

ENERGY-METERS SINGLE-PHASE

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



EC1-125

► Direct connection 125 A

Application

The energy-meters "with a green back-lighted LCD screen for perfect reading" are used to measure single-phase systems like in Residential, Utility and Industrial applications.

Monitoring of the energy-consumption goes via a S0 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.



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

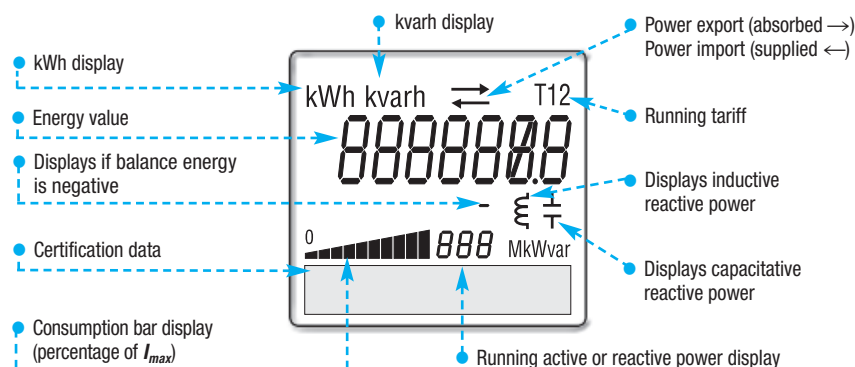
Communication modules



for the technical data, see page 29-41.

Display

Liquid crystal display with illuminated green background



3 standard module housing, suitable for DIN rail mounting

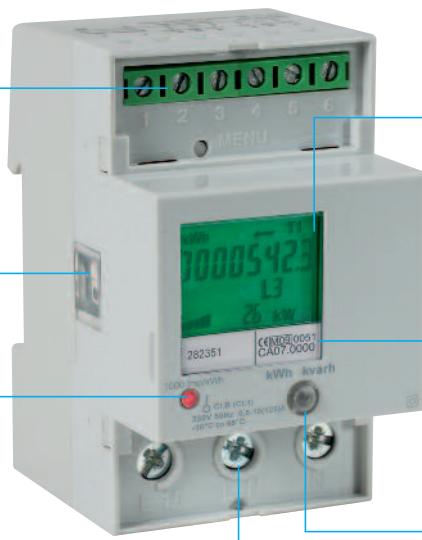
Direct connection 125 A

Terminals S0 pulse outlet and Tariffs change command

Optic control IR

Precision control LED

Supply terminals
125 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



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

Overview

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

- Green backlighted LCD
- For direct connection 125 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
- 3 DIN modules wide (52 mm)

► Direct connection 125 A

EC1-125



Technical data

Data in compliance with EN 50470-1

General characteristics

• Housing	DIN 43880	DIN	3 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_n		VAC	230
• Operating range voltage		V	184 ... 276
• Rated frequency f_n		Hz	50
• Rated power dissipation (max.) P_v		VA (W)	≤8 (0.6)

Overload capability

• Voltage U_n	continuous	V	276
	momentary (1 s)	V	300
• Current I_{max}	continuous	A	125
	momentary (10 ms)	A	3750

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	kWh	000000.0 ... 999999.9
• Reactive energy: 1 display, 7-digit + display import or export (arrow)	overflow	kWh	999999.9 ... 000000.0
	tariffs 1-2	kvarh	000000.0 ... 999999.9
	overflow	kvarh	999999.9 ... 000000.0
• Instantaneous active power: 1 display, 3-digit		W, kW or MW	000 ... 999
• Instantaneous reactive power: 1 display, 3-digit		var, kvar or Mvar	000 ... 999
• Instantaneous tariff measurement		-	1
	1 display, 1-digit	-	T1 or T2
• Display period refresh		s	2

Measuring accuracy

• Active energy and power	at 23 ±1°C, referred to nominal values		
• Reactive energy and power	acc.to EN 50470-3	%	±1 (B)
	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	10
• Current I_{max}		A	0.5
• Operating range current (I_{st} ... I_{min})	direct connection	A	0.10 ... 125
• Frequency		Hz	50
• Input waveform		-	sinus. symm.
• Starting current for energy measurement (I_{st})		mA	50

Pulse output SO

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



EC1-125

Technical data

Data in compliance with EN 50470-1		direct connection 125 A
Safety acc. to EN 50470-1		
• Impulse voltage test	1.2/50 µs-kV class	6 V0
• Housing material flame resistance	-	yes
• Safety-sealing between upper and lower housing part UL 94	-	-
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 +/- blade for slotted screw	POZIDRIV
• Type cage pulse output	solid wire min. (max.)	mm
• Terminal capacity main current paths	stranded wire with sleeve min. (max.)	mm ²
	solid wire min. (max.)	mm ²
• Terminal capacity pulse outlet	stranded wire with sleeve min. (max.)	mm ²
		mm ²
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
• 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 - 3 modules DIN

Code	Code	Description
Energy register zero setting (not calibratable - MiD)	Energy with MiD calibration on board	
22.461.200.000	22.461.200.100	single-phase digital active and reactive energy-meter with direct connection 0.5-10 (125) A - 2 tariffs - 2 S0

Optional - additional communication modules - 1 or 2 modules DIN

			for the technical data, see page 29-41.