CONTROL YOUR LIVING SPACE

80A three phase energy counter

Code: EK-ME1-80T

Datasheet STEKME180T_EN

Compact energy counter (4 DIN modules) with MID certification for the energy measurement in industrial and civilian application.

REAEKME180T

Description

4 DIN modules energy counter for the energy measurement in industrial and civilian application, available with MID certification suitable for billing. Combined with different external modules, the counter can communicate with other systems. COM modules are available for the most common field protocols. Besides the energy, the counter can measure the main electrical parameters and makes them available on the COM port. The LCD display shows the energies and the instantaneous powers. The counter is built according to EN 50470-1 standard. The accuracy of the active energy fulfills class B requirements according to EN 50470-3. The accuracy of the reactive energy is compliant to IEC/EN 62053-23 class 2. Wide backlighted LCD display with clear graphic symbols comprehensible at a glance. Metrological LED on front panel and sealable terminal covers. Available versions with different voltage working range for the connection on 3 or 4 wire network, suitable for balanced or unbalanced loads. The analysis of the MTBF values, the accurate selection of components and the reduction of the internal working temperatures together with strict production and control standards guarantee a product with an excellent quality and a long lasting reliability.

Applications

- Totalization of the electric energy in the industry for each single line or machine
- Measurement of energy generated by renewable sources such as solar, eolic, etc.
- Accounting and billing of consumptions in camp sites, malls, residential areas, naval ports, etc.
- Totalization of the electric consumption in hotels, congress centers, exhibition fairs
- Accounting of the consumptions in buildings with executive office services
- Internal allocation of the consumptions in timeshare civilian and industrial buildings
- Realization of energy monitoring systems
- Remote survey of the consumptions and compute of the costs

Main characteristics

- Direct connection up to 80 A
- Fully bi-directional four quadrants measurements for all energies and powers
- For 3 / 4 wire networks with balanced or unbalanced load
- Class B according to EN 50470-3
- Tariff input
- 2 S0 outputs for energy pulse emission
- LCD display with 8 main digits
- Optical port for communication with external modules
- MID certification

Advantages

- Up to 30 instantaneous measurements, complete set of energy counters with 2 tariffs total and partial counters. Moreover partial counters can be started, stopped or reset
- The counter provides phase sequence and a diagnostic function for error signalling in case of wrong polarity connection
- MID certificate

Technical data

Power supply

- Power supplied from the voltage circuit
- Nominal measurement voltage ±20%
- Max consumption (for each phase): 7,5 VA - 0,5 W
- Nominal frequency: 50/60 Hz

Voltage and frequency

- 3x230/400...3x240/415 V 50/60 Hz (nominal values)

Current

- Starting current I_{st}: 20 mA
- Minimum current I_{min}: 250 mA
- Transitional current I_{tr}: 500 mA
- Reference current I_{ref} (I_n): 5 A
- Maximum current Imax: 80 A

Accuracy

- Active energy class B according to EN 50470-3
- Reactive energy class 2 according to IEC/EN 62053

S0 outputs

- 2 passive optoisolated
- Maximum values: 250 V_{AC-DC} - 100 mA
- Pulse length: 50 ±2 ms

