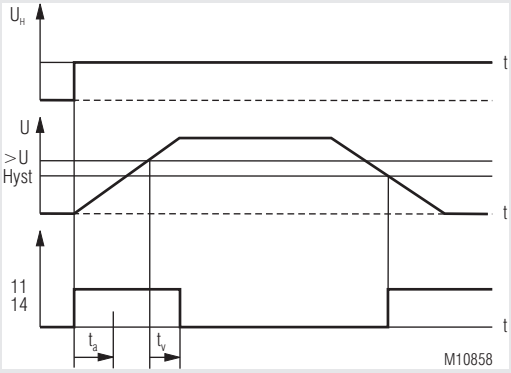
VARIMETER PRO
Multifunction Measuring Relay, for Modbus
UG 9400

0277879

Product Description

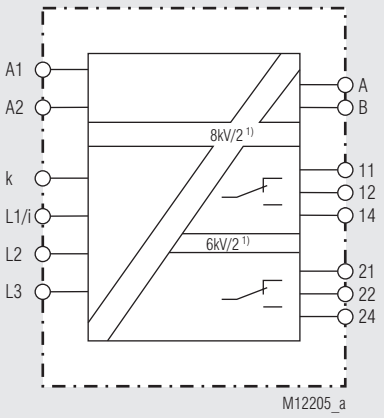
The multifunctional measuring relay UG 9400 of the VARIMETER PRO series allows easy parameter setting, monitoring and diagnosis via a Modbus RTU interface.
The measuring relay simultaneously monitors up to 9 different measured variables such as voltage, voltage asymmetry, current, cos phi, active, apparent and reactive power as well as frequency and phase sequence. The measurement in three-phase and single-phase networks is very easy and without much wiring effort.

Function Diagram



Function: Overvoltage/de-energized on trip

Block Diagram



1) rated impulse voltage / pollution degree

Your Advantages

- Simple parameterization, monitoring and diagnosis
- Compact design
- Simultaneous monitoring of up to 9 measured variables
- Large measuring range 3 AC 24 ... 690 V
- Min-, Max-value or window monitoring
- Auxiliary voltage ranges AC/DC 24 ... 230 V or AC 24 ... 400 V
- Early detection of irregularities
- Increases plant availability and productivity
- Differentiated error messages
- Space and cost saving
- Reduced wiring
- Lower investment, operating and maintenance costs

Features

- Multifunctional measuring relay acc. to IEC/EN 60255-1
- With galvanic separated Modbus RTU interface
- Voltage monitoring (1- or 3-phase)
- Current monitoring
- Frequency monitoring
- Power factor cos phi
- Phase sequence, phase failure
- Voltage / angular asymmetry
- Active, reactive and apparent power
- Start up time delay, response delay
- Adjustable hysteresis 0.2 ... 50 % of the response value
- Error memory
- 2 changeover contacts
- Relay function energized / de- energized on trip parameterizable
- Width 22.5 mm

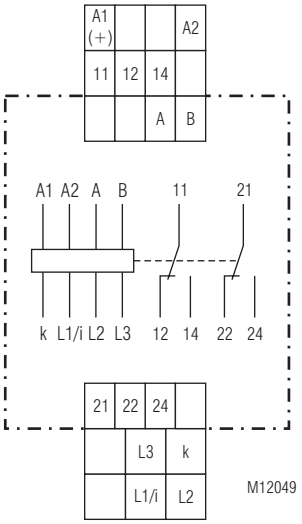
Approvals and Markings

CE

Applications

- Simple monitoring of electrical measured variables in complex and extensive plants
- Voltage dependent switching at under- or overvoltage
- Motor protection on Phase failure
- Transformer protection on asymmetric load
- Frequency monitoring on inverter outputs

Circuit Diagram



Connection Terminals

Terminal designation	Signal description
A1 (+), A2	Auxiliary voltage AC or DC
L1/i, L2, L3	Voltage measuring input AC
L1/i , k	Current measuring path AC
11, 12, 14	Indicator relay (C/O contact)
21, 22, 24	Indicator relay (C/O contact)
A	Modbus signal A
B	Modbus signal B

Function

After connecting the auxiliary supply to terminals A1-A2 the startup time delay disables the monitoring function so that changes on the input have no influence on the relay output.

