Alarm of this protective element will block the Loss of Potential Detection.
	Blo Trigger3-I	202	1	3	Bit	0x10 (5)	-	State of the module input: An Alarm of this protective element will block the Loss of Potential Detection.
	Blo Trigger4-I	202	1	3	Bit	0x20 (6)	-	State of the module input: An Alarm of this protective element will block the Loss of Potential Detection.

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	Blo Trigger5-I	202	1	3	Bit	0x40 (7)	-	State of the module input: An Alarm of this protective element will block the Loss of Potential Detection.
Logics		**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

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
Logics		**1101**	**1**	**3**	**Struct**			
	LE2.Gate Out	1101	1	3	Bit	0x1 (1)	-	Signal: Output of the logic gate
	LE2.Timer Out	1101	1	3	Bit	0x2 (2)	-	Signal: Timer Output
	LE2.Out	1101	1	3	Bit	0x4 (3)	-	Signal: Latched Output (Q)
	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
Logics		**1102**	**1**	**3**	**Struct**			
	LE3.Gate Out	1102	1	3	Bit	0x1	-	Signal: Output of the logic gate

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
						(1)		
	LE3.Timer Out	1102	1	3	Bit	0x2 (2)	-	Signal: Timer Output
	LE3.Out	1102	1	3	Bit	0x4 (3)	-	Signal: Latched Output (Q)
	LE3.Out inverted	1102	1	3	Bit	0x8 (4)	-	Signal: Negated Latched Output (Q NOT)
	LE3.Gate In1-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
Logics		**1103**	**1**	**3**	**Struct**			
	LE4.Gate Out	1103	1	3	Bit	0x1 (1)	-	Signal: Output of the logic gate
	LE4.Timer Out	1103	1	3	Bit	0x2	-	Signal: Timer Output

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
						(2)		
	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
	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
Logics		**1104**	**1**	**3**	**Struct**			
	LE5.Gate Out	1104	1	3	Bit	0x1 (1)	-	Signal: Output of the logic gate
	LE5.Timer Out	1104	1	3	Bit	0x2 (2)	-	Signal: Timer Output
	LE5.Out	1104	1	3	Bit	0x4	-	Signal: Latched Output (Q)

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
						(3)		
	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
Logics		**1105**	**1**	**3**	**Struct**			
	LE6.Gate Out	1105	1	3	Bit	0x1 (1)	-	Signal: Output of the logic gate
	LE6.Timer Out	1105	1	3	Bit	0x2 (2)	-	Signal: Timer Output
	LE6.Out	1105	1	3	Bit	0x4 (3)	-	Signal: Latched Output (Q)
	LE6.Out inverted	1105	1	3	Bit	0x8	-	Signal: Negated Latched Output (Q NOT)

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
						(4)		
	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
Logics		**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)
	LE7.Out inverted	1106	1	3	Bit	0x8 (4)	-	Signal: Negated Latched Output (Q NOT)

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	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
Logics		**1107**	**1**	**3**	**Struct**			
	LE8.Gate Out	1107	1	3	Bit	0x1 (1)	-	Signal: Output of the logic gate
	LE8.Timer Out	1107	1	3	Bit	0x2 (2)	-	Signal: Timer Output
	LE8.Out	1107	1	3	Bit	0x4 (3)	-	Signal: Latched Output (Q)
	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

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	LE8.Gate In2-I	1107	1	3	Bit	0x20 (6)	-	State of the module input: Assignment of the Input Signal
	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
Logics		**1108**	**1**	**3**	**Struct**			
	LE9.Gate Out	1108	1	3	Bit	0x1 (1)	-	Signal: Output of the logic gate
	LE9.Timer Out	1108	1	3	Bit	0x2 (2)	-	Signal: Timer Output
	LE9.Out	1108	1	3	Bit	0x4 (3)	-	Signal: Latched Output (Q)
	LE9.Out inverted	1108	1	3	Bit	0x8 (4)	-	Signal: Negated Latched Output (Q NOT)
	LE9.Gate In1-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

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	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
Logics		**1109**	**1**	**3**	**Struct**			
	LE10.Gate Out	1109	1	3	Bit	0x1 (1)	-	Signal: Output of the logic gate
	LE10.Timer Out	1109	1	3	Bit	0x2 (2)	-	Signal: Timer Output
	LE10.Out	1109	1	3	Bit	0x4 (3)	-	Signal: Latched Output (Q)
	LE10.Out inverted	1109	1	3	Bit	0x8 (4)	-	Signal: Negated Latched Output (Q NOT)
	LE10.Gate In1-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

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	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
Logics		**1110**	**1**	**3**	**Struct**			
	LE11.Gate Out	1110	1	3	Bit	0x1 (1)	-	Signal: Output of the logic gate
	LE11.Timer Out	1110	1	3	Bit	0x2 (2)	-	Signal: Timer Output
	LE11.Out	1110	1	3	Bit	0x4 (3)	-	Signal: Latched Output (Q)
	LE11.Out inverted	1110	1	3	Bit	0x8 (4)	-	Signal: Negated Latched Output (Q NOT)
	LE11.Gate In1-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

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	LE11.Reset Latch-I	1110	1	3	Bit	0x100 (9)	-	State of the module input: Reset Signal for the Latching
Logics		**1111**	**1**	**3**	**Struct**			
	LE12.Gate Out	1111	1	3	Bit	0x1 (1)	-	Signal: Output of the logic gate
	LE12.Timer Out	1111	1	3	Bit	0x2 (2)	-	Signal: Timer Output
	LE12.Out	1111	1	3	Bit	0x4 (3)	-	Signal: Latched Output (Q)
	LE12.Out inverted	1111	1	3	Bit	0x8 (4)	-	Signal: Negated Latched Output (Q NOT)
	LE12.Gate In1-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
	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

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
Logics		**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
Logics		**1113**	**1**	**3**	**Struct**			
	LE14.Gate Out	1113	1	3	Bit	0x1	-	Signal: Output of the logic gate

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
						(1)		
	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
Logics		**1114**	**1**	**3**	**Struct**			
	LE15.Gate Out	1114	1	3	Bit	0x1 (1)	-	Signal: Output of the logic gate
	LE15.Timer Out	1114	1	3	Bit	0x2	-	Signal: Timer Output

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
						(2)		
	LE15.Out	1114	1	3	Bit	0x4 (3)	-	Signal: Latched Output (Q)
	LE15.Out inverted	1114	1	3	Bit	0x8 (4)	-	Signal: Negated Latched Output (Q NOT)
	LE15.Gate In1-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
Logics		**1115**	**1**	**3**	**Struct**			
	LE16.Gate Out	1115	1	3	Bit	0x1 (1)	-	Signal: Output of the logic gate
	LE16.Timer Out	1115	1	3	Bit	0x2 (2)	-	Signal: Timer Output
	LE16.Out	1115	1	3	Bit	0x4	-	Signal: Latched Output (Q)

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
						(3)		
	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
	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
Logics		**1116**	**1**	**3**	**Struct**			
	LE17.Gate Out	1116	1	3	Bit	0x1 (1)	-	Signal: Output of the logic gate
	LE17.Timer Out	1116	1	3	Bit	0x2 (2)	-	Signal: Timer Output
	LE17.Out	1116	1	3	Bit	0x4 (3)	-	Signal: Latched Output (Q)
	LE17.Out inverted	1116	1	3	Bit	0x8	-	Signal: Negated Latched Output (Q NOT)

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
						(4)		
	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
Logics		**1117**	**1**	**3**	**Struct**			
	LE18.Gate Out	1117	1	3	Bit	0x1 (1)	-	Signal: Output of the logic gate
	LE18.Timer Out	1117	1	3	Bit	0x2 (2)	-	Signal: Timer Output
	LE18.Out	1117	1	3	Bit	0x4 (3)	-	Signal: Latched Output (Q)
	LE18.Out inverted	1117	1	3	Bit	0x8 (4)	-	Signal: Negated Latched Output (Q NOT)

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	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
Logics		**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)
	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

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	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
Logics		**1119**	**1**	**3**	**Struct**			
	LE20.Gate Out	1119	1	3	Bit	0x1 (1)	-	Signal: Output of the logic gate
	LE20.Timer Out	1119	1	3	Bit	0x2 (2)	-	Signal: Timer Output
	LE20.Out	1119	1	3	Bit	0x4 (3)	-	Signal: Latched Output (Q)
	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 (ANSI / IEEE)	Name Function	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
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
	Alarm	170	1	3	Bit	0x10 (5)	-	Signal: Alarm
	Trip	170	1	3	Bit	0x20 (6)	-	Signal: Trip
MStart		**160**	**1**	**3**	**Struct**			
	ExBlo TripCmd-I	160	1	3	Bit	0x4	-	Module input state: External Blocking of the Trip Command

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
						(3)		
	Blo TripCmd	160	1	3	Bit	0x10 (5)	-	Signal: Trip Command blocked
	Blo	160	1	3	Bit	0x40 (7)	-	Signal: Motor is blocked for starting or transition to Run mode
	ThermalBlo	160	1	3	Bit	0x80 (8)	-	Signal: Thermal block
	EmgOvr-I	160	1	3	Bit	0x100 (9)	-	State of the module input: Emergency Override. Signal has to be active in order to release the thermal capacity of the motor. Please notice that by doing this you run the risk of damaging the motor. “EMGOVR” has to be set to “DI” or “DI or UI” for this input to take effect
	InSq-I	160	1	3	Bit	0x200 (10)	-	State of the module input: Incomplete Sequence
MStart		**161**	**1**	**3**	**Struct**			
	RemStartBlock-I	161	1	3	Bit	0x2 (2)	-	State of the module input: Remote Motor Start Blocking
	ZSS-I	161	1	3	Bit	0x10 (5)	-	State of the module input: Zero Speed Switch
	Active	161	1	3	Bit	0x80 (8)	-	Signal: active
	Trip (*)	161	1	3	Bit	0x400	-	Signal: Trip

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
						(11)		
	TripCmd (*)	161	1	3	Bit	0x800 (12)	-	Signal: Trip Command
	InSq Start2Run Fail	161	1	3	Bit	0x1000 (13)	-	Signal: Fail to transit from start to run based on reported back time
	InSq Stop2Start Faill	161	1	3	Bit	0x2000 (14)	-	Signal: Fail to transit from stop to start based on reported back time
	LATBlock	161	1	3	Bit	0x4000 (15)	-	Signal: Long acceleration timer enforced
	TripPhaseReverse (*)	161	1	3	Bit	0x8000 (16)	-	Signal: Relay tripped because of phase reverse detection
MStart		**162**	**1**	**3**	**Struct**			
	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

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

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
						(14)		
	Blo-GOCStart	162	1	3	Bit	0x4000 (15)	-	Signal: Ground Instantaneous Overcurrent Start Delay. GOC (Instantaneous Overcurrent) elements are blocked for the time programmed under this parameter
	Blo-IOCStart	162	1	3	Bit	0x8000 (16)	-	Signal: Phase Instantaneous Overcurrent Start Delay. IOC (Instantaneous Overcurrent) elements are blocked for the time programmed under this parameter
MStart		**163**	**1**	**3**	**Struct**			
	Blo-JamStart	163	1	3	Bit	0x1 (1)	-	Signal: JAM Start Delay. JAM(Instantaneous Overcurrent) elements are blocked for the time programmed under this parameter
	Blo-I<Start	163	1	3	Bit	0x2 (2)	-	Signal: Underload Start Delay. Underload(Instantaneous Overcurrent) elements are blocked for the time programmed under this parameter
	Blo-I2>Start	163	1	3	Bit	0x4 (3)	-	Signal: Motor start block current unbalance signal
	ColdStartSeq	163	1	3	Bit	0x8 (4)	-	Signal: Motor cold start sequence flag
	MotorStopBlo	163	1	3	Bit	0x20 (6)	-	Signal: Motor stop block other protection functions
	Blo-Generic1	163	1	3	Bit	0x40 (7)	-	Generic Start Delay. This value can be used to block any protective element.1
	Blo-Generic2	163	1	3	Bit	0x80 (8)	-	Generic Start Delay. This value can be used to block any protective element.2

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	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
	Rotating forward	163	1	3	Bit	0x2000 (14)	-	Signal: Rotation Direction forward
	Rotating backward	163	1	3	Bit	0x4000 (15)	-	Signal: Rotation Direction reverse
	STPC Blo-I	163	1	3	Bit	0x8000 (16)	-	State of the module input: With this setting a Digital Input keeps the Motor in the RUN mode, even when the motor current drops below STPC (motor stop current).
MStart		**204**	**1**	**3**	**Struct**			
	Blo-FrqStart	204	1	3	Bit	0x1 (1)	-	Signal: Frequency Start Delay. Frequency elements are blocked for the time programmed under this parameter
	Block-OverVStart	204	1	3	Bit	0x2	-	Signal: Overvoltage Start Delay. Overvoltage elements are blocked for the time programmed under this parameter

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
						(2)		
	Blo-PFacStart	204	1	3	Bit	0x4 (3)	-	Signal: Power Factor Start Delay. Power Factor elements are blocked for the time programmed under this parameter
	Blo-PowerStart	204	1	3	Bit	0x8 (4)	-	Signal: Power Start Delay. Power elements are blocked for the time programmed under this parameter
	Blo-UnderV Start	204	1	3	Bit	0x10 (5)	-	Signal: Undervoltage Start Delay. Undervoltage elements are blocked for the time programmed under this parameter
	Blo-U2>	204	1	3	Bit	0x20 (6)	-	Signal: Motor start block voltage unbalance signal.
Modbus		**1005**	**1**	**3**	**Struct**			
	Scada Cmd 1	1005	1	3	Bit	0x1 (1)	-	Scada Command
	Scada Cmd 2	1005	1	3	Bit	0x2 (2)	-	Scada Command
	Scada Cmd 3	1005	1	3	Bit	0x4 (3)	-	Scada Command
	Scada Cmd 4	1005	1	3	Bit	0x8 (4)	-	Scada Command
	Scada Cmd 5	1005	1	3	Bit	0x10 (5)	-	Scada Command
	Scada Cmd 6	1005	1	3	Bit	0x20	-	Scada Command

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
						(6)		
	Scada Cmd 7	1005	1	3	Bit	0x40 (7)	-	Scada Command
	Scada Cmd 8	1005	1	3	Bit	0x80 (8)	-	Scada Command
	Scada Cmd 9	1005	1	3	Bit	0x100 (9)	-	Scada Command
	Scada Cmd 10	1005	1	3	Bit	0x200 (10)	-	Scada Command
	Scada Cmd 11	1005	1	3	Bit	0x400 (11)	-	Scada Command
	Scada Cmd 12	1005	1	3	Bit	0x800 (12)	-	Scada Command
	Scada Cmd 13	1005	1	3	Bit	0x1000 (13)	-	Scada Command
	Scada Cmd 14	1005	1	3	Bit	0x2000 (14)	-	Scada Command
	Scada Cmd 15	1005	1	3	Bit	0x4000 (15)	-	Scada Command
	Scada Cmd 16	1005	1	3	Bit	0x8000 (16)	-	Scada Command

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
PF[1] – 55		**73**	**1**	**3**	**Struct**			
	ExBlo1-I	73	1	3	Bit	0x1 (1)	-	Module input state: External blocking
	ExBlo2-I	73	1	3	Bit	0x2 (2)	-	Module input state: External blocking
	ExBlo TripCmd-I	73	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	Active	73	1	3	Bit	0x8 (4)	-	Signal: active
	ExBlo	73	1	3	Bit	0x10 (5)	-	Signal: External Blocking
	Blo TripCmd	73	1	3	Bit	0x20 (6)	-	Signal: Trip Command blocked
	ExBlo TripCmd	73	1	3	Bit	0x40 (7)	-	Signal: External Blocking of the Trip Command
	Alarm	73	1	3	Bit	0x80 (8)	-	Signal: Alarm Power Factor
	Trip (*)	73	1	3	Bit	0x100 (9)	-	Signal: Trip Power Factor
	TripCmd (*)	73	1	3	Bit	0x200 (10)	-	Signal: Trip Command

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	Compensator	73	1	3	Bit	0x400 (11)	-	Signal: Compensation Signal
	Impossible	73	1	3	Bit	0x800 (12)	-	Signal: Alarm Power Factor Impossible
PF[2] – 55		**74**	**1**	**3**	**Struct**			
	ExBlo1-I	74	1	3	Bit	0x1 (1)	-	Module input state: External blocking
	ExBlo2-I	74	1	3	Bit	0x2 (2)	-	Module input state: External blocking
	ExBlo TripCmd-I	74	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	Active	74	1	3	Bit	0x8 (4)	-	Signal: active
	ExBlo	74	1	3	Bit	0x10 (5)	-	Signal: External Blocking
	Blo TripCmd	74	1	3	Bit	0x20 (6)	-	Signal: Trip Command blocked
	ExBlo TripCmd	74	1	3	Bit	0x40 (7)	-	Signal: External Blocking of the Trip Command
	Alarm	74	1	3	Bit	0x80 (8)	-	Signal: Alarm Power Factor

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	Trip (*)	74	1	3	Bit	0x100 (9)	-	Signal: Trip Power Factor
	TripCmd (*)	74	1	3	Bit	0x200 (10)	-	Signal: Trip Command
	Compensator	74	1	3	Bit	0x400 (11)	-	Signal: Compensation Signal
	Impossible	74	1	3	Bit	0x800 (12)	-	Signal: Alarm Power Factor Impossible
PQSCr		**60**	**1**	**3**	**Struct**			
	Cr Oflw Wp+	60	1	3	Bit	0x1 (1)	-	Signal: Counter Overflow Wp+
	Cr Oflw Wp-	60	1	3	Bit	0x2 (2)	-	Signal: Counter Overflow Wp-
	Cr Oflw Wq+	60	1	3	Bit	0x4 (3)	-	Signal: Counter Overflow Wq+
	Cr Oflw Wq-	60	1	3	Bit	0x8 (4)	-	Signal: Counter Overflow Wq-
	Cr Oflw Wp Net	60	1	3	Bit	0x10 (5)	-	Signal: Counter Overflow Wp Net
	Cr Oflw Wq Net	60	1	3	Bit	0x20 (6)	-	Signal: Counter Overflow Wq Net