Tariff input

- Active optoisolated
- Voltage range for tariff 2: 80 ... 276 V_{CA-CC}

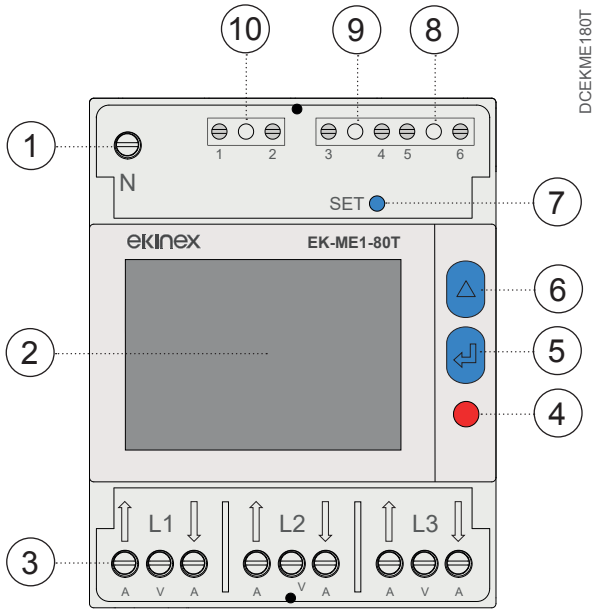
Metrological LED

- Meter constant: 1000 imp/kWh
- Pulse length: 10 ±2 ms

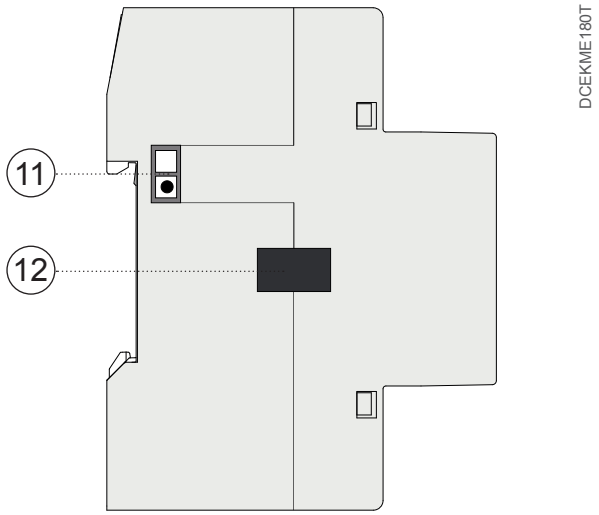
Environmental conditions

- Operating temperature: -25°C ... +55°C
- Storage temperature: -25°C ... +75°C
- Humidity: 80% max without condensation
- Protection degree: IP51 frontal part - IP20 terminals

Switching, display and connection elements



1) Neutral terminal
2) Backlight LCD Display
3) Current and voltage terminals
4) Metrological LED
5) ENTER pushbutton
6) UP pushbutton
7) SET pushbutton
8) Terminals (5, 6) for S0-1 input
9) Terminals (3, 4) for S0-2 input
10) Terminals (1, 2) for tarif input
11) IR (infrared) port
12) Safety-sealing (DO NOT REMOVE)



Warning! *The electrical connection of the device can be carried out only by qualified personnel. The incorrect installation may result in electric shock or fire. Before making the electrical connections, make sure the power supply has been turned off.*

Data communication

Through the IR port the device can transmit the data to a RS485 Modbus or a KNX communication module (to be ordered separately).

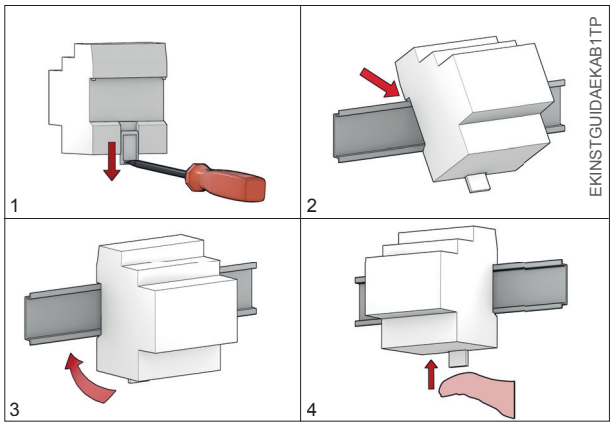
Code	Description
EK-MC1-TP	KNX communication module
EK-MC1-MD	RS485 Modbus communication module

Mounting

The device has degree of protection IP20, and is therefore suitable for use in dry interior rooms. The housing is made for rail mounting according to EN 60715 in boards or cabinets for electrical distribution. The installation is in horizontal position, the correct position is when the neutral terminal (N) is located at the top and the current and voltage terminals (L1, L2, L3) are located at the bottom. For the installation of the device on the rail proceed as follows:

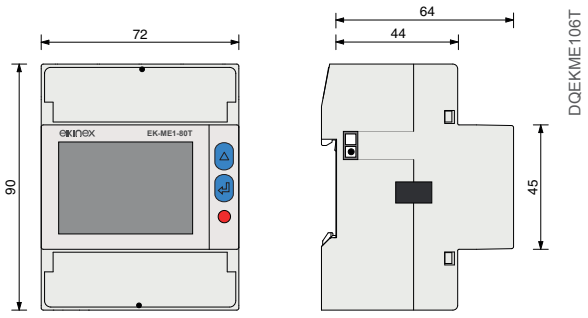
- with the aid of a tool bring the locking device in the fully lowered position (1);
- place the upper edge of the rear inner profile on the upper edge of the rail (2);
- rotate the device towards the rail (3);
- push the locking device upward until it stops (4).

Before removing the device, be sure all the terminals have been disconnected. Use a screwdriver to slide down the locking device and remove the device from the rail.