One or more measuring values can be assigned to the relay output. If the setting value of at least one function is exceeded the relay switches.

It is possible to assign different values to the different
relays so one can be used as pre-warning and the other as alarm output. Relay output 1 switches when actual value exceeds the pre-warning setting of at least one assigned measuring function. If a second setting assigned to relay output 2 with the same measuring function the unit gives an Alarm signal.

Remarks

To provide correct function the measuring voltage on L1/L2 has to be at least 20 V.

Due to the measuring principle a symmetric load on all 3 phases is presumed, as you have it usually with motors.

The unit can also be used for single phase monitoring by bridging terminals L2 and L3.

Indicators

The LED indicates the device status

Green LED "ON" (perm. on):	Supply connected
Red LED "ERR" (flashing):	Failure code of the device
Yellow LED "BUS" (flashing):	When receiving or transmitting Modbus data message with matching device address
Green LED "REL1" (perm. on):	On, when output relay 1 activated
Green LED "REL2" (perm. on):	On, when output relay 2 activated
Failure code :*) :	9 - Modubus communication failure 10 - Checksum failure EEPROM

*) = Number of flashing pulses in sequence

Reset Function

By sending a reset command a reset can be operated via Modbus

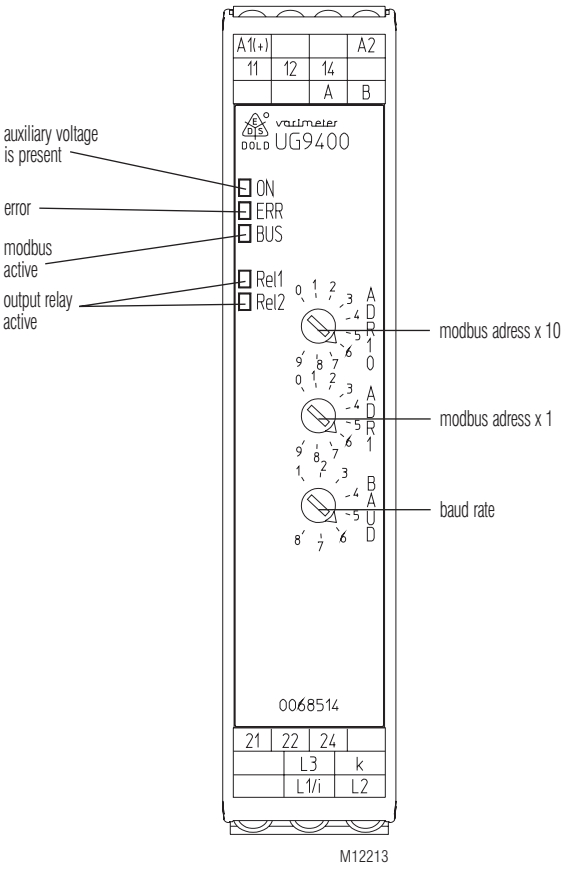
Modbus RTU

For communication between motor controller and a supervising control the Modbus RTU protocol according to Specification V 1.1b3 is used

indicator Outputs

Monitoring parameters can be set independently.
The UG 9400 has 2 relay outputs.
Each monitoring function can be assigned ro relay 1 and /or relay 2
Relay function energized / de- energized on trip parameterizable

Setting



Position Potentiometer BAUD	1	2	3	4	5	6	7	8
Baud rate Baud	1200	2400	4800	9600	19200	38400	57600	115200
Response Time	< 50 ms	< 25 ms	< 10 ms	< 5 ms	< 5 ms	< 5 ms	< 5 ms	< 5 ms

Technical Data

Auxiliary Voltage A1/A2

Nominal auxiliary voltage U_H:	AC/DC 24 ... 230 V (0.8 ... 1.1 x U_H) AC 24 ... 400 V (0.8 ... 1.1 x U_H)
Nominal frequency:	50 / 60 Hz
Frequency range:	45 ... 400 Hz
Input current	
at DC 24 V:	50 mA
at AC 230 V:	18 mA