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	Cr Oflw Ws Net	60	1	3	Bit	0x40 (7)	-	Signal: Counter Overflow Ws Net
	Cr OflwW Wp+	60	1	3	Bit	0x80 (8)	-	Signal: Counter Wp+ will overflow soon
	Cr OflwW Wp-	60	1	3	Bit	0x100 (9)	-	Signal: Counter Wp- will overflow soon
	Cr OflwW Wq+	60	1	3	Bit	0x200 (10)	-	Signal: Counter Wq+ will overflow soon
	Cr OflwW Wq-	60	1	3	Bit	0x400 (11)	-	Signal: Counter Wq- will overflow soon
	Cr OflwW Wp Net	60	1	3	Bit	0x800 (12)	-	Signal: Counter Wp Net will overflow soon
	Cr OflwW Wq Net	60	1	3	Bit	0x1000 (13)	-	Signal: Counter Wq Net will overflow soon
	Cr OflwW Ws Net	60	1	3	Bit	0x2000 (14)	-	Signal: Counter Ws Net will overflow soon
PQS[1] – 32, 37		**67**	**1**	**3**	**Struct**			
	ExBlo1-I	67	1	3	Bit	0x1 (1)	-	Module input state: External blocking
	ExBlo2-I	67	1	3	Bit	0x2 (2)	-	Module input state: External blocking

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	ExBlo TripCmd-I	67	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	Active	67	1	3	Bit	0x8 (4)	-	Signal: active
	ExBlo	67	1	3	Bit	0x10 (5)	-	Signal: External Blocking
	Blo TripCmd	67	1	3	Bit	0x20 (6)	-	Signal: Trip Command blocked
	ExBlo TripCmd	67	1	3	Bit	0x40 (7)	-	Signal: External Blocking of the Trip Command
	Alarm	67	1	3	Bit	0x80 (8)	-	Signal: Alarm Power Protection
	Trip (*)	67	1	3	Bit	0x100 (9)	-	Signal: Trip Power Protection
	TripCmd (*)	67	1	3	Bit	0x200 (10)	-	Signal: Trip Command
PQS[2] – 32, 37		**68**	**1**	**3**	**Struct**			
	ExBlo1-I	68	1	3	Bit	0x1 (1)	-	Module input state: External blocking
	ExBlo2-I	68	1	3	Bit	0x2 (2)	-	Module input state: External blocking

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	ExBlo TripCmd-I	68	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	Active	68	1	3	Bit	0x8 (4)	-	Signal: active
	ExBlo	68	1	3	Bit	0x10 (5)	-	Signal: External Blocking
	Blo TripCmd	68	1	3	Bit	0x20 (6)	-	Signal: Trip Command blocked
	ExBlo TripCmd	68	1	3	Bit	0x40 (7)	-	Signal: External Blocking of the Trip Command
	Alarm	68	1	3	Bit	0x80 (8)	-	Signal: Alarm Power Protection
	Trip (*)	68	1	3	Bit	0x100 (9)	-	Signal: Trip Power Protection
	TripCmd (*)	68	1	3	Bit	0x200 (10)	-	Signal: Trip Command
PQS[3] – 32, 37		**69**	**1**	**3**	**Struct**			
	ExBlo1-I	69	1	3	Bit	0x1 (1)	-	Module input state: External blocking
	ExBlo2-I	69	1	3	Bit	0x2 (2)	-	Module input state: External blocking

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	ExBlo TripCmd-I	69	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	Active	69	1	3	Bit	0x8 (4)	-	Signal: active
	ExBlo	69	1	3	Bit	0x10 (5)	-	Signal: External Blocking
	Blo TripCmd	69	1	3	Bit	0x20 (6)	-	Signal: Trip Command blocked
	ExBlo TripCmd	69	1	3	Bit	0x40 (7)	-	Signal: External Blocking of the Trip Command
	Alarm	69	1	3	Bit	0x80 (8)	-	Signal: Alarm Power Protection
	Trip (*)	69	1	3	Bit	0x100 (9)	-	Signal: Trip Power Protection
	TripCmd (*)	69	1	3	Bit	0x200 (10)	-	Signal: Trip Command
PQS[4] – 32, 37		**70**	**1**	**3**	**Struct**			
	ExBlo1-I	70	1	3	Bit	0x1 (1)	-	Module input state: External blocking
	ExBlo2-I	70	1	3	Bit	0x2 (2)	-	Module input state: External blocking

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	ExBlo TripCmd-I	70	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	Active	70	1	3	Bit	0x8 (4)	-	Signal: active
	ExBlo	70	1	3	Bit	0x10 (5)	-	Signal: External Blocking
	Blo TripCmd	70	1	3	Bit	0x20 (6)	-	Signal: Trip Command blocked
	ExBlo TripCmd	70	1	3	Bit	0x40 (7)	-	Signal: External Blocking of the Trip Command
	Alarm	70	1	3	Bit	0x80 (8)	-	Signal: Alarm Power Protection
	Trip (*)	70	1	3	Bit	0x100 (9)	-	Signal: Trip Power Protection
	TripCmd (*)	70	1	3	Bit	0x200 (10)	-	Signal: Trip Command
PQS[5] – 32, 37		**71**	**1**	**3**	**Struct**			
	ExBlo1-I	71	1	3	Bit	0x1 (1)	-	Module input state: External blocking
	ExBlo2-I	71	1	3	Bit	0x2 (2)	-	Module input state: External blocking

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	ExBlo TripCmd-I	71	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	Active	71	1	3	Bit	0x8 (4)	-	Signal: active
	ExBlo	71	1	3	Bit	0x10 (5)	-	Signal: External Blocking
	Blo TripCmd	71	1	3	Bit	0x20 (6)	-	Signal: Trip Command blocked
	ExBlo TripCmd	71	1	3	Bit	0x40 (7)	-	Signal: External Blocking of the Trip Command
	Alarm	71	1	3	Bit	0x80 (8)	-	Signal: Alarm Power Protection
	Trip (*)	71	1	3	Bit	0x100 (9)	-	Signal: Trip Power Protection
	TripCmd (*)	71	1	3	Bit	0x200 (10)	-	Signal: Trip Command
PQS[6] – 32, 37		**72**	**1**	**3**	**Struct**			
	ExBlo1-I	72	1	3	Bit	0x1 (1)	-	Module input state: External blocking
	ExBlo2-I	72	1	3	Bit	0x2 (2)	-	Module input state: External blocking

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	ExBlo TripCmd-I	72	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	Active	72	1	3	Bit	0x8 (4)	-	Signal: active
	ExBlo	72	1	3	Bit	0x10 (5)	-	Signal: External Blocking
	Blo TripCmd	72	1	3	Bit	0x20 (6)	-	Signal: Trip Command blocked
	ExBlo TripCmd	72	1	3	Bit	0x40 (7)	-	Signal: External Blocking of the Trip Command
	Alarm	72	1	3	Bit	0x80 (8)	-	Signal: Alarm Power Protection
	Trip (*)	72	1	3	Bit	0x100 (9)	-	Signal: Trip Power Protection
	TripCmd (*)	72	1	3	Bit	0x200 (10)	-	Signal: Trip Command
PSet-Switch		**59**	**1**	**3**	**Struct**			
	PS 1	59	1	3	Bit	0x1 (1)	-	Signal: The currently active Parameter Set is PS 1
	PS 2	59	1	3	Bit	0x2 (2)	-	Signal: The currently active Parameter Set is PS 2

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	PS 3	59	1	3	Bit	0x4 (3)	-	Signal: The currently active Parameter Set is PS 3
	PS 4	59	1	3	Bit	0x8 (4)	-	Signal: The currently active Parameter Set is PS 4
	PSS manual	59	1	3	Bit	0x10 (5)	-	Signal: Manual Switch over of a Parameter Set
	PSS via Scada	59	1	3	Bit	0x20 (6)	-	Signal: Parameter Set Switch via Scada. 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.
	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

Module (ANSI / IEEE)	Name Function	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
	Alarm L1	1	1	3	Bit	0x10 (5)	-	Signal: General-Alarm L1
	Alarm L2	1	1	3	Bit	0x20 (6)	-	Signal: General-Alarm L2
	Alarm L3	1	1	3	Bit	0x40 (7)	-	Signal: General-Alarm L3
	Alarm G	1	1	3	Bit	0x80 (8)	-	Signal: General-Alarm - Earth fault
	Alarm	1	1	3	Bit	0x100 (9)	-	Signal: General Alarm
	Trip L1 (*)	1	1	3	Bit	0x200 (10)	-	Signal: General Trip L1

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	Trip L2 (*)	1	1	3	Bit	0x400 (11)	-	Signal: General Trip L2
	Trip L3 (*)	1	1	3	Bit	0x800 (12)	-	Signal: General Trip L3
	Trip G (*)	1	1	3	Bit	0x1000 (13)	-	Signal: General Trip Ground fault
	Trip (*)	1	1	3	Bit	0x2000 (14)	-	Signal: General Trip
Prot		**2**	**1**	**3**	**Struct**			
	Blo TripCmd	2	1	3	Bit	0x1 (1)	-	Signal: Trip Command blocked
	ExBlo TripCmd-I	2	1	3	Bit	0x2 (2)	-	Module input state: External Blocking of the Trip Command
	ExBlo TripCmd	2	1	3	Bit	0x4 (3)	-	Signal: External Blocking of the Trip Command
Prot		**57**	**1**	**3**	**Struct**			
	Fault No.	57	1	3	Bit	0xffff (1)	-	Fault number
RTD		**143**	**1**	**3**	**Struct**			
	ExBlo1-I	143	1	3	Bit	0x1 (1)	-	Module input state: External blocking1

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	ExBlo2-I	143	1	3	Bit	0x2 (2)	-	Module input state: External blocking2
	ExBlo TripCmd-I	143	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	Active	143	1	3	Bit	0x8 (4)	-	Signal: active
	ExBlo	143	1	3	Bit	0x10 (5)	-	Signal: External Blocking
	Blo TripCmd	143	1	3	Bit	0x20 (6)	-	Signal: Trip Command blocked
	ExBlo TripCmd	143	1	3	Bit	0x40 (7)	-	Signal: External Blocking of the Trip Command
	Alarm	143	1	3	Bit	0x80 (8)	-	Alarm RTD Temperature Protection
	Trip (*)	143	1	3	Bit	0x100 (9)	-	Signal: Trip
	TripCmd (*)	143	1	3	Bit	0x200 (10)	-	Signal: Trip Command
RTD		**144**	**1**	**3**	**Struct**			
	Windg 1 Alarm	144	1	3	Bit	0x1 (1)	-	Winding 1 Alarm RTD Temperature Protection

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	Windg 1 Timeout Alarm	144	1	3	Bit	0x2 (2)	-	Winding 1 Timeout Alarm
	Windg 1 Trip (*)	144	1	3	Bit	0x4 (3)	-	Winding 1 Signal: Trip
	Windg 1 Invalid	144	1	3	Bit	0x8 (4)	-	Winding 1 Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement)
	Windg 2 Alarm	144	1	3	Bit	0x10 (5)	-	Winding 2 Alarm RTD Temperature Protection
	Windg 2 Timeout Alarm	144	1	3	Bit	0x20 (6)	-	Winding 2 Timeout Alarm
	Windg 2 Trip (*)	144	1	3	Bit	0x40 (7)	-	Winding 2 Signal: Trip
	Windg 2 Invalid	144	1	3	Bit	0x80 (8)	-	Winding 2 Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement)
	Windg 3 Alarm	144	1	3	Bit	0x100 (9)	-	Winding 3 Alarm RTD Temperature Protection
	Windg 3 Timeout Alarm	144	1	3	Bit	0x200 (10)	-	Winding 3 Timeout Alarm
	Windg 3 Trip (*)	144	1	3	Bit	0x400 (11)	-	Winding 3 Signal: Trip

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	Windg 3 Invalid	144	1	3	Bit	0x800 (12)	-	Winding 3 Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement)
	Windg 4 Alarm	144	1	3	Bit	0x1000 (13)	-	Winding 4 Alarm RTD Temperature Protection
	Windg 4 Timeout Alarm	144	1	3	Bit	0x2000 (14)	-	Winding 4 Timeout Alarm
	Windg 4 Trip (*)	144	1	3	Bit	0x4000 (15)	-	Winding 4 Signal: Trip
	Windg 4 Invalid	144	1	3	Bit	0x8000 (16)	-	Winding 4 Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement)
RTD		**145**	**1**	**3**	**Struct**			
	Windg 5 Alarm	145	1	3	Bit	0x1 (1)	-	Winding 5 Alarm RTD Temperature Protection
	Windg 5 Timeout Alarm	145	1	3	Bit	0x2 (2)	-	Winding 5 Timeout Alarm
	Windg 5 Trip (*)	145	1	3	Bit	0x4 (3)	-	Winding 5 Signal: Trip
	Windg 5 Invalid	145	1	3	Bit	0x8 (4)	-	Winding 5 Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement)
	Windg 6 Alarm	145	1	3	Bit	0x10 (5)	-	Winding 6 Alarm RTD Temperature Protection

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	Windg 6 Timeout Alarm	145	1	3	Bit	0x20 (6)	-	Winding 6 Timeout Alarm
	Windg 6 Trip (*)	145	1	3	Bit	0x40 (7)	-	Winding 6 Signal: Trip
	Windg 6 Invalid	145	1	3	Bit	0x80 (8)	-	Winding 6 Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement)
	MotBear 1 Alarm	145	1	3	Bit	0x100 (9)	-	Motor Bearing 1 Alarm RTD Temperature Protection
	MotBear 1 Timeout Alarm	145	1	3	Bit	0x200 (10)	-	Motor Bearing 1 Timeout Alarm
	MotBear 1 Trip (*)	145	1	3	Bit	0x400 (11)	-	Motor Bearing 1 Signal: Trip
	MotBear 1 Invalid	145	1	3	Bit	0x800 (12)	-	Motor Bearing 1 Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement)
	MotBear 2 Alarm	145	1	3	Bit	0x1000 (13)	-	Motor Bearing 2 Alarm RTD Temperature Protection
	MotBear 2 Timeout Alarm	145	1	3	Bit	0x2000 (14)	-	Motor Bearing 2 Timeout Alarm
	MotBear 2 Trip (*)	145	1	3	Bit	0x4000 (15)	-	Motor Bearing 2 Signal: Trip

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	MotBear 2 Invalid	145	1	3	Bit	0x8000 (16)	-	Motor Bearing 2 Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement)
RTD		**146**	**1**	**3**	**Struct**			
	LoadBear 1 Alarm	146	1	3	Bit	0x1 (1)	-	Load Bearing 1 Alarm RTD Temperature Protection
	LoadBear 1 Timeout Alarm	146	1	3	Bit	0x2 (2)	-	Load Bearing 1 Timeout Alarm
	LoadBear 1 Trip (*)	146	1	3	Bit	0x4 (3)	-	Load Bearing 1 Signal: Trip
	LoadBear 1 Invalid	146	1	3	Bit	0x8 (4)	-	Load Bearing 1 Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement)
	LoadBear 2 Alarm	146	1	3	Bit	0x10 (5)	-	Load Bearing 2 Alarm RTD Temperature Protection
	LoadBear 2 Timeout Alarm	146	1	3	Bit	0x20 (6)	-	Load Bearing 2 Timeout Alarm
	LoadBear 2 Trip (*)	146	1	3	Bit	0x40 (7)	-	Load Bearing 2 Signal: Trip
	LoadBear 2 Invalid	146	1	3	Bit	0x80 (8)	-	Load Bearing 2 Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement)
	Aux1 Alarm	146	1	3	Bit	0x100	-	Auxiliary 1 Alarm RTD Temperature Protection

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
						(9)		
	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 an defective or interrupted RTD Measurement)
	Windg Group Invalid	146	1	3	Bit	0x1000 (13)	-	Winding Group Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement)
	MotBear Group Invalid	146	1	3	Bit	0x2000 (14)	-	Motor Bearing Group Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement)
	Timeout Alarm (*)	146	1	3	Bit	0x4000 (15)	-	Alarm timeout expired
RTD		**147**	**1**	**3**	**Struct**			
	LoadBear Group Invalid	147	1	3	Bit	0x1 (1)	-	Load Bearing Group Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement)
	Alarm LB Group	147	1	3	Bit	0x2 (2)	-	Alarm all Load Bearings
	TimeoutAlmLBGrp	147	1	3	Bit	0x4 (3)	-	Timeout Alarm all Load Bearings

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

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	Trip Any Group (*)	205	1	3	Bit	0x2 (2)	-	Trip Any Group
	TimeoutAlmAnyGrp	205	1	3	Bit	0x4 (3)	-	Timeout Alarm Any Group
	Aux2 Alarm	205	1	3	Bit	0x8 (4)	-	Auxiliary 2 Alarm RTD Temperature Protection
	Aux2 Timeout Alarm	205	1	3	Bit	0x10 (5)	-	Auxiliary 2 Timeout Alarm
	Aux2 Invalid	205	1	3	Bit	0x20 (6)	-	Auxiliary 2 Signal: Invalid Temperature Measurement Value (e.g caused by an defective or interrupted RTD Measurement)
	Aux2 Trip (*)	205	1	3	Bit	0x40 (7)	-	Auxiliary 2 Signal: Trip
	AuxGrpInvalid	205	1	3	Bit	0x80 (8)	-	Invalid Auxiliary Group
	Alarm Aux Group	205	1	3	Bit	0x100 (9)	-	Alarm Auxiliary Group
	TimeoutAlmAuxGrp	205	1	3	Bit	0x200 (10)	-	Timeout Alarm Auxiliary Group
	Trip Aux Group (*)	205	1	3	Bit	0x400 (11)	-	Trip Auxiliary Group
SG[1]		**123**	**1**	**3**	**Struct**			

