



Device overview and technical data

	Prophi® 7-I	Prophi® 7-III
Item number	14.16.028	14.16.037
Operating voltage 110 to 440 V ~ +/-15% 50/60 Hz	•	•
Measuring voltage 30 to 440 V ~ (L-N) 50/60 Hz 50 to 760 V ~ (L-L) 50/60 Hz	•	-
Measuring voltage 3 x 30 to 440 V ~ (L-N) 50/60 Hz 50 to 760 V ~ (L-L) 50/60 Hz	-	•
Changeover target cos phi 1/2	-	•
Outputs		
Relay outputs (conventional)	12	12
Transistor outputs (dynamic)*1	-	-
Interfaces (with Modbus)		
RS485 *1	-	•

*1 Prophi® 7 with RS485 and dynamic variant upon request

General	Prophi® 7
Use in low and medium voltage networks L-N or L-L	•
Accuracy voltage measurement (1-phase, L-N or L-L)	1%
Accuracy current measurement (1-phase)	1%
Accuracy cosphi measurement (sum L1-L3)	1% *2,*3
Accuracy power measurement (sum L1-L3)	2%
Accuracy frequency measurement	0,5% *3
Accuracy harmonics measurement	2%
RMS – momentary value	
Current, voltage, frequency	•
Effective, reactive and apparent power	•
Power factor	•
Recording of the mean values	
Power factor	•
Power quality measurement	
Harmonics per order / current and voltage, 1-phase	1. – 33., odd
Distortion factor THD-U in%, 1-phase	•
Distortion factor THD-I in%, 1-phase	•
Measured data recording	
Mean, minimum, maximum values	•
Displays and inputs / outputs	
Digital display, 6 buttons	•
Relay outputs (as switch output)	12 See overview of devices
Transistor outputs (as switch output)	12 See overview of devices
Alarm output (as switch output)	1
Digital input (for tariff changeover)	1 See overview of devices
Temperature sensor (internal)	1

*2 Applies to input currents > 0.2 A and in the cosphi range 0.85 to 1.00.

*3 In the range from -10 to +18 °C and 28 to 55 °C an additional error of ±0,2 % of the measurement value per K must be taken into account.

Prophi® 7 power factor controller

Communication	
Interface	
RS485: 9,6; 19,2; 38,4; 57,6; 115,2; 250; 256 kbps	See overview of devices
Protocols	
Modbus RTU	•
Error messages	
Under-voltage	•
Over-voltage	•
Dropping below the minimum measurement current	•
Measurement current exceedance	•
Insufficient compensation power	•
Delivery of active power	•
Harmonics threshold values	•
Overtemperature	•
Technical data	
Supply voltage L-L, L-N AC	See overview of devices
Measurement in which quadrants	4
Networks	TN, TT, (IT)
Measurement in multi-phase networks	3 ph
Measured voltage input	
Overvoltage category	CAT III
Measured range, voltage L-N, AC (without potential transformer)	See overview of devices
Measured range, voltage L-L, AC (without potential transformer)	See overview of devices
Voltage tolerance range	+10% , -15%
Back-up fuse	2 A ... 10 AT
Measurement surge voltage	4 kV
Test voltage relative to ground	2.200 V AC
Frequency measuring range	42 ... 80 Hz
Power consumption	max. 5 VA
Sampling rate	10 kHz (at 50 Hz)
Measured current input	
Signal frequency	45 Hz ... 1.200 Hz
Nominal current at .../5 A (.../1 A)	5 A (1 A)
Minimum measurement current	10 mA
Upper measurement current	5.3 A (sinusoidal)
Overloading	180 A for 2 sec.
Measurement rate	30 (50) measurements / sec.
Power consumption	approx. 0.2 VA
Updating the display	1 time per second
Zero voltage triggering	< 15 ms
Inputs and outputs	
Number of digital inputs (for tariff changeover)	1, see overview of devices
Relay outputs (as switch output)	13, see overview of devices
Back-up fuse	6,3 AT
Switching voltage	max. 250 V AC
Switching power	max. 1.000 W

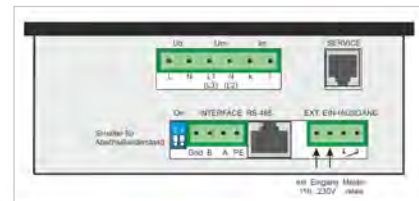


Fig.: Prophi® 7 interface

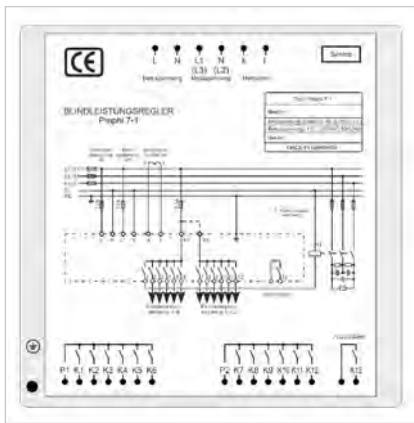


Fig.: Prophi® 7, rear view

Max. switching frequency	50 Hz
Mechanical service life	> 30 x 10 ⁶ switching cycles
Electrical service life	> 2.8 x 10 ⁵ switching cycles
Transistor outputs (as switch output)	12, see overview of devices
Switching voltage	5 ... 30 V DC
Switching current	max. 50 mA
Max. switching frequency	50 Hz
Alarm output (as switch output)	1
Temperature sensor (internal)	1
Target cosphi changeover (current consumption)	Input 230 V AC
Mechanical properties	
Weight	1000 g
Device dimensions in mm (W x H x D)	144 x 144 x 53
Protection class per IEC 60529	Front: IP54, Rear: IP20
Installation	Front panel installation
Connecting phase (U / I), Single core, multi-core, fine-stranded Terminal pins, core end sheath	0.08 to 2.5 mm ² 1.5 mm ²
Features	
Display of capacitor currents	•
Display of switch-on times for the individual stages	•
Display of switching cycles per stage	•
Zero voltage triggering	•
Automatic configuration	•
Password protection	•
Environmental conditions	
Temperature range	Operation: -10 ... +55 °C *4 Storage: -20 ... +60 °C
Relative humidity	15 to 95%
Operating altitude	0 ... 2,000 m above sea level
Degree of pollution	2
Mounting position	any
Electromagnetic compatibility	
Electromagnetic compatibility of equipment	Directive 2004/108/EC
Electrical appliances for application within particular voltage limits	Directive 2006/95/EC
Equipment safety	
Safety requirements for electrical equipment for measurement, regulation, control and laboratory use – Part 1: General requirements	IEC/EN 61010-1
Part 2 – 008: Particular requirements for testing and measuring circuits	IEC/EN 61010-1-08
Protection class	I = Device with protective conductor
Noise immunity	
Industrial environment	DIN EN 61326-1, Table 2; (IEC 61326-1)
Emissions	
Class B: Residential environment	DIN EN 61326-1; (IEC 61326-1)
Class A: Industrial environment	DIN EN 61326-1; (IEC 61326-1)
Safety	
Europe	CE labelling

Comment: For detailed technical information please refer to the operation manual and the Modbus address list.

*4 Devices with the "RS485 interface" option are only suitable for an operating temperature range of -10 to +50 °C.