Voltage Measuring Input L1/L2/L3

Nominal voltage:	3 AC 400 V / 690 V
Measuring range U_M:	3 AC 24 ... 690 V (0.8 ... 1.1 x U_M)
Nominal frequency:	50 / 60 Hz
Frequency range:	15 ... 400 Hz

Current Measuring Input i / k

Nominal current:	AC 12 A
Measuring range:	AC 100 mA ... 12 A
Nominal frequency:	50 / 60 Hz
Frequency range:	15 ... 400 Hz

Setting Range

Measuring accuracy	
at nominal frequency	
(in % of setting value):	± 4 %
Repeat accuracy:	< 2 %
Temperature influence:	< 1 %
Hysteresis	
(in % of setting value):	0.2 ... 50 % of response value
Reaction time:	< 350 ms
Adjustable on delay t_v:	0 ... 10 s (in steps of 0.1 s)
Adjustable start up delay t_a:	0.2 ... 10 s (in steps of 0.1 s)

Output Circuit (Rel1: 11/12/14; Rel2: 21/22/24)

Rated output voltage:	AC 230 V	
Contacts:	1 changeover contact (Rel1) and 1 changeover contact (Rel2)	
Thermal current I_{th}:	see quadratic total current limit curve (max. 4 A per contact)	
Switching capacity		
to AC 15:		
NO contacts:	2 A / AC 230 V	IEC/EN 60947-5-1
NC contacts:	1 A / AC 230 V	IEC/EN 60947-5-1
to DC 13		
NC contacts:	1 A / DC 24 V	IEC/EN 60947-5-1
Electrical life		
at 4 A, AC 230 V cos φ = 1:	1 x 10^5 switching cycles	
Short circuit strength		
Max. fuse rating:	4 A gG / gL	IEC/EN 60947-5-1
Mechanical life:	15 x 10^6 switching cycles	

General Data

Nominal operating mode:	Continuous operation
Temperature range	
Operation:	- 20... + 60 °C (device free-standing)
Storage:	- 20... + 60 °C
Altitude:	< 2000 m
Clearance and creepage distance	
rated impulse voltage /	
pollution degree	

Auxiliay voltage / Meas. input:	8 kV / 2	IEC/EN 60664-1
Auxiliay voltage / Bus:	8 kV / 2	IEC/EN 60664-1
Auxiliay voltage / Contacts:	8 kV / 2	IEC/EN 60664-1
Measuring input / Bus:	8 kV / 2	IEC/EN 60664-1
Measuring input / Contacts:	8 kV / 2	IEC/EN 60664-1
Contacts / Bus:	8 kV / 2	IEC/EN 60664-1
Contacts 11,12,14 / 21,22,24:	6 kV / 2	IEC/EN 60664-1
Within contact path:	1.5 kV / 2	IEC/EN 60664-1

Technical Data

EMC

Electrostatic discharge (ESD):	8 kV (air)	IEC/EN 61000-4-2
HF-irradiation		
80 MHz ... 6 GHz	10 V / m	IEC/EN 61000-4-3
Fast transients:	2 kV	IEC/EN 61000-4-4
Surge voltages		
between		
wires for power supply:	1 kV	IEC/EN 61000-4-5
between wire and ground:	2 kV	IEC/EN 61000-4-5
HF-wire guided:	10 V	IEC/EN 61000-4-6
Damped oscillatory		
wave immunity test		
Differential mode voltage:	1 kV	IEC/EN 61000-4-18
Common mode voltage:	2,5 kV	IEC/EN 61000-4-18
Interference suppression:	Limit value class A*)	

*) The device is designed for the usage under industrial conditions (Class A, EN 55011).
When connected to a low voltage public system (Class B, EN 55011) radio interference can be generated. To avoid this, appropriate measures have to be taken.