Note. *When mounting the device in boards and cabinets it shall be provided the necessary ventilation so that the temperature can be kept within the operating range of the device.*

Dimensions [mm]



Measures	Symbol	Measure unit, value or status	3 wire system	4 wire system	Device display	COM port
INSTANTANEOUS VALUES						
Phase voltage	V_{L1-N} -V_{L2-N} -V_{L3-N}	V		●		●
Line voltage	V_{L1-L2} - V_{L2-L3} - V_{L3-L1}	V	●	●		●
System voltage	V∑	V	●	●		●
Phase current	I_1 - I_2 - I_3	A	●	●		■
Neutral current	I_N	A		●		■
System current	I∑	A	●	●		■
Phase power factor	P_{FL1} - P_{FL2} - P_{FL3}	-		●		●
System power factor	PF∑	-	●	●		●
Phase apparent power	S_{L1} - S_{L2} - S_{L3}	kVA		●	■	■
System apparent power	S∑	kVA	●	●	■	■
Phase active power	P_{L1} - P_{L2} - P_{L3}	kW		●	■	■
System active power	P∑	kW	●	●	■	■
Phase reactive power	Q_{L1} - Q_{L2} - Q_{L3}	kvar		●	■	■
System reactive power	Q∑	kvar	●	●	■	■
Frequency	f	Hz	●	●		●
Phase sequence	CW/CCW	-	●	●	■	●
Power direction	IMP/EXP	-	●	●	■	●
RECORDED DATA						
Phase active energy	L1 - L2 - L3	kWh		●	■	■
System active energy	∑	kWh	●	●	■	■
Phase inductive and capacitive reactive energy	L1 - L2 - L3	kvarh		●	■	■
System inductive and capacitive reactive energy	∑	kvarh	●	●	■	■
Phase inductive and capacitive apparent energy	L1 - L2 - L3	kVAh		●	■	■
System inductive and capacitive apparent energy	∑	kVAh	●	●	■	■
Tariff 1/2 phase active energy	L1 - L2 - L3	kWh		●	■	■
Tariff 1/2 system active energy	∑	kWh	●	●	■	■
Tariff 1/2 phase inductive and capacitive reactive energy	L1 - L2 - L3	kvarh		●	■	■
Tariff 1/2 system inductive and capacitive reactive energy	∑	kvarh	●	●	■	■
Tariff 1/2 phase inductive and capacitive apparent energy	L1 - L2 - L3	kVAh		●	■	■
Tariff 1/2 system inductive and capacitive apparent energy	∑	kVAh	●	●	■	■
Resettable partial energy counters	∑	kWh, kvarh, kVAh	●	●	■	■
Energy balance	∑	kWh, kvarh, kVAh	●	●	■	■
OTHER INFORMATION						
Present tariff	T	1/2				●
Undervoltage/overvoltage	VOL, VUL	ON/OFF				●
Undercurrent/overcurrent	IOL, IUL	ON/OFF				●
Frequency out of range	fout	ON/OFF				●
Partial counters	PAR	START/STOP			●	●
S0 output status	1 2	Attivo			●	
Error condition	ERR	01/02			●	●
LEGEND: ● = available, ■ = bidirectional value						

Disposal

At the end of its useful life the product described in this datasheet is classified as waste from electronic equipment in accordance with the European Directive 2002/96/EC (WEEE), and cannot be disposed together with the municipal undifferentiated solid waste.

Warning! *Incorrect disposal of this product may cause serious damage to the environment and human health. Please be informed about the correct disposal procedures for waste collecting and processing provided by local authorities.*

Document

This datasheet refers to the release A1.0 of the ekinex® device EK-ME1-80T, and is available for download at www.ekinex.com as a PDF (Portable Data Format) file.

Warnings

- Installation and electrical connection can only be carried out by qualified personnel in compliance with the applicable technical standards and laws of the respective countries
- Opening the housing of the device causes the immediate end of the warranty period
- In case of tampering, the compliance with the essential requirements of the applicable directives, for which the device has been certified, is no longer guaranteed
- ekinex® KNX defective devices must be returned to the manufacturer at the following address: EKINEX S.p.A. Via Novara 37, I-28010 Vaprio d'Agogna (NO) Italy

Other information

- This datasheet is aimed at installers, system integrators and planners
- For further information on the product, please contact the ekinex® technical support at the e-mail address: support@ekinex.com or visit the website www.ekinex.com
- Each ekinex® device has a unique serial number on the label. The serial number can be used by installers or system integrators for documentation purposes and has to be added in each communication addressed to the EKINEX technical support in case of malfunctioning of the device
- ekinex® is a registered trademark of EKINEX S.p.A.