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	Isum Intr trip	123	1	3	Bit	0x10 (5)	-	Signal: Maximum permissible Summation of the interrupting (tripping) currents exceeded in at least one phase.
	Isum Intr trip: IL1	123	1	3	Bit	0x20 (6)	-	Signal: Maximum permissible Summation of the interrupting (tripping) currents exceeded: IL1
	Isum Intr trip: IL2	123	1	3	Bit	0x40 (7)	-	Signal: Maximum permissible Summation of the interrupting (tripping) currents exceeded: IL2
	Isum Intr trip: IL3	123	1	3	Bit	0x80 (8)	-	Signal: Maximum permissible Summation of the interrupting (tripping) currents exceeded: IL3
	Operations Alarm	123	1	3	Bit	0x100 (9)	-	Signal: Too many Operations. (The operations counter »TripCmd Cr« has exceeded the limit set at »Operations Alarm«.)
	WearLevel Alarm	123	1	3	Bit	0x200 (10)	-	Signal: Threshold for the Alarm
	WearLevel Lockout	123	1	3	Bit	0x400 (11)	-	Signal: Threshold for the Lockout Level
	Isum Intr ph Alm	123	1	3	Bit	0x800 (12)	-	Signal: Alarm, the per hour Sum (Limit) of interrupting currents has been exceeded.
SG[1]		**177**	**1**	**3**	**Struct**			
	Aux OFF-I	177	1	3	Bit	0x1 (1)	-	Module input state: Position indicator/ check-back signal of the CB (52b)
	Aux ON-I	177	1	3	Bit	0x2	-	Module Input State: Position indicator/ check-back signal of the CB (52a)

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
						(2)		
	Ready-I	177	1	3	Bit	0x4 (3)	-	Module input state: CB ready
	Interl OFF1-I	177	1	3	Bit	0x10 (5)	-	State of the module input: Interlocking of the OFF command
	Interl OFF2-I	177	1	3	Bit	0x20 (6)	-	State of the module input: Interlocking of the OFF command
	Interl OFF3-I	177	1	3	Bit	0x40 (7)	-	State of the module input: Interlocking of the OFF command
	Interl ON1-I	177	1	3	Bit	0x80 (8)	-	State of the module input: Interlocking of the ON command
	Interl ON2-I	177	1	3	Bit	0x100 (9)	-	State of the module input: Interlocking of the ON command
	Interl ON3-I	177	1	3	Bit	0x200 (10)	-	State of the module input: Interlocking of the ON command
	SCmd OFF-I	177	1	3	Bit	0x800 (12)	-	State of the module input: Switching OFF Command, e.g. the state of the Logics or the state of the digital input
	SCmd ON-I	177	1	3	Bit	0x1000 (13)	-	State of the module input: Switching ON Command, e.g. the state of the Logics or the state of the digital input
	TripCmd (*)	177	1	3	Bit	0x2000 (14)	-	Signal: Trip Command

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	OFF Cmd	177	1	3	Bit	0x4000 (15)	-	Signal: OFF Command issued to the switchgear. Depending on the setting the signal may include the OFF command of the Prot module.
	OFF Cmd manual	177	1	3	Bit	0x8000 (16)	-	Signal: OFF Cmd manual
SG[1]		**178**	**1**	**3**	**Struct**			
	ON Cmd	178	1	3	Bit	0x1 (1)	-	Signal: ON Command issued to the switchgear. Depending on the setting the signal may include the ON command of the Prot module.
	ON Cmd manual	178	1	3	Bit	0x2 (2)	-	Signal: ON Cmd manual
	SGwear Slow SG	178	1	3	Bit	0x8 (4)	-	Signal: Alarm, the circuit breaker (load-break switch) becomes slower
	Res SGwear Sl SG	178	1	3	Bit	0x10 (5)	-	Signal: Resetting the slow Switchgear Alarm
	CES Disturbed	178	1	3	Bit	0x40 (7)	-	Signal: Command Execution Supervision: Switching Command unsuccessful. Switchgear in disturbed position.
	CES Fiel Interl	178	1	3	Bit	0x80 (8)	-	Signal: Command Execution Supervision: Switching Command not executed because of field interlocking.
	CES ON d OFF	178	1	3	Bit	0x400 (11)	-	Signal: Command Execution Supervision: On Command during a pending OFF Command.
	CES SwitchDir	178	1	3	Bit	0x800	-	Signal: Command Execution Supervision respectively Switching Direction Control: This signal becomes true, if a switch

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
						(12)		command is issued even though the switchgear is already in the requested position. Example: A switchgear that is already OFF should be switched OFF again (doubly). The same applies to CLOSE commands.
	CES SG not ready	178	1	3	Bit	0x1000 (13)	-	Signal: Command Execution Supervision: Switchgear not ready
	CES succesf	178	1	3	Bit	0x4000 (15)	-	Signal: Command Execution Supervision: Switching command executed successfully.
SG[1]		**179**	**1**	**3**	**Struct**			
	Pos Disturb	179	1	3	Bit	0x1 (1)	-	Signal: Circuit Breaker Disturbed - Undefined Breaker Position. The Position Indicators contradict themselves. After expiring of a supervision timer this signal becomes true.
	t-Dwell	179	1	3	Bit	0x2 (2)	-	Signal: Dwell time
	Pos Indeterm	179	1	3	Bit	0x4 (3)	-	Signal: Circuit Breaker is in Indeterminate Position
	Pos OFF	179	1	3	Bit	0x8 (4)	-	Signal: Circuit Breaker is in OFF-Position
	Pos ON	179	1	3	Bit	0x10 (5)	-	Signal: Circuit Breaker is in ON-Position
	Ready	179	1	3	Bit	0x20 (6)	-	Signal: Circuit breaker is ready for operation.

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	Pos not ON	179	1	3	Bit	0x40 (7)	-	Signal: Pos not ON
	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.
	Position Ind manipul	179	1	3	Bit	0x100 (9)	-	Signal: Position Indicators faked
	OFF incl TripCmd	179	1	3	Bit	0x200 (10)	-	Signal: The OFF Command includes the OFF Command issued by the Protection module.
	CES Fail TripCmd	179	1	3	Bit	0x800 (12)	-	Signal: Command Execution Supervision: Command execution failed because trip command is pending.
	Interl OFF	179	1	3	Bit	0x1000 (13)	-	Signal: One or more IL_Off inputs are active.
	Interl ON	179	1	3	Bit	0x2000 (14)	-	Signal: One or more IL_On inputs are active.
SSV		**273**	**1**	**3**	**Struct**			
	System Error	273	1	3	Bit	0x1 (1)	-	Signal: Device Failure
	New error (*)	273	1	3	Bit	0x8 (4)	-	Signal: A new error message has been issued.
	New warning (*)	273	1	3	Bit	0x10	-	Signal: A new warning message has been issued.

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
						(5)		
	Active	273	1	3	Bit	0x20 (6)	-	Signal: active
Sgen		**1012**	**1**	**3**	**Struct**			
	ExBlo1-I	1012	1	3	Bit	0x1 (1)	-	Module input state: External blocking1
	Ex ForcePost-I	1012	1	3	Bit	0x2 (2)	-	State of the module input:Force Post state. Abort simulation.
	Running	1012	1	3	Bit	0x10 (5)	-	Signal: Measuring value simulation is running
	State	1012	1	3	Bit	0xe0 (6)	-	Signal: Wave generation states: 0=Off, 1=PreFault, 2=Fault, 3=PostFault, 4=InitReset
	Ex Start Simulation-I	1012	1	3	Bit	0x100 (9)	-	State of the module input:External Start of Fault Simulation (Using the test parameters)
	ExBlo2-I	1012	1	3	Bit	0x200 (10)	-	Module input state: External blocking2
	Manual Start	1012	1	3	Bit	0x400 (11)	-	Fault Simulation has been started manually.
	Manual Stop	1012	1	3	Bit	0x800 (12)	-	Fault Simulation has been stopped manually.
	Started	1012	1	3	Bit	0x1000	-	Fault Simulation has been started

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
						(13)		
	Stopped	1012	1	3	Bit	0x2000 (14)	-	Fault Simulation has been stopped
Sys		**154**	**1**	**3**	**Struct**			
	Maint Mode Active	154	1	3	Bit	0x1 (1)	-	Signal: Arc Flash Reduction Maintenance Active
	MaintMode 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 SCADA	154	1	3	Bit	0x8 (4)	-	Signal: Arc Flash Reduction Maintenance SCADA Mode
	Maint Mode Inactive	154	1	3	Bit	0x10 (5)	-	Signal: Arc Flash Reduction Maintenance Inactive
	Maint Mode-I	154	1	3	Bit	0x20 (6)	-	Module Input State: Arc Flash Reduction Maintenance Switch
	SNTP active	154	1	3	Bit	0x80 (8)	-	Signal: If there is no valid SNTP signal for 120 sec, SNTP is regarded as inactive.
	Setting Lock Bypass	154	1	3	Bit	0x100 (9)	-	Signal: Short-period unlock of the Setting Lock
SysA		**173**	**1**	**3**	**Struct**			

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	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 avg (Demd)	173	1	3	Bit	0x4 (3)	-	Signal: Alarm: Averaged demand current exceeded
	Active	173	1	3	Bit	0x8 (4)	-	Signal: active
	Alarm I THD	173	1	3	Bit	0x10 (5)	-	Signal: Alarm Total Harmonic Distortion Current
	Alarm VA Power max	173	1	3	Bit	0x20 (6)	-	Signal: Alarm: Permitted Apparent Power exceeded
	Alarm VA avg (Demand)	173	1	3	Bit	0x40 (7)	-	Signal: Alarm: Averaged Apparent Power exceeded
	Alarm VAr Power max	173	1	3	Bit	0x80 (8)	-	Signal: Alarm: Permitted Reactive Power exceeded
	Alarm VAr avg (Demand)	173	1	3	Bit	0x100 (9)	-	Signal: Alarm: Averaged Reactive Power exceeded
	Alarm V THD	173	1	3	Bit	0x200 (10)	-	Signal: Alarm Total Harmonic Distortion Voltage

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	Alarm Watt Power max	173	1	3	Bit	0x400 (11)	-	Signal: Alarm: Permitted Active Power exceeded
	Alarm Watt avg (Demand)	173	1	3	Bit	0x800 (12)	-	Signal: Alarm: Averaged Active Power exceeded
	Trip Current avg (Demd) (*)	173	1	3	Bit	0x1000 (13)	-	Signal: Trip: Averaged demand current exceeded
	Trip I THD (*)	173	1	3	Bit	0x2000 (14)	-	Signal: Trip Total Harmonic Distortion Current
	Trip VA avg (Demand) (*)	173	1	3	Bit	0x4000 (15)	-	Signal: Trip: Averaged Apparent Power exceeded
	Trip VA Power max (*)	173	1	3	Bit	0x8000 (16)	-	Signal: Trip maximum permitted Apparent Power exceeded
SysA		**174**	**1**	**3**	**Struct**			
	Trip VAr avg (Demand) (*)	174	1	3	Bit	0x1 (1)	-	Signal: Trip: Averaged Reactive Power exceeded
	Trip VAr Power max (*)	174	1	3	Bit	0x2 (2)	-	Signal: Trip maximum permitted Reactive Power exceeded
	Trip V THD (*)	174	1	3	Bit	0x4 (3)	-	Signal: Trip Total Harmonic Distortion Voltage
	Trip Watt avg (Demand) (*)	174	1	3	Bit	0x8 (4)	-	Signal: Trip: Averaged Active Power exceeded

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	Trip Watt Power max (*)	174	1	3	Bit	0x10 (5)	-	Signal: Trip maximum permitted Active Power exceeded
TCS – 74TC		**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
	ExBlo	150	1	3	Bit	0x8 (4)	-	Signal: External Blocking
	Alarm	150	1	3	Bit	0x10 (5)	-	Signal: Alarm Trip Circuit Supervision
	Not Possible	150	1	3	Bit	0x20 (6)	-	Not possible because no state indicator assigned to the breaker.
	Aux ON-I	150	1	3	Bit	0x100 (9)	-	Module Input State: Position indicator/ check-back signal of the CB (52a)
	Aux OFF-I	150	1	3	Bit	0x200 (10)	-	Module input state: Position indicator/ check-back signal of the CB (52b)
ThR		**164**	**1**	**3**	**Struct**			
	ExBlo1-I	164	1	3	Bit	0x1	-	Module input state: External blocking

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
						(1)		
	ExBlo2-I	164	1	3	Bit	0x2 (2)	-	Module input state: External blocking
	ExBlo TripCmd-I	164	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	Active	164	1	3	Bit	0x8 (4)	-	Signal: active
	ExBlo	164	1	3	Bit	0x10 (5)	-	Signal: External Blocking
	Blo TripCmd	164	1	3	Bit	0x20 (6)	-	Signal: Trip Command blocked
	ExBlo TripCmd	164	1	3	Bit	0x40 (7)	-	Signal: External Blocking of the Trip Command
	Alarm	164	1	3	Bit	0x80 (8)	-	Signal: Alarm
	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

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	Alarm Timeout	164	1	3	Bit	0x800 (12)	-	Signal: Alarm Timeout
	Load above SF	164	1	3	Bit	0x1000 (13)	-	“Load above Service Factor”: If the current exceeds the set value of “UTC” (“Ultimate trip threshold”) then the used thermal capacity counts up and the state “Load above SF” is becoming true. If the current is below the “UTC” value this state is false.
	RTD effective	164	1	3	Bit	0x2000 (14)	-	This state becomes true if the following conditions are all fulfilled: - the state “Load above SF” is true, - the Winding Temperature Trip has been activated in the RTD module, - for at least one temperature a valid value above 0°C (32°F) is being displayed.
TimeSync		**54**	**1**	**3**	**Struct**			
	synchronized	54	1	3	Bit	0x1 (1)	-	Clock is synchronized.
URTD		**1007**	**1**	**3**	**Struct**			
	Windg1 Superv	1007	1	3	Bit	0x1 (1)	-	Signal: Windg1, Channel Supervision. The value “1” reports a detected channel failure. (The value “0” means that this RTD channel is healthy.)
	Windg2 Superv	1007	1	3	Bit	0x2 (2)	-	Signal: Windg2, Channel Supervision. The value “1” reports a detected channel failure. (The value “0” means that this RTD channel is healthy.)
	Windg3 Superv	1007	1	3	Bit	0x4 (3)	-	Signal: Windg3, Channel Supervision. The value “1” reports a detected channel failure. (The value “0” means that this RTD channel is healthy.)

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	Windg4 Superv	1007	1	3	Bit	0x8 (4)	-	Signal: Windg4, Channel Supervision. The value “1” reports a detected channel failure. (The value “0” means that this RTD channel is healthy.)
	Windg5 Superv	1007	1	3	Bit	0x10 (5)	-	Signal: Windg5, Channel Supervision. The value “1” reports a detected channel failure. (The value “0” means that this RTD channel is healthy.)
	Windg6 Superv	1007	1	3	Bit	0x20 (6)	-	Signal: Windg6, Channel Supervision. The value “1” reports a detected channel failure. (The value “0” means that this RTD channel is healthy.)
	MotBear1 Superv	1007	1	3	Bit	0x40 (7)	-	Signal: MotBear1, Channel Supervision. The value “1” reports a detected channel failure. (The value “0” means that this RTD channel is healthy.)
	MotBear2 Superv	1007	1	3	Bit	0x80 (8)	-	Signal: MotBear2, Channel Supervision. The value “1” reports a detected channel failure. (The value “0” means that this RTD channel is healthy.)
	LoadBear1 Superv	1007	1	3	Bit	0x100 (9)	-	Signal: LoadBear1, Channel Supervision. The value “1” reports a detected channel failure. (The value “0” means that this RTD channel is healthy.)
	LoadBear2 Superv	1007	1	3	Bit	0x200 (10)	-	Signal: LoadBear2, Channel Supervision. The value “1” reports a detected channel failure. (The value “0” means that this RTD channel is healthy.)
	Aux1 Superv	1007	1	3	Bit	0x400 (11)	-	Signal: Aux1, Channel Supervision. The value “1” reports a detected channel failure. (The value “0” means that this RTD channel is healthy.)
	Superv	1007	1	3	Bit	0x800 (12)	-	Signal: URTD Channel Supervision. The value “1” reports a detected channel failure of at least one channel. (The value “0” means that all RTD channels are healthy.)