Degree of protection		
Housing:	IP 40	DIN EN 60 529
Terminals:	IP 20	DIN EN 60 529
Housing:	thermoplastic with VO behaviour according to UL Subject 94	
Vibration resistance:	Amplitude 0.35 mm, frequency 10 ... 55 Hz	IEC/EN 60 068-2-6
Climate resistance:	20 / 060 / 04	EN 60 068-1
Wire connections:		DIN 46 228-1/-2/-3/-4
Wire connection		
Aux. voltage and relay		
pluggable screw terminal (PS):	0,25 ... 2,5 mm² solid or 0,25 ... 2,5 mm² stranded ferruled	
Wire connection		
Bus		
pluggable Twin-cage-clamp-		
terminal (PT):	0,25 ... 1,5 mm² solid or 0,25 ... 1,5 mm² stranded ferruled	
Wire connection		
Measuring inputs		
fixed		
screw terminal (S):	0,25 ... 2,5 mm² solid or 0,25 ... 2,5 mm² stranded ferruled	
Insulation of wires or		
sleeve length:	8 mm	
Fixing torque:	0,5 ... 0,6 Nm	
Mounting:	DIN-rail	IEC/EN 60715
Weight:	200 g	

Dimensions

Width x height x depth	22,5 x 105 x 120,3 mm

Standard Types

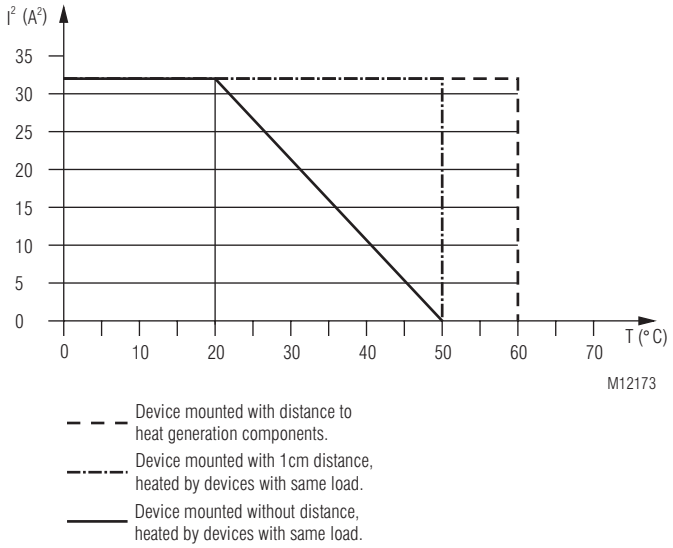
UG 9400.12PM 3 AC 24 ... 690V AC 12 A AC/DC 24 ... 230 V

Article number:	0068514
• With Modbus RTU interface	
• Measuring voltage:	3 AC 24 ... 690 V
• Nominal voltage:	AC 12 A
• Auxiliary voltage U_H:	AC/DC 24 ... 230 V
• Output:	2 changeover contacts
• Width:	22,5 mm

UG 9400.12PM 3 AC 24 ... 690V AC 12 A AC 24 ... 400 V

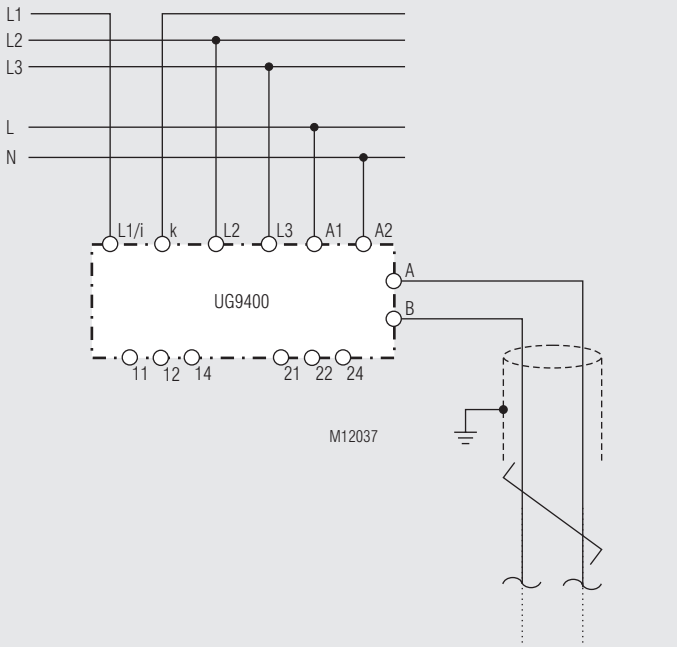
Article number:	0068515
• With Modbus RTU interface	
• Measuring voltage::	3 AC 24 ... 690 V
• Nominal voltage:	AC 12 A
• Auxiliary voltage U_H:	AC 24 ... 400 V
• Output:	2 changeover contacts
• Width:	22,5 mm

