

digital active and reactive energy meter with measurement of active and reactive instantaneous power, set up for communication

► Direct connection 80 A

Application

The energy-meters "with a green back-lighted LCD screen for perfect reading" are used to easure single-phase systems like in Residential, Utility and Industrial applications. Monitoring of the energy-consumption goes via a SO pulse output. The products can be set up to communicate with LAN, Profibus DP-V0, Modbus RTU, M-Bus, RS-485 and EIB-KNX interfaces are used to analyze the energy-consumption to reduce the running cost to a minimum for Industrial plants and buildings like Offices, Hospitals, Universities etc.

- For information on the operation of the LAN, Profibus DP-V0, Modbus RTU, M-Bus, RS-485 and EIB-KNX interfaces, see page 29-41.



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Function

Display

		Unit	ID
Active energy	Tariff 1	kWh	Energy absorbed or supplied
	Tariff 2	kWh	Energy absorbed or supplied
Reactive energy	Tariff 1	kvarh	Inductive or capacitative load
	Tariff 2	kvarh	Inductive or capacitative load
Active power		(k-M) W	Utilization and instantaneous value
Reactive power		(k-M) var	Utilization and instantaneous value

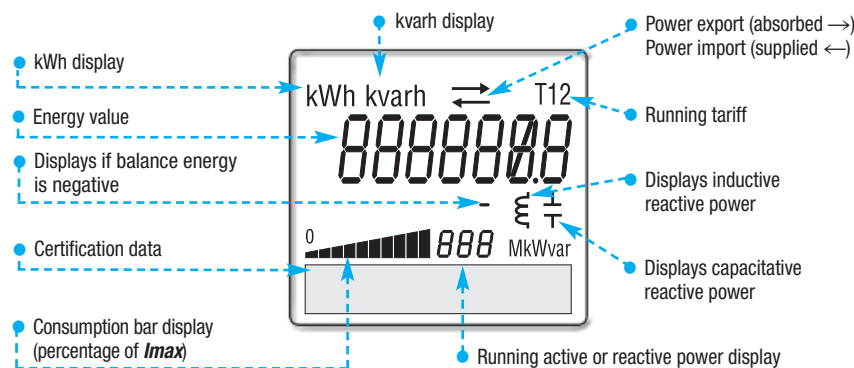
Communication modules



for the technical data, see page 22-33.

Display

Liquid crystal display with illuminated green background



2 standard module housing, suitable for DIN rail mounting Direct connection 80 A

Terminals SO pulse outlet and Tariffs change command

Optic control IR

Precision control LED

Supply terminals
80 A direct connection
Plug-and-play installation



Backlighting makes display easy to read

Space for the certification data can be provided on request MiD

Readout selection push button
kWh and W or
kvarh and var

Sealable terminal covers



ENERGY-METERS SINGLE-PHASE

digital active and reactive energy meter with measurement of active and reactive instantaneous power, set up for communication - 2 tariffs - 2 S0



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Overview

Active energy-meters for single-phase alternating current with either 1, 7 digits digital counters. These meters have 2 S0 output generating pulses for remote processing of the energy active and reactive measurements for 2 tariffs.

- Green backlighted LCD
- For direct connection 80 A
- 7 digits for energy values indication
- Accuracy class 1 for active energy according to EN 50470-3 (B)
- Accuracy class 2 for reactive energy according to EN 62053-23
- The standard versions are designed to be combined with the communication module
- Energy register zero setting (**NO MID**)
- Energy register for import and export
- Instantaneous power active and reactive display
- Sealable terminal covers
- 2 DIN modules wide (36 mm)

► Direct connection 80 A

Technical data

Data in compliance with EN 50470-1

General characteristics

			direct connection 80 A
• Housing	DIN 43880	DIN	2 modules
• Mounting	EN 60715	35 mm	DIN rail
• Depth		mm	70
• Reference standard	EN 50470-1-3, EN 62053-23-31	-	EN 50470-1-3, EN 62053-23-31

Operating features

• Connectivity	to single-phase network	n° wires	2
• Storage of energy values and configuration	digital display (EEPROM)	-	yes
• Display tariffs identifier	for active and reactive energy	n° 2	T1 and T2

Supply

• Rated control supply voltage U_h		VAC	230
• Operating range voltage		V	184 ... 276
• Rated frequency f_n		Hz	50
• Rated power dissipation (max.) P_h		VA (W)	≤8 (0.6)

Overload capability

• Voltage U_h	continuous	V	276
	momentary (1 s)	V	300
• Current I_{max}	continuous	A	80
	momentary (10 ms)	A	2400