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	Aux2 Superv	1007	1	3	Bit	0x1000 (13)	-	Signal: Aux2, Channel Supervision. The value “1” reports a detected channel failure. (The value “0” means that this RTD channel is healthy.)
V012[1] – 47		**100**	**1**	**3**	**Struct**			
	ExBlo1-I	100	1	3	Bit	0x1 (1)	-	Module input state: External blocking1
	ExBlo2-I	100	1	3	Bit	0x2 (2)	-	Module input state: External blocking2
	ExBlo TripCmd-I	100	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	Active	100	1	3	Bit	0x8 (4)	-	Signal: active
	ExBlo	100	1	3	Bit	0x10 (5)	-	Signal: External Blocking
	Blo TripCmd	100	1	3	Bit	0x20 (6)	-	Signal: Trip Command blocked
	ExBlo TripCmd	100	1	3	Bit	0x40 (7)	-	Signal: External Blocking of the Trip Command
	Alarm	100	1	3	Bit	0x80 (8)	-	Signal: Alarm voltage asymmetry
	Trip (*)	100	1	3	Bit	0x100	-	Signal: Trip

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
						(9)		
	TripCmd (*)	100	1	3	Bit	0x200 (10)	-	Signal: Trip Command
V012[2] – 47		**101**	**1**	**3**	**Struct**			
	ExBlo1-I	101	1	3	Bit	0x1 (1)	-	Module input state: External blocking1
	ExBlo2-I	101	1	3	Bit	0x2 (2)	-	Module input state: External blocking2
	ExBlo TripCmd-I	101	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	Active	101	1	3	Bit	0x8 (4)	-	Signal: active
	ExBlo	101	1	3	Bit	0x10 (5)	-	Signal: External Blocking
	Blo TripCmd	101	1	3	Bit	0x20 (6)	-	Signal: Trip Command blocked
	ExBlo TripCmd	101	1	3	Bit	0x40 (7)	-	Signal: External Blocking of the Trip Command
	Alarm	101	1	3	Bit	0x80 (8)	-	Signal: Alarm voltage asymmetry
	Trip (*)	101	1	3	Bit	0x100	-	Signal: Trip

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
						(9)		
	TripCmd (*)	101	1	3	Bit	0x200 (10)	-	Signal: Trip Command
V012[3] – 47		**102**	**1**	**3**	**Struct**			
	ExBlo1-I	102	1	3	Bit	0x1 (1)	-	Module input state: External blocking1
	ExBlo2-I	102	1	3	Bit	0x2 (2)	-	Module input state: External blocking2
	ExBlo TripCmd-I	102	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	Active	102	1	3	Bit	0x8 (4)	-	Signal: active
	ExBlo	102	1	3	Bit	0x10 (5)	-	Signal: External Blocking
	Blo TripCmd	102	1	3	Bit	0x20 (6)	-	Signal: Trip Command blocked
	ExBlo TripCmd	102	1	3	Bit	0x40 (7)	-	Signal: External Blocking of the Trip Command
	Alarm	102	1	3	Bit	0x80 (8)	-	Signal: Alarm voltage asymmetry
	Trip (*)	102	1	3	Bit	0x100	-	Signal: Trip

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
						(9)		
	TripCmd (*)	102	1	3	Bit	0x200 (10)	-	Signal: Trip Command
V012[4] – 47		**103**	**1**	**3**	**Struct**			
	ExBlo1-I	103	1	3	Bit	0x1 (1)	-	Module input state: External blocking1
	ExBlo2-I	103	1	3	Bit	0x2 (2)	-	Module input state: External blocking2
	ExBlo TripCmd-I	103	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	Active	103	1	3	Bit	0x8 (4)	-	Signal: active
	ExBlo	103	1	3	Bit	0x10 (5)	-	Signal: External Blocking
	Blo TripCmd	103	1	3	Bit	0x20 (6)	-	Signal: Trip Command blocked
	ExBlo TripCmd	103	1	3	Bit	0x40 (7)	-	Signal: External Blocking of the Trip Command
	Alarm	103	1	3	Bit	0x80 (8)	-	Signal: Alarm voltage asymmetry
	Trip (*)	103	1	3	Bit	0x100	-	Signal: Trip

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
						(9)		
	TripCmd (*)	103	1	3	Bit	0x200 (10)	-	Signal: Trip Command
V012[5] – 47		**104**	**1**	**3**	**Struct**			
	ExBlo1-I	104	1	3	Bit	0x1 (1)	-	Module input state: External blocking1
	ExBlo2-I	104	1	3	Bit	0x2 (2)	-	Module input state: External blocking2
	ExBlo TripCmd-I	104	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	Active	104	1	3	Bit	0x8 (4)	-	Signal: active
	ExBlo	104	1	3	Bit	0x10 (5)	-	Signal: External Blocking
	Blo TripCmd	104	1	3	Bit	0x20 (6)	-	Signal: Trip Command blocked
	ExBlo TripCmd	104	1	3	Bit	0x40 (7)	-	Signal: External Blocking of the Trip Command
	Alarm	104	1	3	Bit	0x80 (8)	-	Signal: Alarm voltage asymmetry
	Trip (*)	104	1	3	Bit	0x100	-	Signal: Trip

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
						(9)		
	TripCmd (*)	104	1	3	Bit	0x200 (10)	-	Signal: Trip Command
V012[6] – 47		**105**	**1**	**3**	**Struct**			
	ExBlo1-I	105	1	3	Bit	0x1 (1)	-	Module input state: External blocking1
	ExBlo2-I	105	1	3	Bit	0x2 (2)	-	Module input state: External blocking2
	ExBlo TripCmd-I	105	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	Active	105	1	3	Bit	0x8 (4)	-	Signal: active
	ExBlo	105	1	3	Bit	0x10 (5)	-	Signal: External Blocking
	Blo TripCmd	105	1	3	Bit	0x20 (6)	-	Signal: Trip Command blocked
	ExBlo TripCmd	105	1	3	Bit	0x40 (7)	-	Signal: External Blocking of the Trip Command
	Alarm	105	1	3	Bit	0x80 (8)	-	Signal: Alarm voltage asymmetry
	Trip (*)	105	1	3	Bit	0x100	-	Signal: Trip

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
						(9)		
	TripCmd (*)	105	1	3	Bit	0x200 (10)	-	Signal: Trip Command
VG[1] – 27A, 59N,A		**32**	**1**	**3**	**Struct**			
	ExBlo1-I	32	1	3	Bit	0x1 (1)	-	Module input state: External blocking1
	ExBlo2-I	32	1	3	Bit	0x2 (2)	-	Module input state: External blocking2
	ExBlo TripCmd-I	32	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	Active	32	1	3	Bit	0x8 (4)	-	Signal: active
	ExBlo	32	1	3	Bit	0x10 (5)	-	Signal: External Blocking
	Blo TripCmd	32	1	3	Bit	0x20 (6)	-	Signal: Trip Command blocked
	ExBlo TripCmd	32	1	3	Bit	0x40 (7)	-	Signal: External Blocking of the Trip Command
	Alarm	32	1	3	Bit	0x80 (8)	-	Signal: Alarm Residual Voltage Supervision-stage

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	Trip (*)	32	1	3	Bit	0x100 (9)	-	Signal: Trip
	TripCmd (*)	32	1	3	Bit	0x200 (10)	-	Signal: Trip Command
VG[2] – 27A, 59N,A		**33**	**1**	**3**	**Struct**			
	ExBlo1-I	33	1	3	Bit	0x1 (1)	-	Module input state: External blocking1
	ExBlo2-I	33	1	3	Bit	0x2 (2)	-	Module input state: External blocking2
	ExBlo TripCmd-I	33	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	Active	33	1	3	Bit	0x8 (4)	-	Signal: active
	ExBlo	33	1	3	Bit	0x10 (5)	-	Signal: External Blocking
	Blo TripCmd	33	1	3	Bit	0x20 (6)	-	Signal: Trip Command blocked
	ExBlo TripCmd	33	1	3	Bit	0x40 (7)	-	Signal: External Blocking of the Trip Command
	Alarm	33	1	3	Bit	0x80	-	Signal: Alarm Residual Voltage Supervision-stage

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
						(8)		
	Trip (*)	33	1	3	Bit	0x100 (9)	-	Signal: Trip
	TripCmd (*)	33	1	3	Bit	0x200 (10)	-	Signal: Trip Command
V[1] – 27, 59		**24**	**1**	**3**	**Struct**			
	ExBlo1-I	24	1	3	Bit	0x1 (1)	-	Module input state: External blocking1
	ExBlo2-I	24	1	3	Bit	0x2 (2)	-	Module input state: External blocking2
	ExBlo TripCmd-I	24	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	Active	24	1	3	Bit	0x8 (4)	-	Signal: active
	ExBlo	24	1	3	Bit	0x10 (5)	-	Signal: External Blocking
	Blo TripCmd	24	1	3	Bit	0x20 (6)	-	Signal: Trip Command blocked
	ExBlo TripCmd	24	1	3	Bit	0x40 (7)	-	Signal: External Blocking of the Trip Command
V[1] – 27, 59		**25**	**1**	**3**	**Struct**			

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	Alarm L1	25	1	3	Bit	0x1 (1)	-	Signal: Alarm L1
	Alarm L2	25	1	3	Bit	0x2 (2)	-	Signal: Alarm L2
	Alarm L3	25	1	3	Bit	0x4 (3)	-	Signal: Alarm L3
	Alarm	25	1	3	Bit	0x8 (4)	-	Signal: Alarm voltage stage
	Trip L1 (*)	25	1	3	Bit	0x10 (5)	-	Signal: General Trip Phase L1
	Trip L2 (*)	25	1	3	Bit	0x20 (6)	-	Signal: General Trip Phase L2
	Trip L3 (*)	25	1	3	Bit	0x40 (7)	-	Signal: General Trip Phase L3
	Trip (*)	25	1	3	Bit	0x80 (8)	-	Signal: Trip
	TripCmd (*)	25	1	3	Bit	0x100 (9)	-	Signal: Trip Command
	Imin release active	25	1	3	Bit	0x200 (10)	-	Signal that the Imin release (minimum current) check is enabled and does not block the undervoltage detection at the moment.

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
V[2] – 27, 59		**26**	**1**	**3**	**Struct**			
	ExBlo1-I	26	1	3	Bit	0x1 (1)	-	Module input state: External blocking1
	ExBlo2-I	26	1	3	Bit	0x2 (2)	-	Module input state: External blocking2
	ExBlo TripCmd-I	26	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	Active	26	1	3	Bit	0x8 (4)	-	Signal: active
	ExBlo	26	1	3	Bit	0x10 (5)	-	Signal: External Blocking
	Blo TripCmd	26	1	3	Bit	0x20 (6)	-	Signal: Trip Command blocked
	ExBlo TripCmd	26	1	3	Bit	0x40 (7)	-	Signal: External Blocking of the Trip Command
V[2] – 27, 59		**27**	**1**	**3**	**Struct**			
	Alarm L1	27	1	3	Bit	0x1 (1)	-	Signal: Alarm L1
	Alarm L2	27	1	3	Bit	0x2 (2)	-	Signal: Alarm L2
	Alarm L3	27	1	3	Bit	0x4	-	Signal: Alarm L3

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
						(3)		
	Alarm	27	1	3	Bit	0x8 (4)	-	Signal: Alarm voltage stage
	Trip L1 (*)	27	1	3	Bit	0x10 (5)	-	Signal: General Trip Phase L1
	Trip L2 (*)	27	1	3	Bit	0x20 (6)	-	Signal: General Trip Phase L2
	Trip L3 (*)	27	1	3	Bit	0x40 (7)	-	Signal: General Trip Phase L3
	Trip (*)	27	1	3	Bit	0x80 (8)	-	Signal: Trip
	TripCmd (*)	27	1	3	Bit	0x100 (9)	-	Signal: Trip Command
	Imin release active	27	1	3	Bit	0x200 (10)	-	Signal that the Imin release (minimum current) check is enabled and does not block the undervoltage detection at the moment.
V[3] – 27, 59		**28**	**1**	**3**	**Struct**			
	ExBlo1-I	28	1	3	Bit	0x1 (1)	-	Module input state: External blocking1
	ExBlo2-I	28	1	3	Bit	0x2 (2)	-	Module input state: External blocking2

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	ExBlo TripCmd-I	28	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	Active	28	1	3	Bit	0x8 (4)	-	Signal: active
	ExBlo	28	1	3	Bit	0x10 (5)	-	Signal: External Blocking
	Blo TripCmd	28	1	3	Bit	0x20 (6)	-	Signal: Trip Command blocked
	ExBlo TripCmd	28	1	3	Bit	0x40 (7)	-	Signal: External Blocking of the Trip Command
V[3] – 27, 59		**29**	**1**	**3**	**Struct**			
	Alarm L1	29	1	3	Bit	0x1 (1)	-	Signal: Alarm L1
	Alarm L2	29	1	3	Bit	0x2 (2)	-	Signal: Alarm L2
	Alarm L3	29	1	3	Bit	0x4 (3)	-	Signal: Alarm L3
	Alarm	29	1	3	Bit	0x8 (4)	-	Signal: Alarm voltage stage
	Trip L1 (*)	29	1	3	Bit	0x10 (5)	-	Signal: General Trip Phase L1

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	Trip L2 (*)	29	1	3	Bit	0x20 (6)	-	Signal: General Trip Phase L2
	Trip L3 (*)	29	1	3	Bit	0x40 (7)	-	Signal: General Trip Phase L3
	Trip (*)	29	1	3	Bit	0x80 (8)	-	Signal: Trip
	TripCmd (*)	29	1	3	Bit	0x100 (9)	-	Signal: Trip Command
	Imin release active	29	1	3	Bit	0x200 (10)	-	Signal that the Imin release (minimum current) check is enabled and does not block the undervoltage detection at the moment.
V[4] – 27, 59		**30**	**1**	**3**	**Struct**			
	ExBlo1-I	30	1	3	Bit	0x1 (1)	-	Module input state: External blocking1
	ExBlo2-I	30	1	3	Bit	0x2 (2)	-	Module input state: External blocking2
	ExBlo TripCmd-I	30	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	Active	30	1	3	Bit	0x8 (4)	-	Signal: active
	ExBlo	30	1	3	Bit	0x10	-	Signal: External Blocking

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
						(5)		
	Blo TripCmd	30	1	3	Bit	0x20 (6)	-	Signal: Trip Command blocked
	ExBlo TripCmd	30	1	3	Bit	0x40 (7)	-	Signal: External Blocking of the Trip Command
V[4] – 27, 59		**31**	**1**	**3**	**Struct**			
	Alarm L1	31	1	3	Bit	0x1 (1)	-	Signal: Alarm L1
	Alarm L2	31	1	3	Bit	0x2 (2)	-	Signal: Alarm L2
	Alarm L3	31	1	3	Bit	0x4 (3)	-	Signal: Alarm L3
	Alarm	31	1	3	Bit	0x8 (4)	-	Signal: Alarm voltage stage
	Trip L1 (*)	31	1	3	Bit	0x10 (5)	-	Signal: General Trip Phase L1
	Trip L2 (*)	31	1	3	Bit	0x20 (6)	-	Signal: General Trip Phase L2
	Trip L3 (*)	31	1	3	Bit	0x40 (7)	-	Signal: General Trip Phase L3
	Trip (*)	31	1	3	Bit	0x80	-	Signal: Trip

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
						(8)		
	TripCmd (*)	31	1	3	Bit	0x100 (9)	-	Signal: Trip Command
	Imin release active	31	1	3	Bit	0x200 (10)	-	Signal that the Imin release (minimum current) check is enabled and does not block the undervoltage detection at the moment.
V[5] – 27, 59		**92**	**1**	**3**	**Struct**			
	ExBlo1-I	92	1	3	Bit	0x1 (1)	-	Module input state: External blocking1
	ExBlo2-I	92	1	3	Bit	0x2 (2)	-	Module input state: External blocking2
	ExBlo TripCmd-I	92	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	Active	92	1	3	Bit	0x8 (4)	-	Signal: active
	ExBlo	92	1	3	Bit	0x10 (5)	-	Signal: External Blocking
	Blo TripCmd	92	1	3	Bit	0x20 (6)	-	Signal: Trip Command blocked
	ExBlo TripCmd	92	1	3	Bit	0x40 (7)	-	Signal: External Blocking of the Trip Command
	Alarm	92	1	3	Bit	0x80	-	Signal: Alarm voltage stage

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
						(8)		
	Alarm L1	92	1	3	Bit	0x100 (9)	-	Signal: Alarm L1
	Alarm L2	92	1	3	Bit	0x200 (10)	-	Signal: Alarm L2
	Alarm L3	92	1	3	Bit	0x400 (11)	-	Signal: Alarm L3
	Trip (*)	92	1	3	Bit	0x800 (12)	-	Signal: Trip
	Trip L1 (*)	92	1	3	Bit	0x1000 (13)	-	Signal: General Trip Phase L1
	Trip L2 (*)	92	1	3	Bit	0x2000 (14)	-	Signal: General Trip Phase L2
	Trip L3 (*)	92	1	3	Bit	0x4000 (15)	-	Signal: General Trip Phase L3
	TripCmd (*)	92	1	3	Bit	0x8000 (16)	-	Signal: Trip Command
V[5] – 27, 59		**94**	**1**	**3**	**Struct**			
	Imin release active	94	1	3	Bit	0x1 (1)	-	Signal that the Imin release (minimum current) check is enabled and does not block the undervoltage detection at the moment.
V[6] – 27, 59		**93**	**1**	**3**	**Struct**			

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	ExBlo1-I	93	1	3	Bit	0x1 (1)	-	Module input state: External blocking1
	ExBlo2-I	93	1	3	Bit	0x2 (2)	-	Module input state: External blocking2
	ExBlo TripCmd-I	93	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	Active	93	1	3	Bit	0x8 (4)	-	Signal: active
	ExBlo	93	1	3	Bit	0x10 (5)	-	Signal: External Blocking
	Blo TripCmd	93	1	3	Bit	0x20 (6)	-	Signal: Trip Command blocked
	ExBlo TripCmd	93	1	3	Bit	0x40 (7)	-	Signal: External Blocking of the Trip Command
	Alarm	93	1	3	Bit	0x80 (8)	-	Signal: Alarm voltage stage
	Alarm L1	93	1	3	Bit	0x100 (9)	-	Signal: Alarm L1
	Alarm L2	93	1	3	Bit	0x200 (10)	-	Signal: Alarm L2
	Alarm L3	93	1	3	Bit	0x400	-	Signal: Alarm L3

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
						(11)		
	Trip (*)	93	1	3	Bit	0x800 (12)	-	Signal: Trip
	Trip L1 (*)	93	1	3	Bit	0x1000 (13)	-	Signal: General Trip Phase L1
	Trip L2 (*)	93	1	3	Bit	0x2000 (14)	-	Signal: General Trip Phase L2
	Trip L3 (*)	93	1	3	Bit	0x4000 (15)	-	Signal: General Trip Phase L3
	TripCmd (*)	93	1	3	Bit	0x8000 (16)	-	Signal: Trip Command
V[6] – 27, 59		**95**	**1**	**3**	**Struct**			
	Imin release active	95	1	3	Bit	0x1 (1)	-	Signal that the Imin release (minimum current) check is enabled and does not block the undervoltage detection at the moment.
f[1] – 81		**34**	**1**	**3**	**Struct**			
	ExBlo1-I	34	1	3	Bit	0x1 (1)	-	Module input state: External blocking1
	ExBlo2-I	34	1	3	Bit	0x2 (2)	-	Module input state: External blocking2
	ExBlo TripCmd-I	34	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	Active	34	1	3	Bit	0x8 (4)	-	Signal: active
	ExBlo	34	1	3	Bit	0x10 (5)	-	Signal: External Blocking
	Blo by V<	34	1	3	Bit	0x20 (6)	-	Signal: Module is blocked by undervoltage.
	Blo TripCmd	34	1	3	Bit	0x40 (7)	-	Signal: Trip Command blocked
	ExBlo TripCmd	34	1	3	Bit	0x80 (8)	-	Signal: External Blocking of the Trip Command
f[1] – 81		**35**	**1**	**3**	**Struct**			
	Alarm f	35	1	3	Bit	0x1 (1)	-	Signal: Alarm Frequency Protection
	Alarm df/dt | DF/DT	35	1	3	Bit	0x2 (2)	-	Alarm instantaneous or average value of the rate-of-frequency-change
	Trip f (*)	35	1	3	Bit	0x4 (3)	-	Signal: Frequency has exceeded the limit.
	Trip df/dt | DF/DT (*)	35	1	3	Bit	0x8 (4)	-	Signal: Trip df/dt or DF/DT
	Alarm	35	1	3	Bit	0x10 (5)	-	Signal: Alarm Frequency Protection (collective signal)

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	Alarm delta phi	35	1	3	Bit	0x20 (6)	-	Signal: Alarm Vector Surge
	Trip (*)	35	1	3	Bit	0x40 (7)	-	Signal: Trip Frequency Protection (collective signal)
	Trip delta phi (*)	35	1	3	Bit	0x80 (8)	-	Signal: Trip Vector Surge
	TripCmd (*)	35	1	3	Bit	0x100 (9)	-	Signal: Trip Command
f[2] – 81		**36**	**1**	**3**	**Struct**			
	ExBlo1-I	36	1	3	Bit	0x1 (1)	-	Module input state: External blocking1
	ExBlo2-I	36	1	3	Bit	0x2 (2)	-	Module input state: External blocking2
	ExBlo TripCmd-I	36	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	Active	36	1	3	Bit	0x8 (4)	-	Signal: active
	ExBlo	36	1	3	Bit	0x10 (5)	-	Signal: External Blocking
	Blo by V<	36	1	3	Bit	0x20 (6)	-	Signal: Module is blocked by undervoltage.