Characteristic



Quadratic total current limit curve

Connection Examples



Setting Facilities

Potentiometer ADR10: - Unit adress x 10

Potentiometer ADR1: - Unit adress x 1

Potentiometer BAUD: - Baud rate

The module address and baud rate is only read after connecting the auxiliary supply!

Bus Interface

Protocol	Modbus Seriell RTU
Adress	1 to 99
Baud rate	1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200 Baud
Data bit	8
Stop bit	2
Parity	none

More information about the interface, wiring rules, device identification and communication monitoring can be found in the Modbus user manual.

Setting and Adjustment

Set-up procedure
1. Connect device according to application example.
2. Setting unit adress and Baud rate via potentiometer.
3. Power up the unit.
4. Parametrization via Modbus

To connect the current of L1 the Terminals I and k are available. If the current to be measured exceeds the maximum continuous current of the input and external current transformer has to be used.

If current is not measured input k remains unconnected.

Function-Codes

At UG 9400 the following function codes are implemented

Function-Code	Name
0x01	Read Coils
0x03	Read Holding Register
0x04	Read Input Register
0x05	Write Single Coil
0x06	Write Single Register
0x10	Write Multiple Register

Safety notes

Dangerous voltage.
Electric shock will result in death or serious injury.

Disconnect all power supplies before servicing equipment.

- Faults must only be removed when the relay is disconnected
- The user has to make sure that the device and corresponding components are installed and wired according to the local rules and law (TUEV, VDE, Health and safety).
- Settings must only be changed by trained staff taking into account the safety regulations. Installation work must only be done when power is disconnected.
- Observe proper grounding of all components

Device configuration

If required the device configuration data can be saved permanently by setting the the Bit "WriteKonfig to EEPROM". When the auxiliary voltage is applied, the data are copied from the EEPROM into the corresponding holding registers (register block from protocol address 2000). Since the write cycles of an EEPROM are limited, the write process must not be cyclical. In addition, please note that writing the EEPROM takes < 350 ms.

Parameter table

Coils

Register-Adress	Protocol-Adress	Name	Value range	Initial value	Description	Data type	Access rights
1	0	Reset	0x0000 0xFF00	0x0000	no function Error acknowledgement device error	BIT	write / read
2	1	Device reset	0x0000 0xFF00	0x0000	no function Device restart	BIT	write / read
3	2	WriteKonfig to EEPROM	0x0000 0xFF00	0x0000	no function Save parameters	BIT	write / read
4	3	Factory setting (after restart of the device)	0x0000 0xFF00	0x0000	no function Factory setting of the parameters	BIT	write / read
5	4	Reserved	0x0000 0xFF00	0x0000	-	BIT	-
6	5	Fault memory Rel 1	0x0000 0xFF00	0x0000	no function Fault memory acknowledgement relay 1	BIT	write / read
7	6	Fault memory Rel 2	0x0000 0xFF00	0x0000	no function Fault memory acknowledgement relay 2	BIT	write / read