Display (readouts)

• Display type	LCD	n° digits	7 (1 decimal)
	digit dimensions	mm x mm	6.00 x 3
• Active energy: 1 display, 7-digit + display import or export (arrow)	tariffs 1-2 overflow	kWh	000000.0 ... 999999.9
• Reactive energy: 1 display, 7-digit + display import or export (arrow)	tariffs 1-2 overflow	kvarh	999999.9 ... 000000.0
• Instantaneous active power: 1 display, 3-digit		kvarh	000000.0 ... 999999.9
• Instantaneous reactive power: 1 display, 3-digit		W, kW or MW	000 ... 999
• Instantaneous tariff measurement		var, kvar or Mvar	000 ... 999
	1 display, 1-digit	-	1
		-	T1 or T2
		s	1

Measuring accuracy

• Active energy and power	at 23 ±1°C, referred to nominal values acc.to EN 50470-3	%	±1 (B)
• Reactive energy and power	acc.to EN 62053-23	%	±2

Measuring input

• Type of connection	phase/N	-	direct
• Operating range voltage	phase/N	V	184 ... 276
• Current I_{ref}		A	15
• Current I_{min}		A	0.75
• Operating range current (I_{st} ... I_{min})	direct connection	A	0.025 ... 80
• Frequency		Hz	50
• Input waveform		-	sinus. symm.
• Starting current for energy measurement (I_{st})		mA	25

Pulse output S0

• Pulse output	acc.to EN 62053-31	-	yes
• Pulse quantity	for active and reactive energy T1 and T2	imp/kWh	1000
• Pulse duration		ms	30 ±2 ms
• Required voltage	min. (max.)	VAC (DC)	5 ... 230 ±5% (5 ... 300)
• Permissible current	pulse ON (max. 230 V AC/DC)	mA	90
• Permissible current	Impuls OFF (leakage cur. max. 230 V AC/DC)	µA	1

Optical interfaces

• Front side (accuracy control)	LED	imp/kWh	1000
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Safety acc. to EN 50470-1

• Indoor meter	-	-	yes
• Degree of pollution	-	-	4
• Operational voltage	-	V	300

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set up for communication - 2 tariffs - 2 SO

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Technical data

Data in compliance with EN 50470-1			direct connection 80 A
Safety acc. to EN 50470-1			
• Impulse voltage test		1.2/50 µs-kV	6
• Housing material flame resistance	UL 94	class	V0
• Safety-sealing between upper and lower housing part (mod. 282551)		-	yes
Adaptor for Communication			
• Plug-and-play technology		-	•
• LAN Server (TCP/IP)	Ethernet 802.3	-	10/100 Mbps
• Modbus RTU, Ascii / RS-485	RS-485 - 2 wires	-	up to 19.200 bps
• Profibus DP-V0	RS-485 - 2 wires	-	up to 12 Mbps
• M-Bus	2 wires	-	up to 9.600 bps
• EIB-KNX	EIB-standard	-	up to 9.600 bps
Connection terminals			
• Type cage main current paths	screw head Z +/-	POZIDRIV	PZ2
• Type cage pulse output	blade for slotted screw	mm	0.8 x 3.5
• Terminal capacity main current paths	solid wire min. (max.)	mm ²	1.5 (35)
	stranded wire with sleeve min. (max.)	mm ²	1.5 (35)
	solid wire min. (max.)	mm ²	0.14 (2.5)
	stranded wire with sleeve min. (max.)	mm ²	0.14 (1.5)
• Terminal capacity pulse outlet			
Environmental conditions			
• Mechanical environment		-	M1
• Electromagnetic environment		-	E2
• Operating temperature		°C	-10 ... +55
• Limit temperature of transportation and storage		°C	-25 ... +70
• Relative humidity (not condensation)		%	≤80
• Vibrations	50 Hz sinusoidal vibration amplitude	mm	±0.075
• Degree protection	housing when mounted in front (terminal)	-	IP51(*)/IP20

(*) For the installation in a cabinet at least with IP51 protection.

Selection and ordering data

single-phase active and reactive energy-meter with measurement of active and reactive instantaneous power,
set up for communication - 2 modules DIN

Code	Code	Description
Energy register zero setting (not calibratable - MiD)	Energy with MiD calibration on board	
22.461.100.000	22.461.100.100	single-phase digital active and reactive energy-meter with direct connection 0.75-15 (80) A - 2 tariffs - 2 SO

Optional - additional communication modules - 1 or 2 modules DIN

			for the technical data, see page 29-41.