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	Blo TripCmd	36	1	3	Bit	0x40 (7)	-	Signal: Trip Command blocked
	ExBlo TripCmd	36	1	3	Bit	0x80 (8)	-	Signal: External Blocking of the Trip Command
f[2] – 81		**37**	**1**	**3**	**Struct**			
	Alarm f	37	1	3	Bit	0x1 (1)	-	Signal: Alarm Frequency Protection
	Alarm df/dt | DF/DT	37	1	3	Bit	0x2 (2)	-	Alarm instantaneous or average value of the rate-of-frequency-change
	Trip f (*)	37	1	3	Bit	0x4 (3)	-	Signal: Frequency has exceeded the limit.
	Trip df/dt | DF/DT (*)	37	1	3	Bit	0x8 (4)	-	Signal: Trip df/dt or DF/DT
	Alarm	37	1	3	Bit	0x10 (5)	-	Signal: Alarm Frequency Protection (collective signal)
	Alarm delta phi	37	1	3	Bit	0x20 (6)	-	Signal: Alarm Vector Surge
	Trip (*)	37	1	3	Bit	0x40 (7)	-	Signal: Trip Frequency Protection (collective signal)
	Trip delta phi (*)	37	1	3	Bit	0x80 (8)	-	Signal: Trip Vector Surge

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	TripCmd (*)	37	1	3	Bit	0x100 (9)	-	Signal: Trip Command
f[3] – 81		**38**	**1**	**3**	**Struct**			
	ExBlo1-I	38	1	3	Bit	0x1 (1)	-	Module input state: External blocking1
	ExBlo2-I	38	1	3	Bit	0x2 (2)	-	Module input state: External blocking2
	ExBlo TripCmd-I	38	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	Active	38	1	3	Bit	0x8 (4)	-	Signal: active
	ExBlo	38	1	3	Bit	0x10 (5)	-	Signal: External Blocking
	Blo by V<	38	1	3	Bit	0x20 (6)	-	Signal: Module is blocked by undervoltage.
	Blo TripCmd	38	1	3	Bit	0x40 (7)	-	Signal: Trip Command blocked
	ExBlo TripCmd	38	1	3	Bit	0x80 (8)	-	Signal: External Blocking of the Trip Command
f[3] – 81		**39**	**1**	**3**	**Struct**			
	Alarm f	39	1	3	Bit	0x1	-	Signal: Alarm Frequency Protection

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
						(1)		
	Alarm df/dt | DF/DT	39	1	3	Bit	0x2 (2)	-	Alarm instantaneous or average value of the rate-of-frequency-change
	Trip f (*)	39	1	3	Bit	0x4 (3)	-	Signal: Frequency has exceeded the limit.
	Trip df/dt | DF/DT (*)	39	1	3	Bit	0x8 (4)	-	Signal: Trip df/dt or DF/DT
	Alarm	39	1	3	Bit	0x10 (5)	-	Signal: Alarm Frequency Protection (collective signal)
	Alarm delta phi	39	1	3	Bit	0x20 (6)	-	Signal: Alarm Vector Surge
	Trip (*)	39	1	3	Bit	0x40 (7)	-	Signal: Trip Frequency Protection (collective signal)
	Trip delta phi (*)	39	1	3	Bit	0x80 (8)	-	Signal: Trip Vector Surge
	TripCmd (*)	39	1	3	Bit	0x100 (9)	-	Signal: Trip Command
f[4] – 81		**40**	**1**	**3**	**Struct**			
	ExBlo1-I	40	1	3	Bit	0x1 (1)	-	Module input state: External blocking1
	ExBlo2-I	40	1	3	Bit	0x2	-	Module input state: External blocking2

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
						(2)		
	ExBlo TripCmd-I	40	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	Active	40	1	3	Bit	0x8 (4)	-	Signal: active
	ExBlo	40	1	3	Bit	0x10 (5)	-	Signal: External Blocking
	Blo by V<	40	1	3	Bit	0x20 (6)	-	Signal: Module is blocked by undervoltage.
	Blo TripCmd	40	1	3	Bit	0x40 (7)	-	Signal: Trip Command blocked
	ExBlo TripCmd	40	1	3	Bit	0x80 (8)	-	Signal: External Blocking of the Trip Command
f[4] – 81		**41**	**1**	**3**	**Struct**			
	Alarm f	41	1	3	Bit	0x1 (1)	-	Signal: Alarm Frequency Protection
	Alarm df/dt | DF/DT	41	1	3	Bit	0x2 (2)	-	Alarm instantaneous or average value of the rate-of-frequency-change
	Trip f (*)	41	1	3	Bit	0x4 (3)	-	Signal: Frequency has exceeded the limit.
	Trip df/dt | DF/DT (*)	41	1	3	Bit	0x8	-	Signal: Trip df/dt or DF/DT

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
						(4)		
	Alarm	41	1	3	Bit	0x10 (5)	-	Signal: Alarm Frequency Protection (collective signal)
	Alarm delta phi	41	1	3	Bit	0x20 (6)	-	Signal: Alarm Vector Surge
	Trip (*)	41	1	3	Bit	0x40 (7)	-	Signal: Trip Frequency Protection (collective signal)
	Trip delta phi (*)	41	1	3	Bit	0x80 (8)	-	Signal: Trip Vector Surge
	TripCmd (*)	41	1	3	Bit	0x100 (9)	-	Signal: Trip Command
f[5] – 81		**42**	**1**	**3**	**Struct**			
	ExBlo1-I	42	1	3	Bit	0x1 (1)	-	Module input state: External blocking1
	ExBlo2-I	42	1	3	Bit	0x2 (2)	-	Module input state: External blocking2
	ExBlo TripCmd-I	42	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	Active	42	1	3	Bit	0x8 (4)	-	Signal: active
	ExBlo	42	1	3	Bit	0x10	-	Signal: External Blocking

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
						(5)		
	Blo by V<	42	1	3	Bit	0x20 (6)	-	Signal: Module is blocked by undervoltage.
	Blo TripCmd	42	1	3	Bit	0x40 (7)	-	Signal: Trip Command blocked
	ExBlo TripCmd	42	1	3	Bit	0x80 (8)	-	Signal: External Blocking of the Trip Command
f[5] – 81		**43**	**1**	**3**	**Struct**			
	Alarm f	43	1	3	Bit	0x1 (1)	-	Signal: Alarm Frequency Protection
	Alarm df/dt | DF/DT	43	1	3	Bit	0x2 (2)	-	Alarm instantaneous or average value of the rate-of-frequency-change
	Trip f (*)	43	1	3	Bit	0x4 (3)	-	Signal: Frequency has exceeded the limit.
	Trip df/dt | DF/DT (*)	43	1	3	Bit	0x8 (4)	-	Signal: Trip df/dt or DF/DT
	Alarm	43	1	3	Bit	0x10 (5)	-	Signal: Alarm Frequency Protection (collective signal)
	Alarm delta phi	43	1	3	Bit	0x20 (6)	-	Signal: Alarm Vector Surge

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	Trip (*)	43	1	3	Bit	0x40 (7)	-	Signal: Trip Frequency Protection (collective signal)
	Trip delta phi (*)	43	1	3	Bit	0x80 (8)	-	Signal: Trip Vector Surge
	TripCmd (*)	43	1	3	Bit	0x100 (9)	-	Signal: Trip Command
f[6] – 81		**44**	**1**	**3**	**Struct**			
	ExBlo1-I	44	1	3	Bit	0x1 (1)	-	Module input state: External blocking1
	ExBlo2-I	44	1	3	Bit	0x2 (2)	-	Module input state: External blocking2
	ExBlo TripCmd-I	44	1	3	Bit	0x4 (3)	-	Module input state: External Blocking of the Trip Command
	Active	44	1	3	Bit	0x8 (4)	-	Signal: active
	ExBlo	44	1	3	Bit	0x10 (5)	-	Signal: External Blocking
	Blo by V<	44	1	3	Bit	0x20 (6)	-	Signal: Module is blocked by undervoltage.
	Blo TripCmd	44	1	3	Bit	0x40 (7)	-	Signal: Trip Command blocked

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	ExBlo TripCmd	44	1	3	Bit	0x80 (8)	-	Signal: External Blocking of the Trip Command
f[6] – 81		**45**	**1**	**3**	**Struct**			
	Alarm f	45	1	3	Bit	0x1 (1)	-	Signal: Alarm Frequency Protection
	Alarm df/dt | DF/DT	45	1	3	Bit	0x2 (2)	-	Alarm instantaneous or average value of the rate-of-frequency-change
	Trip f (*)	45	1	3	Bit	0x4 (3)	-	Signal: Frequency has exceeded the limit.
	Trip df/dt | DF/DT (*)	45	1	3	Bit	0x8 (4)	-	Signal: Trip df/dt or DF/DT
	Alarm	45	1	3	Bit	0x10 (5)	-	Signal: Alarm Frequency Protection (collective signal)
	Alarm delta phi	45	1	3	Bit	0x20 (6)	-	Signal: Alarm Vector Surge
	Trip (*)	45	1	3	Bit	0x40 (7)	-	Signal: Trip Frequency Protection (collective signal)
	Trip delta phi (*)	45	1	3	Bit	0x80 (8)	-	Signal: Trip Vector Surge
	TripCmd (*)	45	1	3	Bit	0x100	-	Signal: Trip Command

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
						(9)		

3.2 Measuring Values

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
CT	IL1	20100	2	4	Float IEE754		A	Measured value: Phase current (fundamental)
CT	IL2	20102	2	4	Float IEE754		A	Measured value: Phase current (fundamental)
CT	IL3	20104	2	4	Float IEE754		A	Measured value: Phase current (fundamental)
CT	IG meas	20106	2	4	Float IEE754		A	Measured value (measured): IG (fundamental)
CT	I0	20114	2	4	Float IEE754		A	Measured value (calculated): Zero current (fundamental)
CT	I1	20116	2	4	Float IEE754		A	Measured value (calculated): Positive phase sequence current (fundamental)
CT	I2	20118	2	4	Float IEE754		A	Measured value (calculated): Unbalanced load current (fundamental)
CT	IG calc	20160	2	4	Float IEE754		A	Measured value (calculated): IG (fundamental)
CT	phi IG calc	20200	2	4	Float IEE754		°	Measured value (calculated): Angle of Phasor IG calc Reference phasor is required to calculate the angle. This is the first measured voltage (or current) channel with sufficiently high amplitude.
CT	phi IG meas	20202	2	4	Float IEE754		°	Measured value (calculated): Angle of Phasor IG meas Reference phasor is required to calculate the angle. This is the first measured voltage (or current) channel with sufficiently high amplitude.

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
CT	phi IL1	20204	2	4	Float IEE754		°	Measured value (calculated): Angle of Phasor IL1 Reference phasor is required to calculate the angle. This is the first measured voltage (or current) channel with sufficiently high amplitude.
CT	phi IL2	20206	2	4	Float IEE754		°	Measured value (calculated): Angle of Phasor IL2 Reference phasor is required to calculate the angle. This is the first measured voltage (or current) channel with sufficiently high amplitude.
CT	phi IL3	20208	2	4	Float IEE754		°	Measured value (calculated): Angle of Phasor IL3 Reference phasor is required to calculate the angle. This is the first measured voltage (or current) channel with sufficiently high amplitude.
CT	IL1 THD	20210	2	4	Float IEE754		A	Measured value (calculated): IL1 Total Harmonic Current
CT	IL2 THD	20212	2	4	Float IEE754		A	Measured value (calculated): IL2 Total Harmonic Current
CT	IL3 THD	20214	2	4	Float IEE754		A	Measured value (calculated): IL3 Total Harmonic Current
CT	%IL1 THD	20216	2	4	Float IEE754		%	Measured value (calculated): IL1 Total Harmonic Distortion
CT	%IL2 THD	20218	2	4	Float IEE754		%	Measured value (calculated): IL2 Total Harmonic Distortion
CT	%IL3 THD	20220	2	4	Float IEE754		%	Measured value (calculated): IL3 Total Harmonic Distortion
CT	IL1 RMS	20316	2	4	Float IEE754		A	Measured value: Phase current (RMS)

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
CT	IL2 RMS	20318	2	4	Float IEE754		A	Measured value: Phase current (RMS)
CT	IL3 RMS	20320	2	4	Float IEE754		A	Measured value: Phase current (RMS)
CT	IG meas RMS	20322	2	4	Float IEE754		A	Measured value (measured): IG (RMS)
CT	IG calc RMS	20324	2	4	Float IEE754		A	Measured value (calculated): IG (RMS)
CT	%(I2/I1)	20376	2	4	Float IEE754		%	Measured value (calculated): I2/I1, phase sequence will be taken into account automatically.
CT	phi I0	20378	2	4	Float IEE754		°	Measured value (calculated): Angle Zero Sequence System Reference phasor is required to calculate the angle. This is the first measured voltage (or current) channel with sufficiently high amplitude.
CT	phi I1	20380	2	4	Float IEE754		°	Measured value (calculated): Angle of Positive Sequence System Reference phasor is required to calculate the angle. This is the first measured voltage (or current) channel with sufficiently high amplitude.
CT	phi I2	20382	2	4	Float IEE754		°	Measured Value (calculated): Angle of Negative Sequence System Reference phasor is required to calculate the angle. This is the first measured voltage (or current) channel with sufficiently high amplitude.
CT	I1 max	21074	2	4	Float IEE754		A	Maximum value positive phase sequence current (fundamental)
CT	I1 min	21076	2	4	Float IEE754		A	Minimum value positive phase sequence current (fundamental)
CT	I2 max	21080	2	4	Float IEE754		A	Maximum value negative sequence current (fundamental)

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
CT	I2 min	21082	2	4	Float IEE754		A	Minimum value unbalanced load current (fundamental)
CT	IL1 avg RMS	21130	2	4	Float IEE754		A	IL1 average value (RMS)
CT	IL2 avg RMS	21132	2	4	Float IEE754		A	IL2 average value (RMS)
CT	IL3 avg RMS	21134	2	4	Float IEE754		A	IL3 average value (RMS)
CT	IL1 max RMS	21136	2	4	Float IEE754		A	IL1 maximum value (RMS)
CT	IL2 max RMS	21138	2	4	Float IEE754		A	IL2 maximum value (RMS)
CT	IL3 max RMS	21140	2	4	Float IEE754		A	IL3 maximum value (RMS)
CT	IL1 min RMS	21142	2	4	Float IEE754		A	IL1 minimum value (RMS)
CT	IL2 min RMS	21144	2	4	Float IEE754		A	IL2 minimum value (RMS)
CT	IL3 min RMS	21146	2	4	Float IEE754		A	IL3 minimum value (RMS)
CT	IG calc max RMS	21456	2	4	Float IEE754		A	Measured value (calculated):IG maximum value (RMS)
CT	IG calc min RMS	21458	2	4	Float IEE754		A	Measured value (calculated):IG minimum value (RMS)
CT	IG meas max RMS	21462	2	4	Float IEE754		A	Measured value: IG maximum value (RMS)
CT	IG meas min RMS	21464	2	4	Float IEE754		A	Measured value: IG 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
CT	IL1 Peak (Demand)	21784	2	4	Float IEE754		A	IL1 Peak value, RMS value
CT	IL2 Peak (Demand)	21786	2	4	Float IEE754		A	IL2 Peak value, RMS value
CT	IL3 Peak (Demand)	21788	2	4	Float IEE754		A	IL3 Peak value, RMS value

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
CT - fault value	IL1	50100	2	4	Float IEE754		A	Measured value: Phase current (fundamental) , as stored in the Fault Recorder
CT - fault value	IL2	50102	2	4	Float IEE754		A	Measured value: Phase current (fundamental) , as stored in the Fault Recorder
CT - fault value	IL3	50104	2	4	Float IEE754		A	Measured value: Phase current (fundamental) , as stored in the Fault Recorder
CT - fault value	IG meas	50106	2	4	Float IEE754		A	Measured value (measured): IG (fundamental) , as stored in the Fault Recorder
CT - fault value	I0	50114	2	4	Float IEE754		A	Measured value (calculated): Zero current (fundamental) , as stored in the Fault Recorder
CT - fault value	I1	50116	2	4	Float IEE754		A	Measured value (calculated): Positive phase sequence current (fundamental) , as stored in the Fault Recorder
CT - fault value	I2	50118	2	4	Float IEE754		A	Measured value (calculated): Unbalanced load current (fundamental) , as stored in the Fault Recorder
CT - fault value	IG calc	50160	2	4	Float IEE754		A	Measured value (calculated): IG (fundamental) , as stored in the Fault Recorder
CT - fault value	phi IG calc	50200	2	4	Float IEE754		°	Measured value (calculated): Angle of Phasor IG calc Reference phasor is required to calculate the angle. This is the first measured voltage (or current) channel with sufficiently high amplitude. , as stored in the Fault Recorder
CT - fault value	phi IG meas	50202	2	4	Float IEE754		°	Measured value (calculated): Angle of Phasor IG meas Reference phasor is required to calculate the angle. This is the first measured