Parameter table

Input Registers

Register-Adress	Protocol-Adress	Name	Value range	Description	Data type	Access rights
30001	0	Device failure	0 … 10	0: No failure 9: Communication fault Modbus 10: Checksum failure EEPROM	UINT16	read
30002	1	State of device	0 … 3	0: Device initialize 1: Device is ready 2: Device in error mode 3: Device is in the start-up time	UINT16	read
30003	2	Device flags	0 … 1024	Bit 0: relay 1 energized Bit 1: relay 2 energized Bit 2: 1-phase mains Bit 3: 3-phase mains Bit 4: clockwise rotating field Bit 5: Reverse power Bit 6: Measuring voltage present Bit 7: Measuring current present Bit 8: Overvoltage Bit 9: Overcurrent	UINT16	read
30004	3	State Relay 1	0 … 65535	Bit 0: Umin Bit 1: Umax Bit 2: Asymmetry Bit 3: < I Bit 4: > I Bit 5: < Cos- Phi Bit 6: > Cos- Phi Bit 7: < P Bit 8: > P Bit 9: < S Bit 10: > S Bit 11: < Q Bit 12: > Q Bit 13: < f Bit 14: > f Bit 15: Incorrect phase sequence	UINT16	read
30005	4	Error memory relay 1	0 … 65535	Error memory of the status relay 1 register	UINT16	read
30006	5	State Relay 1	0 … 65535	Bit 0: Umin Bit 1: Umax Bit 2: Asymmetry Bit 3: < I Bit 4: > I Bit 5: < Cos- Phi Bit 6: > Cos- Phi Bit 7: < P Bit 8: > P Bit 9: < S Bit 10: > S Bit 11: < Q Bit 12: > Q Bit 13: < f Bit 14: > f Bit 15: Incorrect phase sequence	UINT16	read
30007	6	Error memory relay 2	0 … 65535	Error memory of the status relay 2 register	UINT16	read

Register-Adress	Protocol-Adress	Name	Value range	Description	Data type	Access rights
32001	2000	Umin	0 … 7600	1/10V	UINT16	read
32002	2001	Umax	0 … 7600	1/10V	UINT16	read
32003	2002	Asymmetry	0 … 10000	1/100%	UINT16	read
32004	2003	Current	0 … 12000	1/1000A	UINT16	read
32005	2004	Cos- Phi	0 … 100	1/100	UINT16	read
32006	2005	Active power	0 …15796	W	UINT16	read
32007	2006	Apparent power	0 …15796	VA	UINT16	read
32008	2007	Reactive power	0 …15796	var	UINT16	read
32009	2008	Frequency	0 … 4000	1/10Hz	UINT16	read

Parameter table

Holding Registers

Register-Adress	Protocol-Adress	Name	Value range	Initial value	Description	Data type	Access rights
40001	0	Control word 1	0 … 127	0	Bit 0 = Reset Bit 1 = Device reset Bit 2 = WriteKonfig to EEPROM Bit 3 = Factory settings (after device restart) Bit 4 = Reserved Bit 5 = fault memory acknowledgement relay 1 Bit 6 = Fault memory acknowledgement relay 2	UINT16	write / read
40002	1	Timeout release	0 … 1	0	Bit 0 = Enable	UINT16	write / read
40003	2	Timeout	100 ... 10000 0 ... 10000	1000	Timeout Value in ms (schreiben) Timeout Value in ms (read)	UINT16	write / read

Register-Adress	Protocol-Adress	Name	Value range	Initial value	Description	Data type	Access rights
42001	2000	Start up time delay	200 … 10000	200	Start-up time delay in ms	UINT16	write / read
42002	2001	Relay 1: Umin	0 … 7600	0	Undervoltage response value Lowest phase voltage L1, L2 or L3 (undervoltage relay) 1/10 V	UINT16	write / read
42003	2002	Relay 1: Umax	0 … 7600	0	Overvoltage response value maximum phase to phase voltage L1, L2 or L3 (overvoltage relay) 1/10 V	UINT16	write / read
42004	2003	Relay 1: Asymmetry	0 … 10000	0	Response value voltage asymmetry, deviation in % from the highest to the lowest outer conductor voltage 1/100%	UINT16	write / read
42005	2004	Relay 1: < I	0 … 12000	0	Response value current in current path L1 (undercurrent relay) 1/1000A	UINT16	write / read
42006	2005	Relay 1: > I	0 … 12000	0	Response value current in current path L1 (overrcurrent relay) 1/1000A	UINT16	write / read
42007	2006	Relay 1: < Cos- Phi	0 … 10000	0	Response value Phase shift between Current and voltage (underload monitor) 1/100	UINT16	write / read
42008	2007	Relay 1: > Cos- Phi	0 … 10000	0	Response value Phase shift between Current and voltage (overload monitor) 1/100	UINT16	write / read
42009	2008	Relay 1: < P	0 … 15796	0	Response value active power 3-phase (underload guard) W	UINT16	write / read
42010	2009	Relay 1: > P	0 … 15796	0	Response value active power 3-phase (overload guard) W	UINT16	write / read
42011	2010	Relay 1: < S	0 … 15796	0	Response value apparent power 3-phase VA	UINT16	write / read
42012	2011	Relay 1: > S	0 … 15796	0	Response value apparent power 3-phase VA	UINT16	write / read
42013	2012	Relay 1: < Q	0 … 15796	0	Reactive power response value 3-phase var	UINT16	write / read
42014	2013	Relay 1: > Q	0 … 15796	0	Reactive power response value 3-phase var	UINT16	write / read
42015	2014	Relay 1: < f	0 … 4000	0	Response value frequency (underfrequency) 1/10 Hz	UINT16	write / read
42016	2015	Relay 1: > f	0 … 4000	0	Response value frequency (overfrequency) 1/10 Hz	UINT16	write / read
42017	2016	Relay 1: Umin	0 … 1	0	0: Response value Off 1: Response value On	UINT16	write / read
42018	2017	Relay 1: Umax	0 … 1	0	0: Response value Off 1: Response value On	UINT16	write / read
42019	2018	Relay 1: Asymmetry	0 … 1	0	0: Response value Off 1: Response value On	UINT16	write / read
42020	2019	Relay 1: < I	0 … 1	0	0: Response value Off 1: Response value On	UINT16	write / read