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
								voltage (or current) channel with sufficiently high amplitude. , as stored in the Fault Recorder
CT - fault value	phi IL1	50204	2	4	Float IEE754		°	Measured value (calculated): Angle of Phasor IL1 Reference phasor is required to calculate the angle. This is the first measured voltage (or current) channel with sufficiently high amplitude. , as stored in the Fault Recorder
CT - fault value	phi IL2	50206	2	4	Float IEE754		°	Measured value (calculated): Angle of Phasor IL2 Reference phasor is required to calculate the angle. This is the first measured voltage (or current) channel with sufficiently high amplitude. , as stored in the Fault Recorder
CT - fault value	phi IL3	50208	2	4	Float IEE754		°	Measured value (calculated): Angle of Phasor IL3 Reference phasor is required to calculate the angle. This is the first measured voltage (or current) channel with sufficiently high amplitude. , as stored in the Fault Recorder
CT - fault value	IL1 RMS	50316	2	4	Float IEE754		A	Measured value: Phase current (RMS) , as stored in the Fault Recorder
CT - fault value	IL2 RMS	50318	2	4	Float IEE754		A	Measured value: Phase current (RMS) , as stored in the Fault Recorder
CT - fault value	IL3 RMS	50320	2	4	Float IEE754		A	Measured value: Phase current (RMS) , as stored in the Fault Recorder
CT - fault value	IG meas RMS	50322	2	4	Float IEE754		A	Measured value (measured): IG (RMS) , as stored in the Fault Recorder

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
CT - fault value	IG calc RMS	50324	2	4	Float IEE754		A	Measured value (calculated): IG (RMS) , as stored in the Fault Recorder
CT - fault value	%(I2/I1)	50376	2	4	Float IEE754		%	Measured value (calculated): I2/I1, phase sequence will be taken into account automatically. , as stored in the Fault Recorder
Date and Time		**20000**	**6**	**4**	**Struct**			
	y	20000	6	4	Short	Word 0 (1)	-	year
	m	20000	6	4	Short	Word 1 (17)	-	month
	d	20000	6	4	Short	Word 2 (33)	-	days
	h	20000	6	4	Short	Word 3 (49)	-	hours
	min	20000	6	4	Short	Word 4 (65)	-	minute
	ms	20000	6	4	Short	Word 5 (81)	-	milliseconds
ExP[1]	NumberOfAlarms	24018	2	4	Float IEE754		-	Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.
ExP[1]	NumberOfTripCmds	24020	2	4	Float IEE754		-	Number of trip commands since the last reset

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
ExP[2]	NumberOfAlarms	24022	2	4	Float IEE754		-	Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.
ExP[2]	NumberOfTripCmds	24024	2	4	Float IEE754		-	Number of trip commands since the last reset
ExP[3]	NumberOfAlarms	24026	2	4	Float IEE754		-	Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.
ExP[3]	NumberOfTripCmds	24028	2	4	Float IEE754		-	Number of trip commands since the last reset
ExP[4]	NumberOfAlarms	24030	2	4	Float IEE754		-	Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.
ExP[4]	NumberOfTripCmds	24032	2	4	Float IEE754		-	Number of trip commands since the last reset
I2>[1] – 46	nRevTrips	21614	2	4	Float IEE754		-	Number of reverse spinning trips since last reset. Resettable with »Sys . Res TripCr« or »Sys . Res All«.
I2>[1] – 46	NumberOfAlarms	21724	2	4	Float IEE754		-	Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.
I2>[1] – 46	NumberOfTripCmds	21726	2	4	Float IEE754		-	Number of trip commands since the last reset
I2>[2] – 46	NumberOfAlarms	21730	2	4	Float IEE754		-	Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.
I2>[2] – 46	NumberOfTripCmds	21732	2	4	Float IEE754		-	Number of trip commands since the last reset
I<[1] – 37	NumberOfTripCmds	21642	2	4	Float IEE754		-	Number of trip commands since the last reset
I<[1] – 37	NumberOfAlarms	21648	2	4	Float IEE754		-	Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
I<[2] – 37	NumberOfTripCmds	21644	2	4	Float IEE754		-	Number of trip commands since the last reset
I<[2] – 37	NumberOfAlarms	21650	2	4	Float IEE754		-	Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.
I<[3] – 37	NumberOfTripCmds	21646	2	4	Float IEE754		-	Number of trip commands since the last reset
I<[3] – 37	NumberOfAlarms	21652	2	4	Float IEE754		-	Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.
IG[1] – 50N, 51N	NumberOfAlarms	21690	2	4	Float IEE754		-	Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.
IG[1] – 50N, 51N	NumberOfTripCmds	21692	2	4	Float IEE754		-	Number of trip commands since the last reset
IG[2] – 50N, 51N	NumberOfAlarms	21694	2	4	Float IEE754		-	Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.
IG[2] – 50N, 51N	NumberOfTripCmds	21696	2	4	Float IEE754		-	Number of trip commands since the last reset
IG[3] – 50N, 51N	NumberOfAlarms	21698	2	4	Float IEE754		-	Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.
IG[3] – 50N, 51N	NumberOfTripCmds	21700	2	4	Float IEE754		-	Number of trip commands since the last reset
IG[4] – 50N, 51N	NumberOfAlarms	21702	2	4	Float IEE754		-	Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.
IG[4] – 50N, 51N	NumberOfTripCmds	21704	2	4	Float IEE754		-	Number of trip commands since the last reset
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.

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
IRIG-B	NoOfFrameErrors	20300	2	4	Float IEE754		-	Total Number of Frame Errors. Physically corrupted Frame.
IRIG-B	NoOfFramesOK	20302	2	4	Float IEE754		-	Total Number valid Frames.
I[1] – 50, 51	NumberOfAlarms	21666	2	4	Float IEE754		-	Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.
I[1] – 50, 51	NumberOfTripCmds	21668	2	4	Float IEE754		-	Number of trip commands since the last reset
I[2] – 50, 51	NumberOfAlarms	21670	2	4	Float IEE754		-	Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.
I[2] – 50, 51	NumberOfTripCmds	21672	2	4	Float IEE754		-	Number of trip commands since the last reset
I[3] – 50, 51	NumberOfAlarms	21674	2	4	Float IEE754		-	Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.
I[3] – 50, 51	NumberOfTripCmds	21676	2	4	Float IEE754		-	Number of trip commands since the last reset
I[4] – 50, 51	NumberOfAlarms	21678	2	4	Float IEE754		-	Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.
I[4] – 50, 51	NumberOfTripCmds	21680	2	4	Float IEE754		-	Number of trip commands since the last reset
I[5] – 50, 51	NumberOfAlarms	21682	2	4	Float IEE754		-	Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.
I[5] – 50, 51	NumberOfTripCmds	21684	2	4	Float IEE754		-	Number of trip commands since the last reset
I[6] – 50, 51	NumberOfAlarms	21686	2	4	Float IEE754		-	Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.
I[6] – 50, 51	NumberOfTripCmds	21688	2	4	Float IEE754		-	Number of trip commands since the last reset

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
Jam[1] – 51LR	NumberOfTripCmds	21580	2	4	Float IEE754		-	Number of trip commands since the last reset
Jam[1] – 51LR	NumberOfAlarms	21662	2	4	Float IEE754		-	Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.
Jam[2] – 51LR	NumberOfTripCmds	21582	2	4	Float IEE754		-	Number of trip commands since the last reset
Jam[2] – 51LR	NumberOfAlarms	21664	2	4	Float IEE754		-	Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.
MStart	ABK Rem.Time	20466	2	4	Float IEE754		s	This is the remaining anti-backspin time.
MStart	IL1 Ib	20468	2	4	Float IEE754		Ib	Measured value: Phase current as multiple of Ib
MStart	IL2 Ib	20470	2	4	Float IEE754		Ib	Measured value: Phase current as multiple of Ib
MStart	IL3 Ib	20472	2	4	Float IEE754		Ib	Measured value: Phase current as multiple of Ib
MStart	NOCS Remaining	20474	2	4	Float IEE754		-	This counter shows the number of remaining permitted cold starts.
MStart	SPH Remaining	20476	2	4	Float IEE754		-	SPH Remaining
MStart	TBS Rem.Block.Time	20478	2	4	Float IEE754		s	In case that the Motor is blocked by TBS functions, the remaining blocking time is shown.
MStart	I3 PRMS avg	20510	2	4	Float IEE754		A	Average RMS current of all 3 phases
MStart	I3 P (%Ib) avg	20512	2	4	Float IEE754		Ib	Average RMS current of all 3 phases as percentages of Ib
MStart	SPH Rem.Block.Time	20894	2	4	Float IEE754		min	In case that the Motor is blocked by an SPH blocking, the remaining blocking time is shown until the next motor start is permitted.
MStart	HighestRunI	21584	2	4	Float IEE754		A	Highest running phase current. The time stamp indicates the point in time when the

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
								maximum current has occurred. Resettable with »Sys . Res OperationsCr« or »Sys . Res All«.
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 OperationsCr« or »Sys . Res All«.
MStart	OCNT	21588	2	4	Float IEE754		-	Motor Operation count since last reset. Resettable with »Sys . Res OperationsCr« or »Sys . Res All«.
MStart	RunTime	21590	2	4	Float IEE754		h	Motor Operation time since last reset. Resettable with »Sys . Res OperationsCr« or »Sys . Res All«.
MStart	TOCS	21592	2	4	Float IEE754		-	Total Motor Operation count since last reset. Resettable with »Sys . Res TotalCr« or »Sys . Res All«.
MStart	TRunTime	21594	2	4	Float IEE754		h	Motor Operation (Motor run time) time since last reset. Resettable with »Sys . Res TotalCr« or »Sys . Res All«.
MStart	nEmrgOvr	21596	2	4	Float IEE754		-	Number of emergency overrides since last reset. Resettable with »Sys . Res OperationsCr« or »Sys . Res All«.
MStart	nInSqTrips	21598	2	4	Float IEE754		-	Number of incomplete sequence trips since last reset. Resettable with »Sys . Res TripCr« or »Sys . Res All«.
MStart	nTRNTrips	21606	2	4	Float IEE754		-	Number of transition trips since last reset. Resettable with »Sys . Res TripCr« or »Sys . Res All«.
MStart	nZSWTrips	21608	2	4	Float IEE754		-	Number of zero speed switch trips since last reset. Resettable with »Sys . Res TripCr« or »Sys . Res All«.
MStart	nSPHBlocks	21654	2	4	Float IEE754		-	Number of start per hour blocks since last reset. Resettable with »Sys . Res TripCr« or »Sys . Res All«.

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
MStart	nTBSBlocks	21656	2	4	Float IEE754		-	Number of time between start blocks since last reset. Resettable with »Sys . Res TripCr« or »Sys . Res All«.
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 OperationsCr« or »Sys . Res All«.
MStart	I3P Fla Demand	21734	2	4	Float IEE754		Ib	RMS current of all 3 phases calculated in a fixed demand window as percentages of Ib
MStart	IL1 avg Ib	21736	2	4	Float IEE754		Ib	IL1 average value as multiple of Ib
MStart	IL1 max Ib	21738	2	4	Float IEE754		Ib	IL1 maximum value as multiple of Ib
MStart	IL1 min Ib	21740	2	4	Float IEE754		Ib	IL1 minimum value as multiple of Ib
MStart	IL2 avg Ib	21742	2	4	Float IEE754		Ib	IL2 average value as multiple of Ib
MStart	IL2 max Ib	21744	2	4	Float IEE754		Ib	IL2 maximum value as multiple of Ib
MStart	IL2 min Ib	21746	2	4	Float IEE754		Ib	IL2 minimum value as multiple of Ib
MStart	IL3 avg Ib	21748	2	4	Float IEE754		Ib	IL3 average value as multiple of Ib
MStart	IL3 max Ib	21750	2	4	Float IEE754		Ib	IL3 maximum value as multiple of Ib
MStart	IL3 min Ib	21752	2	4	Float IEE754		Ib	IL3 minimum value as multiple of Ib
MStart - fault value	I3 PRMS avg	50510	2	4	Float IEE754		A	Average RMS current of all 3 phases , as stored in the Fault Recorder
Modbus	Mapped Meas 1	23000	2	4	Float IEE754		-	Mapped Measured Values. They can be used to provide measured values to the Modbus Master.
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.

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
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.
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.

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
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.
PF[1] – 55	NumberOfAlarms	20630	2	4	Float IEE754		-	Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.
PF[1] – 55	NumberOfTripCmds	20632	2	4	Float IEE754		-	Number of trip commands since the last reset
PF[2] – 55	NumberOfAlarms	20634	2	4	Float IEE754		-	Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.
PF[2] – 55	NumberOfTripCmds	20636	2	4	Float IEE754		-	Number of trip commands since the last reset
PQSCr	cos phi	20152	2	4	Float IEE754		-	Measured value (calculated): Power factor: Sign Convention: sign(PF) = sign(P)
PQSCr	P	20154	2	4	Float IEE754		W	Measured value (calculated): Active power (P- = Fed Active Power, P+ = Consumpted Active Power) (fundamental)
PQSCr	Q	20156	2	4	Float IEE754		VAr	Measured value (calculated): Reactive power (Q- = Fed Reactive Power, Q+ = Consumpted Reactive Power) (fundamental)
PQSCr	S	20158	2	4	Float IEE754		VA	Measured Value (Calculated): Apparent power (fundamental)
PQSCr	Wp+	20174	2	4	Float IEE754		kWh	Positive Active Power is consumed active energy
PQSCr	Wp-	20176	2	4	Float IEE754		kWh	Negative Active Power (Fed Energy)
PQSCr	Wq+	20178	2	4	Float IEE754		kVArh	Positive Reactive Power is consumed Reactive Energy
PQSCr	Wq-	20180	2	4	Float IEE754		kVArh	Negative Reactive Power (Fed Energy)

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
PQSCr	P RMS	20452	2	4	Float IEE754		W	Measured value (calculated): Active power (P- = Fed Active Power, P+ = Consumpted Active Power) (RMS)
PQSCr	S RMS	20454	2	4	Float IEE754		VA	Measured Value (Calculated): Apparent power (RMS)
PQSCr	cos phi RMS	20456	2	4	Float IEE754		-	Measured value (calculated): Power factor: Sign Convention: sign(PF) = sign(P)
PQSCr	Wp Net	20460	2	4	Float IEE754		kWh	Absolute Active Power Hours
PQSCr	Wq Net	20462	2	4	Float IEE754		kVArh	Absolute Reactive Power Hours
PQSCr	Ws Net	20464	2	4	Float IEE754		kVAh	Absolute Apparent Power Hours
PQSCr	P 1	20496	2	4	Float IEE754		W	Measured value (calculated): Active power in positive sequence system (P- = Fed Active Power, P+ = Consumpted Active Power). This can be used to monitor the maximum power infeed/consumption.
PQSCr	Q 1	20498	2	4	Float IEE754		VAr	Measured value (calculated): Reactive power in positive sequence system (Q- = Fed Reactive Power, Q+ = Consumpted Reactive Power)
PQSCr	cos phi max	21092	2	4	Float IEE754		-	Maximum value of the power factor: Sign Convention: sign(PF) = sign(P)
PQSCr	cos phi min	21094	2	4	Float IEE754		-	Minimum value of the power factor: Sign Convention: sign(PF) = sign(P)
PQSCr	P avg	21556	2	4	Float IEE754		W	Average of the active power
PQSCr	P max	21558	2	4	Float IEE754		W	Maximum value of the active power
PQSCr	P min	21560	2	4	Float IEE754		W	Minimum value of the active power
PQSCr	S avg (Demand)	21562	2	4	Float IEE754		VA	Average of the apparent power
PQSCr	S max	21564	2	4	Float IEE754		VA	Maximum value of the apparent power
PQSCr	S min	21566	2	4	Float IEE754		VA	Minimum value of the apparent power

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
PQSCr	cos phi max RMS	21570	2	4	Float IEE754		-	Maximum value of the power factor: Sign Convention: sign(PF) = sign(P)
PQSCr	cos phi min RMS	21572	2	4	Float IEE754		-	Minimum value of the power factor: Sign Convention: sign(PF) = sign(P)
PQSCr	Q avg (Demand)	21574	2	4	Float IEE754		VAr	Average of the reactive power
PQSCr	Q max	21576	2	4	Float IEE754		VAr	Maximum value of the reactive power
PQSCr	Q min	21578	2	4	Float IEE754		VAr	Minimum value of the reactive power
PQSCr	Watt Peak (Demand)	21790	2	4	Float IEE754		W	WATTS Peak value, RMS value
PQSCr	VAr Peak (Demand)	21792	2	4	Float IEE754		VAr	VARs Peak value, RMS value
PQSCr	VA Peak (Demand)	21794	2	4	Float IEE754		VA	VA Peak value, RMS value
PQSCr - fault value	cos phi	50152	2	4	Float IEE754		-	Measured value (calculated): Power factor: Sign Convention: sign(PF) = sign(P) , as stored in the Fault Recorder
PQSCr - fault value	P	50154	2	4	Float IEE754		W	Measured value (calculated): Active power (P- = Fed Active Power, P+ = Consumpted Active Power) (fundamental) , as stored in the Fault Recorder
PQSCr - fault value	Q	50156	2	4	Float IEE754		VAr	Measured value (calculated): Reactive power (Q- = Fed Reactive Power, Q+ = Consumpted Reactive Power) (fundamental) , as stored in the Fault Recorder
PQSCr - fault value	S	50158	2	4	Float IEE754		VA	Measured Value (Calculated): Apparent power (fundamental) , as stored in the Fault Recorder
PQSCr - fault value	P RMS	50452	2	4	Float IEE754		W	Measured value (calculated): Active power (P- = Fed Active Power, P+ = Consumpted Active Power) (RMS) , as stored in the Fault Recorder
PQSCr - fault value	S RMS	50454	2	4	Float IEE754		VA	Measured Value (Calculated): Apparent power (RMS) , as stored in the Fault Recorder

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
PQSCr - fault value	cos phi RMS	50456	2	4	Float IEE754		-	Measured value (calculated): Power factor: Sign Convention: sign(PF) = sign(P) , as stored in the Fault Recorder
PQSCr - fault value	P 1	50496	2	4	Float IEE754		W	Measured value (calculated): Active power in positive sequence system (P- = Fed Active Power, P+ = Consumpted Active Power). This can be used to monitor the maximum power infeed/consumption. , as stored in the Fault Recorder
PQSCr - fault value	Q 1	50498	2	4	Float IEE754		VAr	Measured value (calculated): Reactive power in positive sequence system (Q- = Fed Reactive Power, Q+ = Consumpted Reactive Power) , as stored in the Fault Recorder
PQS[1] – 32, 37	NumberOfAlarms	20582	2	4	Float IEE754		-	Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.
PQS[1] – 32, 37	NumberOfTripCmds	20584	2	4	Float IEE754		-	Number of trip commands since the last reset
PQS[2] – 32, 37	NumberOfAlarms	20586	2	4	Float IEE754		-	Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.
PQS[2] – 32, 37	NumberOfTripCmds	20588	2	4	Float IEE754		-	Number of trip commands since the last reset
PQS[3] – 32, 37	NumberOfAlarms	20590	2	4	Float IEE754		-	Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.
PQS[3] – 32, 37	NumberOfTripCmds	20592	2	4	Float IEE754		-	Number of trip commands since the last reset
PQS[4] – 32, 37	NumberOfAlarms	20594	2	4	Float IEE754		-	Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.
PQS[4] – 32, 37	NumberOfTripCmds	20596	2	4	Float IEE754		-	Number of trip commands since the last reset

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
PQS[5] – 32, 37	NumberOfAlarms	20598	2	4	Float IEE754		-	Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.
PQS[5] – 32, 37	NumberOfTripCmds	20600	2	4	Float IEE754		-	Number of trip commands since the last reset
PQS[6] – 32, 37	NumberOfAlarms	20602	2	4	Float IEE754		-	Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.
PQS[6] – 32, 37	NumberOfTripCmds	20604	2	4	Float IEE754		-	Number of trip commands since the last reset
RTD	HottestWindingTemp	20504	2	4	Float IEE754		°C	The actual value for the hottest winding temperature.
RTD	Hottest MotBearTemp	20506	2	4	Float IEE754		°C	The actual value for the hottest motor bearing temperature.
RTD	Hottest LoadBearTemp	20508	2	4	Float IEE754		°C	The actual value for the hottest load bearing temperature.
RTD	HighestLbTemp	21618	2	4	Float IEE754		°C	Highest load bearing temperature since the last reset. Resettable via »Sys . Res OperationsCr« oder »Sys . Res All«.
RTD	HighestMbTemp	21620	2	4	Float IEE754		°C	Highest motor bearing temperature since the last reset. Resettable via »Sys . Res OperationsCr« oder »Sys . Res All«.
RTD	HighestWdTemp	21622	2	4	Float IEE754		°C	Highest motor winding temperature since the last reset. Resettable via »Sys . Res OperationsCr« oder »Sys . Res All«.
RTD	nAuxAlarms	21624	2	4	Float IEE754		-	Number of auxiliary temperature alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.
RTD	nAuxTrips	21626	2	4	Float IEE754		-	Number of auxiliary temperature trips since last reset. Resettable with »Sys . Res TripCr« or »Sys . Res All«.
RTD	nChannelFails	21628	2	4	Float IEE754		-	Number of RTD channel failures. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
RTD	nLbAlarms	21630	2	4	Float IEE754		-	Number of load bearing temperature alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.
RTD	nLbTrips	21632	2	4	Float IEE754		-	Number of load bearing temperature trips since last reset. Resettable with »Sys . Res TripCr« or »Sys . Res All«.
RTD	nMbAlarms	21634	2	4	Float IEE754		-	Number of motor bearing temperature alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.
RTD	nMbTrips	21636	2	4	Float IEE754		-	Number of motor bearing temperature trips since last reset. Resettable with »Sys . Res TripCr« or »Sys . Res All«.
RTD	nWdAlarms	21638	2	4	Float IEE754		-	Number of winding temperature alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.
RTD	nWdTrips	21640	2	4	Float IEE754		-	Number of winding temperature trips since last reset. Resettable with »Sys . Res TripCr« or »Sys . Res All«.
RTD	Hottest Aux Temp	21820	2	4	Float IEE754		°C	The actual value for the hottest Auxiliary temperature.
RTD	HighestAuxTemp	21822	2	4	Float IEE754		°C	Highest Auxiliary temperature since the last reset. Resettable via »Sys . Res OperationsCr« oder »Sys . Res All«.
SG[1]	TripCmd Cr	20006	2	4	Float IEE754		-	Counter: Total number of trips of the switchgear.
SG[1]	Sum trip IL1	20182	2	4	Float IEE754		A	Summation of the tripping currents phase
SG[1]	Sum trip IL2	20184	2	4	Float IEE754		A	Summation of the tripping currents phase
SG[1]	Sum trip IL3	20186	2	4	Float IEE754		A	Summation of the tripping currents phase
SG[1]	Bkr Wear Level	20516	2	4	Float IEE754		%	Wear level of the circuit breaker. (100% means that the circuit breaker has to be maintained.)
SG[1]	Isum Intr per hour	20518	2	4	Float IEE754		kA	Sum per hour of interrupting currents.

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
ThR	I2T Used	20482	2	4	Float IEE754		%	Thermal capacity used.
ThR	I2T Remained	20484	2	4	Float IEE754		%	Thermal capacity remained.
ThR	nAlarms	21658	2	4	Float IEE754		-	Number of alarms since the last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.
ThR	NumberOfTripCmds	21660	2	4	Float IEE754		-	Number of trip commands since the last reset
ThR - fault value	I2T Used	50482	2	4	Float IEE754		%	Thermal capacity used. , as stored in the Fault Recorder
URTD	Aux2	20328	2	4	Float IEE754		°C	Auxiliary2
URTD	Windg1	20330	2	4	Float IEE754		°C	Winding 1
URTD	Windg2	20332	2	4	Float IEE754		°C	Winding 2
URTD	Windg3	20334	2	4	Float IEE754		°C	Winding 3
URTD	Windg4	20336	2	4	Float IEE754		°C	Winding 4
URTD	Windg5	20338	2	4	Float IEE754		°C	Winding 5
URTD	Windg6	20340	2	4	Float IEE754		°C	Winding 6
URTD	MotBear1	20342	2	4	Float IEE754		°C	Motor Bearing 1
URTD	MotBear2	20344	2	4	Float IEE754		°C	Motor Bearing 2
URTD	LoadBear1	20346	2	4	Float IEE754		°C	Load Bearing 1
URTD	LoadBear2	20348	2	4	Float IEE754		°C	Load Bearing 2
URTD	Aux1	20350	2	4	Float IEE754		°C	Auxiliary1
URTD	RTD Max	20486	2	4	Float IEE754		°C	Maximum temperature of all channels.
URTD	Windg1 max	21194	2	4	Float IEE754		°C	Winding1 Maximum Value
URTD	Windg2 max	21196	2	4	Float IEE754		°C	Winding2 Maximum Value
URTD	Windg3 max	21198	2	4	Float IEE754		°C	Winding3 Maximum Value

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
URTD	Windg4 max	21200	2	4	Float IEE754		°C	Winding4 Maximum Value
URTD	Windg5 max	21202	2	4	Float IEE754		°C	Winding5 Maximum Value
URTD	Windg6 max	21204	2	4	Float IEE754		°C	Winding6 Maximum Value
URTD	MotBear1 max	21206	2	4	Float IEE754		°C	Motor Bearing1 Maximum Value
URTD	MotBear2 max	21208	2	4	Float IEE754		°C	Motor Bearing2 Maximum Value
URTD	LoadBear1 max	21210	2	4	Float IEE754		°C	Load Bearing1 Maximum Value
URTD	LoadBear2 max	21212	2	4	Float IEE754		°C	Load Bearing2 Maximum Value
URTD	Aux1 max	21214	2	4	Float IEE754		°C	Auxiliary1 Maximum Value
URTD	Aux2 max	21800	2	4	Float IEE754		°C	Auxiliary2 Maximum Value
URTD - fault value	Aux2	50328	2	4	Float IEE754		°C	Auxiliary2 , as stored in the Fault Recorder
URTD - fault value	Windg1	50330	2	4	Float IEE754		°C	Winding 1 , as stored in the Fault Recorder
URTD - fault value	Windg2	50332	2	4	Float IEE754		°C	Winding 2 , as stored in the Fault Recorder
URTD - fault value	Windg3	50334	2	4	Float IEE754		°C	Winding 3 , as stored in the Fault Recorder
URTD - fault value	Windg4	50336	2	4	Float IEE754		°C	Winding 4 , as stored in the Fault Recorder
URTD - fault value	Windg5	50338	2	4	Float IEE754		°C	Winding 5 , as stored in the Fault Recorder
URTD - fault value	Windg6	50340	2	4	Float IEE754		°C	Winding 6 , as stored in the Fault Recorder
URTD - fault value	MotBear1	50342	2	4	Float IEE754		°C	Motor Bearing 1 , as stored in the Fault Recorder
URTD - fault value	MotBear2	50344	2	4	Float IEE754		°C	Motor Bearing 2 , as stored in the Fault Recorder
URTD - fault value	LoadBear1	50346	2	4	Float IEE754		°C	Load Bearing 1 , as stored in the Fault Recorder
URTD - fault value	LoadBear2	50348	2	4	Float IEE754		°C	Load Bearing 2 , as stored in the Fault Recorder
URTD - fault value	Aux1	50350	2	4	Float IEE754		°C	Auxiliary1 , as stored in the Fault Recorder

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
V012[1] – 47	NumberOfTripCmds	21886	2	4	Float IEE754		-	Number of trip commands since the last reset
V012[1] – 47	NumberOfAlarms	21888	2	4	Float IEE754		-	Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.
V012[2] – 47	NumberOfTripCmds	21890	2	4	Float IEE754		-	Number of trip commands since the last reset
V012[2] – 47	NumberOfAlarms	21892	2	4	Float IEE754		-	Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.
V012[3] – 47	NumberOfAlarms	21914	2	4	Float IEE754		-	Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.
V012[3] – 47	NumberOfTripCmds	21916	2	4	Float IEE754		-	Number of trip commands since the last reset
V012[4] – 47	NumberOfAlarms	21918	2	4	Float IEE754		-	Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.
V012[4] – 47	NumberOfTripCmds	21920	2	4	Float IEE754		-	Number of trip commands since the last reset
V012[5] – 47	NumberOfAlarms	21922	2	4	Float IEE754		-	Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.
V012[5] – 47	NumberOfTripCmds	21924	2	4	Float IEE754		-	Number of trip commands since the last reset
V012[6] – 47	NumberOfAlarms	21926	2	4	Float IEE754		-	Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.
V012[6] – 47	NumberOfTripCmds	21928	2	4	Float IEE754		-	Number of trip commands since the last reset
VG[1] – 27A, 59N,A	NumberOfTripCmds	21854	2	4	Float IEE754		-	Number of trip commands since the last reset

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
VG[1] – 27A, 59N,A	NumberOfAlarms	21856	2	4	Float IEE754		-	Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.
VG[2] – 27A, 59N,A	NumberOfTripCmds	21858	2	4	Float IEE754		-	Number of trip commands since the last reset
VG[2] – 27A, 59N,A	NumberOfAlarms	21860	2	4	Float IEE754		-	Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.
VT	f	20128	2	4	Float IEE754		Hz	Measured value: Frequency
VT	VL12	20130	2	4	Float IEE754		V	Measured value: Phase-to-phase voltage (fundamental)
VT	VL23	20132	2	4	Float IEE754		V	Measured value: Phase-to-phase voltage (fundamental)
VT	VL31	20134	2	4	Float IEE754		V	Measured value: Phase-to-phase voltage (fundamental)
VT	VL1	20136	2	4	Float IEE754		V	Measured value: Phase-to-neutral voltage (fundamental)
VT	VL2	20138	2	4	Float IEE754		V	Measured value: Phase-to-neutral voltage (fundamental)
VT	VL3	20140	2	4	Float IEE754		V	Measured value: Phase-to-neutral voltage (fundamental)
VT	VX meas	20142	2	4	Float IEE754		V	Measured value (measured): VX measured (fundamental)
VT	V0	20146	2	4	Float IEE754		V	Measured value (calculated): Symmetrical components Zero voltage(fundamental)
VT	V1	20148	2	4	Float IEE754		V	Measured value (calculated): Symmetrical components positive phase sequence voltage(fundamental)
VT	V2	20150	2	4	Float IEE754		V	Measured value (calculated): Symmetrical components negative phase sequence voltage(fundamental)

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
VT	VG calc	20162	2	4	Float IEE754		V	Measured value (calculated): VG (fundamental)
VT	phi VG calc	20386	2	4	Float IEE754		°	Measured value (calculated): Angle of Phasor VG calc Reference phasor is required to calculate the angle. This is the first measured voltage (or current) channel with sufficiently high amplitude.
VT	phi VX meas	20388	2	4	Float IEE754		°	Measured value: Angle of Phasor VX meas Reference phasor is required to calculate the angle. This is the first measured voltage (or current) channel with sufficiently high amplitude.
VT	phi VL12	20390	2	4	Float IEE754		°	Measured value (calculated): Angle of Phasor VL12 Reference phasor is required to calculate the angle. This is the first measured voltage (or current) channel with sufficiently high amplitude.
VT	phi VL1	20392	2	4	Float IEE754		°	Measured value (calculated): Angle of Phasor VL1 Reference phasor is required to calculate the angle. This is the first measured voltage (or current) channel with sufficiently high amplitude.
VT	phi VL23	20394	2	4	Float IEE754		°	Measured value (calculated): Angle of Phasor VL23 Reference phasor is required to calculate the angle. This is the first measured voltage (or current) channel with sufficiently high amplitude.

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
VT	phi VL2	20396	2	4	Float IEE754		°	Measured value (calculated): Angle of Phasor VL2 Reference phasor is required to calculate the angle. This is the first measured voltage (or current) channel with sufficiently high amplitude.
VT	phi VL31	20398	2	4	Float IEE754		°	Measured value (calculated): Angle of Phasor VL31 Reference phasor is required to calculate the angle. This is the first measured voltage (or current) channel with sufficiently high amplitude.
VT	phi VL3	20400	2	4	Float IEE754		°	Measured value (calculated): Angle of Phasor VL3 Reference phasor is required to calculate the angle. This is the first measured voltage (or current) channel with sufficiently high amplitude.
VT	phi V0	20402	2	4	Float IEE754		°	Measured value (calculated): Angle Zero Sequence System Reference phasor is required to calculate the angle. This is the first measured voltage (or current) channel with sufficiently high amplitude.
VT	phi V1	20404	2	4	Float IEE754		°	Measured value (calculated): Angle of Positive Sequence System Reference phasor is required to calculate the angle. This is the first measured voltage (or current) channel with sufficiently high amplitude.
VT	phi V2	20406	2	4	Float IEE754		°	Measured Value (calculated): Angle of Negative Sequence System

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
								Reference phasor is required to calculate the angle. This is the first measured voltage (or current) channel with sufficiently high amplitude.
VT	VL1 THD	20408	2	4	Float IEE754		V	Measured value (calculated): VL1 Total Harmonic Distortion
VT	VL12 THD	20410	2	4	Float IEE754		V	Measured value (calculated): V12 Total Harmonic Distortion
VT	VL2 THD	20412	2	4	Float IEE754		V	Measured value (calculated): VL2 Total Harmonic Distortion
VT	VL23 THD	20414	2	4	Float IEE754		V	Measured value (calculated): V23 Total Harmonic Distortion
VT	VL3 THD	20416	2	4	Float IEE754		V	Measured value (calculated): VL3 Total Harmonic Distortion
VT	VL31 THD	20418	2	4	Float IEE754		V	Measured value (calculated): V31 Total Harmonic Distortion
VT	%VL1 THD	20420	2	4	Float IEE754		%	Measured value (calculated): VL1 Total Harmonic Distortion / Ground wave
VT	%VL12 THD	20422	2	4	Float IEE754		%	Measured value (calculated): V12 Total Harmonic Distortion / Ground wave
VT	%VL2 THD	20424	2	4	Float IEE754		%	Measured value (calculated): VL2 Total Harmonic Distortion / Ground wave
VT	%VL23 THD	20426	2	4	Float IEE754		%	Measured value (calculated): V23 Total Harmonic Distortion / Ground wave
VT	%VL3 THD	20428	2	4	Float IEE754		%	Measured value (calculated): VL3 Total Harmonic Distortion / Ground wave
VT	%VL31 THD	20430	2	4	Float IEE754		%	Measured value (calculated): V31 Total Harmonic Distortion / Ground wave
VT	VG calc RMS	20432	2	4	Float IEE754		V	Measured value (calculated): VG (RMS)
VT	VX meas RMS	20434	2	4	Float IEE754		V	Measured value (measured): VX measured (RMS)

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
VT	VL1 RMS	20436	2	4	Float IEE754		V	Measured value: Phase-to-neutral voltage (RMS)
VT	VL12 RMS	20438	2	4	Float IEE754		V	Measured value: Phase-to-phase voltage (RMS)
VT	VL2 RMS	20440	2	4	Float IEE754		V	Measured value: Phase-to-neutral voltage (RMS)
VT	VL23 RMS	20442	2	4	Float IEE754		V	Measured value: Phase-to-phase voltage (RMS)
VT	VL3 RMS	20444	2	4	Float IEE754		V	Measured value: Phase-to-neutral voltage (RMS)
VT	VL31 RMS	20446	2	4	Float IEE754		V	Measured value: Phase-to-phase voltage (RMS)
VT	%(V2/V1)	20450	2	4	Float IEE754		%	Measured value (calculated): V2/V1, phase sequence will be taken into account automatically.
VT	V/f	20646	2	4	Float IEE754		%	Ratio Volts/Hertz in relation to nominal values.
VT	f max	21002	2	4	Float IEE754		Hz	Max. frequency value
VT	f min	21004	2	4	Float IEE754		Hz	Min. frequency value
VT	V1 max	21044	2	4	Float IEE754		V	Maximum value: Symmetrical components positive phase sequence voltage(fundamental)
VT	V1 min	21046	2	4	Float IEE754		V	Minimum value: Symmetrical components positive phase sequence voltage(fundamental)
VT	V2 max	21050	2	4	Float IEE754		V	Maximum value: Symmetrical components negative phase sequence voltage(fundamental)
VT	V2 min	21052	2	4	Float IEE754		V	Minimum value: Symmetrical components negative phase sequence voltage(fundamental)
VT	delta phi	21126	2	4	Float IEE754		°	Measured value (calculated): Vector surge