Parameter table

Holding Registers

Register-Adress	Protocol-Adress	Name	Value range	Initial value	Description	Data type	Access rights
42021	2020	Relay 1: > I	0 … 1	0	0: Response value Off 1: Response value On	UINT16	write / read
42022	2021	Relay 1: < Cos- Phi	0 … 1	0	0: Response value Off 1: Response value On	UINT16	write / read
42023	2022	Relay 1: > Cos- Phi	0 … 1	0	0: Response value Off 1: Response value On	UINT16	write / read
42024	2023	Relay 1: < P	0 … 1	0	0: Response value Off 1: Response value On	UINT16	write / read
42025	2024	Relay 1: > P	0 … 1	0	0: Response value Off 1: Response value On	UINT16	write / read
42026	2025	Relay 1: < S	0 … 1	0	0: Response value Off 1: Response value On	UINT16	write / read
42027	2026	Relay 1: > S	0 … 1	0	0: Response value Off 1: Response value On	UINT16	write / read
42028	2027	Relay 1: < Q	0 … 1	0	0: Response value Off 1: Response value On	UINT16	write / read
42029	2028	Relay 1: > Q	0 … 1	0	0: Response value Off 1: Response value On	UINT16	write / read
42030	2029	Relay 1: < f	0 … 1	0	0: Response value Off 1: Response value On	UINT16	write / read
42031	2030	Relay 1: > f	0 … 1	0	0: Response value Off 1: Response value On	UINT16	write / read
42032	2031	Relay 1: Hysteresis	2 … 500	40	Hysteresis of the response value 1/10 %	UINT16	write / read
42033	2032	Relay 1: tv	0 … 100	0	Response delay 1/10 s	UINT16	write / read
42034	2033	Relay 1: Phase sequence	0 … 1	0	0: Phase sequence Off 1: Phase sequence On	UINT16	write / read
42035	2034	Relay 1: A / R	0 … 1	0	0: De-energized on trip 1: Energized on trip	UINT16	write / read
42036	2035	Relay 1: Sp	0 … 1	0	0: Fault memory Off 1: Fault memory On	UINT16	write / read
42037	2036	Relay 2: Umin	0 … 7600	0	Undervoltage response value Lowest phase voltage L1, L2 or L3 (undervoltage relay) 1/10 V	UINT16	write / read
42038	2037	Relay 2: Umax	0 … 7600	0	Overvoltage response value max. phase to phase voltage L1, L2 or L3 (overvoltage relay) 1/10 V	UINT16	write / read
42039	2038	Relay 2: Asymmetry	0 … 10000	0	Response value voltage asymmetry, deviation in % from the highest to the lowest outer conductor voltage 1/100%	UINT16	write / read
42040	2039	Relay 2: < I	0 … 12000	0	Response value current in current path L1 (undercurrent relay) 1/1000A	UINT16	write / read
42041	2040	Relay 2: > I	0 … 12000	0	Response value current in current path L1 (overrcurrent relay) 1/1000A	UINT16	write / read
42042	2041	Relay 2: < Cos- Phi	0 … 10000	0	Response value Phase shift between Current and voltage (underload monitor) 1/100	UINT16	write / read
42043	2042	Relay 2: > Cos- Phi	0 … 10000	0	Response value Phase shift between Current and voltage (overload monitor) 1/100	UINT16	write / read
42044	2043	Relay 2: < P	0 … 15796	0	Response value active power 3-phase (underload monitor) W	UINT16	write / read
42045	2044	Relay 2: > P	0 … 15796	0	Response value active power 3-phase (overload monitor) W	UINT16	write / read
42046	2045	Relay 2: < S	0 … 15796	0	Response value apparent power 3-phase VA	UINT16	write / read
42047	2046	Relay 2: > S	0 … 15796	0	Response value apparent power 3-phase VA	UINT16	write / read
42048	2047	Relay 2: < Q	0 … 15796	0	Reactive power response value 3-phase var	UINT16	write / read