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
VT	df/dt	21128	2	4	Float IEE754		Hz/s	Measured value (calculated): Rate-of-frequency-change.
VT	VG calc max RMS	21498	2	4	Float IEE754		V	Measured value (calculated):VX maximum value (RMS)
VT	VG calc min RMS	21500	2	4	Float IEE754		V	Measured value (calculated):VX minimum value (RMS)
VT	VX meas max RMS	21504	2	4	Float IEE754		V	Measured value: VX maximum value (RMS)
VT	VX meas min RMS	21506	2	4	Float IEE754		V	Measured value: VX minimum value (RMS)
VT	VL12 max RMS	21510	2	4	Float IEE754		V	VL12 maximum value (RMS)
VT	VL12 min RMS	21512	2	4	Float IEE754		V	VL12 minimum value (RMS)
VT	VL1 max RMS	21516	2	4	Float IEE754		V	VL1 maximum value (RMS)
VT	VL1 min RMS	21518	2	4	Float IEE754		V	VL1 minimum value (RMS)
VT	VL23 max RMS	21522	2	4	Float IEE754		V	VL23 maximum value (RMS)
VT	VL23 min RMS	21524	2	4	Float IEE754		V	VL23 minimum value (RMS)
VT	VL2 max RMS	21528	2	4	Float IEE754		V	VL2 maximum value (RMS)
VT	VL2 min RMS	21530	2	4	Float IEE754		V	VL2 minimum value (RMS)
VT	VL31 max RMS	21534	2	4	Float IEE754		V	VL31 maximum value (RMS)
VT	VL31 min RMS	21536	2	4	Float IEE754		V	VL31 minimum value (RMS)
VT	VL3 max RMS	21540	2	4	Float IEE754		V	VL3 maximum value (RMS)
VT	VL3 min RMS	21542	2	4	Float IEE754		V	VL3 minimum value (RMS)
VT	%(V2/V1) max	21552	2	4	Float IEE754		%	Measured value (calculated):V2/V1 maximum value, phase sequence will be taken into account automatically
VT	%(V2/V1) min	21554	2	4	Float IEE754		%	Measured value (calculated):V2/V1 minimum value , phase sequence will be taken into account automatically

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
VT	V/f max	21894	2	4	Float IEE754		%	Maximum value: Ratio Volts/Hertz in relation to nominal values.
VT	V/f min	21896	2	4	Float IEE754		%	Minimum value: Ratio Volts/Hertz in relation to nominal values.
VT - fault value	f	50128	2	4	Float IEE754		Hz	Measured value: Frequency , as stored in the Fault Recorder
VT - fault value	VL12	50130	2	4	Float IEE754		V	Measured value: Phase-to-phase voltage (fundamental) , as stored in the Fault Recorder
VT - fault value	VL23	50132	2	4	Float IEE754		V	Measured value: Phase-to-phase voltage (fundamental) , as stored in the Fault Recorder
VT - fault value	VL31	50134	2	4	Float IEE754		V	Measured value: Phase-to-phase voltage (fundamental) , as stored in the Fault Recorder
VT - fault value	VL1	50136	2	4	Float IEE754		V	Measured value: Phase-to-neutral voltage (fundamental) , as stored in the Fault Recorder
VT - fault value	VL2	50138	2	4	Float IEE754		V	Measured value: Phase-to-neutral voltage (fundamental) , as stored in the Fault Recorder
VT - fault value	VL3	50140	2	4	Float IEE754		V	Measured value: Phase-to-neutral voltage (fundamental) , as stored in the Fault Recorder
VT - fault value	VX meas	50142	2	4	Float IEE754		V	Measured value (measured): VX measured (fundamental) , as stored in the Fault Recorder
VT - fault value	V0	50146	2	4	Float IEE754		V	Measured value (calculated): Symmetrical components Zero voltage(fundamental) , as stored in the Fault Recorder
VT - fault value	V1	50148	2	4	Float IEE754		V	Measured value (calculated): Symmetrical components positive phase sequence voltage(fundamental) , as stored in the Fault Recorder

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
VT - fault value	V2	50150	2	4	Float IEE754		V	Measured value (calculated): Symmetrical components negative phase sequence voltage(fundamental) , as stored in the Fault Recorder
VT - fault value	VG calc	50162	2	4	Float IEE754		V	Measured value (calculated): VG (fundamental) , as stored in the Fault Recorder
VT - fault value	phi VG calc	50386	2	4	Float IEE754		°	Measured value (calculated): Angle of Phasor VG calc Reference phasor is required to calculate the angle. This is the first measured voltage (or current) channel with sufficiently high amplitude. , as stored in the Fault Recorder
VT - fault value	phi VX meas	50388	2	4	Float IEE754		°	Measured value: Angle of Phasor VX meas Reference phasor is required to calculate the angle. This is the first measured voltage (or current) channel with sufficiently high amplitude. , as stored in the Fault Recorder
VT - fault value	phi VL12	50390	2	4	Float IEE754		°	Measured value (calculated): Angle of Phasor VL12 Reference phasor is required to calculate the angle. This is the first measured voltage (or current) channel with sufficiently high amplitude. , as stored in the Fault Recorder
VT - fault value	phi VL1	50392	2	4	Float IEE754		°	Measured value (calculated): Angle of Phasor VL1 Reference phasor is required to calculate the angle. This is the first measured voltage (or current) channel with sufficiently high amplitude. , as stored in the Fault Recorder

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
VT - fault value	phi VL23	50394	2	4	Float IEE754		°	Measured value (calculated): Angle of Phasor VL23 Reference phasor is required to calculate the angle. This is the first measured voltage (or current) channel with sufficiently high amplitude. , as stored in the Fault Recorder
VT - fault value	phi VL2	50396	2	4	Float IEE754		°	Measured value (calculated): Angle of Phasor VL2 Reference phasor is required to calculate the angle. This is the first measured voltage (or current) channel with sufficiently high amplitude. , as stored in the Fault Recorder
VT - fault value	phi VL31	50398	2	4	Float IEE754		°	Measured value (calculated): Angle of Phasor VL31 Reference phasor is required to calculate the angle. This is the first measured voltage (or current) channel with sufficiently high amplitude. , as stored in the Fault Recorder
VT - fault value	phi VL3	50400	2	4	Float IEE754		°	Measured value (calculated): Angle of Phasor VL3 Reference phasor is required to calculate the angle. This is the first measured voltage (or current) channel with sufficiently high amplitude. , as stored in the Fault Recorder
VT - fault value	VG calc RMS	50432	2	4	Float IEE754		V	Measured value (calculated): VG (RMS) , as stored in the Fault Recorder
VT - fault value	VX meas RMS	50434	2	4	Float IEE754		V	Measured value (measured): VX measured (RMS) , as stored in the Fault Recorder

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
VT - fault value	VL1 RMS	50436	2	4	Float IEE754		V	Measured value: Phase-to-neutral voltage (RMS) , as stored in the Fault Recorder
VT - fault value	VL12 RMS	50438	2	4	Float IEE754		V	Measured value: Phase-to-phase voltage (RMS) , as stored in the Fault Recorder
VT - fault value	VL2 RMS	50440	2	4	Float IEE754		V	Measured value: Phase-to-neutral voltage (RMS) , as stored in the Fault Recorder
VT - fault value	VL23 RMS	50442	2	4	Float IEE754		V	Measured value: Phase-to-phase voltage (RMS) , as stored in the Fault Recorder
VT - fault value	VL3 RMS	50444	2	4	Float IEE754		V	Measured value: Phase-to-neutral voltage (RMS) , as stored in the Fault Recorder
VT - fault value	VL31 RMS	50446	2	4	Float IEE754		V	Measured value: Phase-to-phase voltage (RMS) , as stored in the Fault Recorder
VT - fault value	delta phi	51126	2	4	Float IEE754		°	Measured value (calculated): Vector surge , as stored in the Fault Recorder
VT - fault value	df/dt	51128	2	4	Float IEE754		Hz/s	Measured value (calculated): Rate-of-frequency-change. , as stored in the Fault Recorder
V[1] – 27, 59	NumberOfAlarms	21830	2	4	Float IEE754		-	Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.
V[1] – 27, 59	NumberOfTripCmds	21832	2	4	Float IEE754		-	Number of trip commands since the last reset
V[2] – 27, 59	NumberOfAlarms	21834	2	4	Float IEE754		-	Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.
V[2] – 27, 59	NumberOfTripCmds	21836	2	4	Float IEE754		-	Number of trip commands since the last reset
V[3] – 27, 59	NumberOfAlarms	21838	2	4	Float IEE754		-	Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.
V[3] – 27, 59	NumberOfTripCmds	21840	2	4	Float IEE754		-	Number of trip commands since the last reset

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
V[4] – 27, 59	NumberOfAlarms	21842	2	4	Float IEE754		-	Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.
V[4] – 27, 59	NumberOfTripCmds	21844	2	4	Float IEE754		-	Number of trip commands since the last reset
V[5] – 27, 59	NumberOfAlarms	21846	2	4	Float IEE754		-	Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.
V[5] – 27, 59	NumberOfTripCmds	21848	2	4	Float IEE754		-	Number of trip commands since the last reset
V[6] – 27, 59	NumberOfAlarms	21850	2	4	Float IEE754		-	Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.
V[6] – 27, 59	NumberOfTripCmds	21852	2	4	Float IEE754		-	Number of trip commands since the last reset
Values	Build	20008	2	4	Float IEE754		-	Build Number
Values	Operating hours Cr	20010	2	4	Float IEE754		h	Operating hours counter of the protective device
Values	Hours Counter	20514	2	4	Float IEE754		h	Resettable device operation hours counter. Resettable with »Sys . Res TotalCr« or »Sys . Res All«.
f[1] – 81	NumberOfTripCmds	21862	2	4	Float IEE754		-	Number of trip commands since the last reset
f[1] – 81	NumberOfAlarms	21864	2	4	Float IEE754		-	Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.
f[2] – 81	NumberOfTripCmds	21866	2	4	Float IEE754		-	Number of trip commands since the last reset
f[2] – 81	NumberOfAlarms	21868	2	4	Float IEE754		-	Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.
f[3] – 81	NumberOfTripCmds	21870	2	4	Float IEE754		-	Number of trip commands since the last reset

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
f[3] – 81	NumberOfAlarms	21872	2	4	Float IEE754		-	Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.
f[4] – 81	NumberOfTripCmds	21874	2	4	Float IEE754		-	Number of trip commands since the last reset
f[4] – 81	NumberOfAlarms	21876	2	4	Float IEE754		-	Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.
f[5] – 81	NumberOfTripCmds	21878	2	4	Float IEE754		-	Number of trip commands since the last reset
f[5] – 81	NumberOfAlarms	21880	2	4	Float IEE754		-	Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.
f[6] – 81	NumberOfTripCmds	21882	2	4	Float IEE754		-	Number of trip commands since the last reset
f[6] – 81	NumberOfAlarms	21884	2	4	Float IEE754		-	Number of alarms since last reset. Resettable with »Sys . Res AlarmCr« or »Sys . Res All«.

3.3 Commands

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
Acknowledge	LEDs	22000	1	5	0xFF00		-	LEDs
Acknowledge	Binary Outputs	22001	1	5	0xFF00		-	Binary Outputs
Acknowledge	Scada	22002	1	5	0xFF00		-	Scada
Acknowledge	Device	22003	1	5	0xFF00		-	Device
Acknowledge	Ack TripCmd	22005	1	5	0xFF00		-	Signal: Acknowledge Trip Command
Reset	Modbus diagnosis counter	22006	1	5	0xFF00		-	Modbus diagnosis counter
Reset	Res all Energy Cr	22011	1	5	0xFF00		-	Reset of all Energy Counters
Reset	Res Sum trip	22012	1	5	0xFF00		-	Reset summation of the tripping currents
Scada Cmd	Assbl Scada Cmd 1	22020	1	5	0xFF00=On, 0x0000=Off		-	Assignable Scada Command
Scada Cmd	Assbl Scada Cmd 2	22021	1	5	0xFF00=On, 0x0000=Off		-	Assignable Scada Command
Scada Cmd	Assbl Scada Cmd 3	22022	1	5	0xFF00=On, 0x0000=Off		-	Assignable Scada Command
Scada Cmd	Assbl Scada Cmd 4	22023	1	5	0xFF00=On, 0x0000=Off		-	Assignable Scada Command
Scada Cmd	Assbl Scada Cmd 5	22024	1	5	0xFF00=On, 0x0000=Off		-	Assignable Scada Command
Scada Cmd	Assbl Scada Cmd 6	22025	1	5	0xFF00=On, 0x0000=Off		-	Assignable Scada Command
Scada Cmd	Assbl Scada Cmd 7	22026	1	5	0xFF00=On, 0x0000=Off		-	Assignable Scada Command
Scada Cmd	Assbl Scada Cmd 8	22027	1	5	0xFF00=On, 0x0000=Off		-	Assignable Scada Command
Scada Cmd	Assbl Scada Cmd 9	22028	1	5	0xFF00=On, 0x0000=Off		-	Assignable Scada Command

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
Scada Cmd	Assbl Scada Cmd 10	22029	1	5	0xFF00=On, 0x0000=Off		-	Assignable Scada Command
Scada Cmd	Assbl Scada Cmd 11	22030	1	5	0xFF00=On, 0x0000=Off		-	Assignable Scada Command
Scada Cmd	Assbl Scada Cmd 12	22031	1	5	0xFF00=On, 0x0000=Off		-	Assignable Scada Command
Scada Cmd	Assbl Scada Cmd 13	22032	1	5	0xFF00=On, 0x0000=Off		-	Assignable Scada Command
Scada Cmd	Assbl Scada Cmd 14	22033	1	5	0xFF00=On, 0x0000=Off		-	Assignable Scada Command
Scada Cmd	Assbl Scada Cmd 15	22034	1	5	0xFF00=On, 0x0000=Off		-	Assignable Scada Command
Scada Cmd	Assbl Scada Cmd 16	22035	1	5	0xFF00=On, 0x0000=Off		-	Assignable Scada Command
Fault rec	Res all rec	22040	1	5	0xFF00		-	Reset all records
PSet-Switch	Scada PS1	22050	1	5	0xFF00		-	Scada Setting Group1
PSet-Switch	Scada PS2	22051	1	5	0xFF00		-	Scada Setting Group2
PSet-Switch	Scada PS3	22052	1	5	0xFF00		-	Scada Setting Group3
PSet-Switch	Scada PS4	22053	1	5	0xFF00		-	Scada Setting Group4
Maint Mode	Maint Mode SCADA	22054	1	5	0xFF00=On, 0x0000=Off		-	Signal: Arc Flash Reduction Maintenance SCADA 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 Trip Commands
Res TotalCr	Res TotalCr	22059	1	5	0xFF00		-	Reset all counters in history group total

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
Res All	Res All	22060	1	5	0xFF00		-	Reset of all Counters
SG	SG ControlCmd1	22100	1	5	0xFF00=On, 0x0000=Off		-	Control Command Switchgear

3.4 Settings

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
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
Fault rec		**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)	-	Code for the trip cause. In case of several simultaneous trip causes the primary cause is selected. If there is another trip later then the new trip cause overwrites the previous one. The codes for the trip cause are documented in the SCADA documentation.

Module (ANSI / IEEE)	Name Function	Start Register Address	No. of Modbus Registers	Function code	Format	Bit Mask (Bit position)	Unit	Description
	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
	Fault No.	50000	9	3 16	Short	Word 3 (49)	-	Fault number
	No. of Grid Faults	50000	9	3 16	Short	Word 4 (65)	-	Number of grid faults: This is a counter for all faults (i.e. General Alarms »Prot . Alarm«), but except faults during a running cycle of the Automatic Reclosure module (signal »AR . running«). (Remark: The »Fault No.« counts every new fault independent of AR cycles. This means that for protective devices without AR module these two counters are equivalent.)
	Time stamp:	50000	9	3 16	long long	Word 5-Word 8 (81)	-	Timestamp in milliseconds since 1970

3.5 Cause of Trip

Cause of trip reason is provided on two different Modbus addresses:

- At address 5004 the “last primary trip cause” is available. This means, in case of several simultaneous trip causes the primary cause is selected. If there is another trip later then the new trip cause overwrites the previous one. The trip cause can be read as long as a trip reason is present. In addition, the content of this register can be latched. The trip cause is latched in the same way as other trip signals, that means if the corresponding latching setting in Modbus is active, the content of the register is fixed 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. Any saved record can be requested by sending the record number to the corresponding register. Be aware that the content of these registers can only be read entirely and that the content changes every time a new fault occurs in the fault recorder.

All required fault values must be defined within a SCADApter (HptSMap) mapping file. The default datapoint list cannot be used in this case. All data-points that are needed for communicating with the substation must be defined as a HptSMap mapping file. (See also the separate SCADApter User Manual.)

If not a specific fault is selected, last fault value is presented on these addresses.

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

Trip Cause	Description	Module
1	**NORM**	
1201		**IG[1]**
1202		**IG[2]**
1203		**IG[3]**
1204		**IG[4]**
1306		**ExP[1]**
1307		**ExP[2]**
1308		**ExP[3]**
1309		**ExP[4]**

Trip Cause	Description	Module
1401		**f[1]**
1402		**f[2]**
1403		**f[3]**
1404		**f[4]**
1405		**f[5]**
1406		**f[6]**
2101		**Jam[1]**
2102		**Jam[2]**
2901		**I2>[1]**
2902		**I2>[2]**
3001		**V012[1]**
3002		**V012[2]**
3003		**V012[3]**
3004		**V012[4]**
3005		**V012[5]**
3006		**V012[6]**
3201		**I[1]**
3202		**I[2]**
3203		**I[3]**
3204		**I[4]**
3205		**I[5]**

Trip Cause	Description	Module
3206		**I[6]**
3401		**PQS[1]**
3402		**PQS[2]**
3403		**PQS[3]**
3404		**PQS[4]**
3405		**PQS[5]**
3406		**PQS[6]**
3501		**PF[1]**
3502		**PF[2]**
3701		**ThR**
3901		**I<[1]**
3902		**I<[2]**
3903		**I<[3]**
4001		**VG[1]**
4002		**VG[2]**
4101		**V[1]**
4102		**V[2]**
4103		**V[3]**
4104		**V[4]**
4105		**V[5]**
4106		**V[6]**

Trip Cause	Description	Module
4201		**RTD**

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