Parameter table

Holding Registers

Register-Adress	Protocol-Adress	Name	Value range	Initial value	Description	Data type	Access rights
42049	2048	Relay 2: > Q	0 … 15796	0	Reactive power response value 3-phase var	UINT16	write / read
42050	2049	Relay 2: < f	0 … 4000	0	Response value frequency (underfrequency) 1/10 Hz	UINT16	write / read
42051	2050	Relay 2: > f	0 … 4000	0	Response value frequency (overfrequency) 1/10 Hz	UINT16	write / read
42052	2051	Relay 2: Umin	0 … 1	0	0: Response value Off 1: Response value On	UINT16	write / read
42053	2052	Relay 2: Umax	0 … 1	0	0: Response value Off 1: Response value On	UINT16	write / read
42054	2053	Relay 2: Asymmetry	0 … 1	0	0: Response value Off 1: Response value On	UINT16	write / read
42055	2054	Relay 2: < I	0 … 1	0	0: Response value Off 1: Response value On	UINT16	write / read
42056	2055	Relay 2: > I	0 … 1	0	0: Response value Off 1: Response value On	UINT16	write / read
42057	2056	Relay 2: < Cos- Phi	0 … 1	0	0: Response value Off 1: Response value On	UINT16	write / read
42058	2057	Relay 2: > Cos- Phi	0 … 1	0	0: Response value Off 1: Response value On	UINT16	write / read
42059	2058	Relay 2: < P	0 … 1	0	0: Response value Off 1: Response value On	UINT16	write / read
42060	2059	Relay 2: > P	0 … 1	0	0: Response value Off 1: Response value On	UINT16	write / read
42061	2060	Relay 2: < S	0 … 1	0	0: Response value Off 1: Response value On	UINT16	write / read
42062	2061	Relay 2: > S	0 … 1	0	0: Response value Off 1: Response value On	UINT16	write / read
42063	2062	Relay 2: < Q	0 … 1	0	0: Response value Off 1: Response value On	UINT16	write / read
42064	2063	Relay 2: > Q	0 … 1	0	0: Response value Off 1: Response value On	UINT16	write / read
42065	2064	Relay 2: < f	0 … 1	0	0: Response value Off 1: Response value On	UINT16	write / read
42066	2065	Relay 2: > f	0 … 1	0	0: Response value Off 1: Response value On	UINT16	write / read
42067	2066	Relay 2: Hysteresis	2 … 500	40	Hysteresis of the response value 1/10 %	UINT16	write / read
42068	2067	Relay 2: tv	0 … 100	0	Response delay 1/10 s	UINT16	write / read
42069	2068	Relay 2: Phase sequence	0 … 1	0	0: Phase sequence Off 1: Phase sequence On	UINT16	write / read
42070	2069	Relay 2: A / R	0 … 1	0	0: De-energized on trip 1: Energized on trip	UINT16	write / read
42071	2070	Relay 2: Sp	0 … 1	0	0: Fault memory Off 1: Fault memory On	UINT16	write / read

Notes

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