



# COUNTIS E4x

## Active energy meters

three-phase - via CT up to 6000 A

Single-circuit metering,  
measurement &  
analysis



COUNTIS E44 - MID - (3000 A MID - 6000 A not MID)

### Function

The COUNTIS E4x is a modular active and reactive electrical energy meter displaying the energies and active power consumed (kWh, kVAh and kW) directly on its backlit LCD display. It is designed for three-phase load metering with connection via CT and is suitable for applications of up to 6000 A (3000 A for MID).  
COUNTIS E42, E44 and E46 are MID certified.

### Common characteristics

- Measurement accuracy: 1 % / 0,5%(MID).
- Backlit LCD display.
- Detects connection errors.

### Advantages

#### RS485 communication (MODBUS or M-BUS) or pulse output

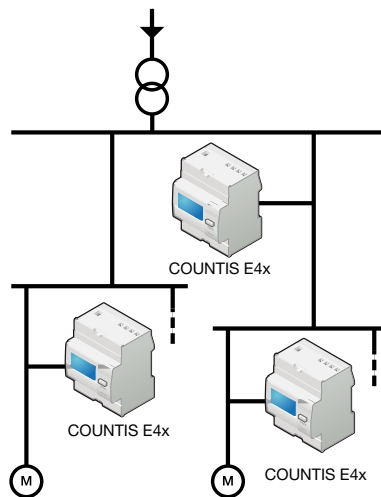
To enable the remote reporting of energy consumption, COUNTIS E4x are provided with either a pulse output or an RS485 communication output, with MODBUS or M-BUS protocol.

In addition to their reporting functions, COUNTIS E4x with RS485 can be configured remotely and enable access to multi-measurement values.

#### Detection of connection errors

The product is protected against phase/neutral inversion and detects wiring errors. This simplifies the installation and commissioning, thereby reducing associated costs, and ensures that the device operates correctly.

### Principle diagram



### The solution for

- > Industry
- > Infrastructure
- > Data centres



### Strong points

- > RS485 communication (MODBUS or M-BUS) or pulse output
- > Detection of connection errors
- > MID certified B+D module
- > Bi-directional metering
- > Multi-measurement and load curve

### MID certification

- > COUNTIS E comply with the MID directive, guaranteeing accuracy and reliability when metering, an indispensable function for energy billing applications.
- > COUNTIS E MID feature tamper-proof components to prevent fraud.



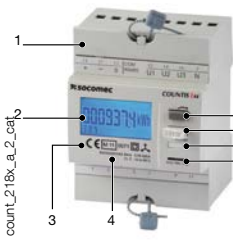
### Conformity to standards

- > IEC 62053-21 class 1
- > IEC 62053-23 class 2
- > IEC 62053-31
- > IEC 62053-11
- > EN 50470-1
- > EN 50470-3



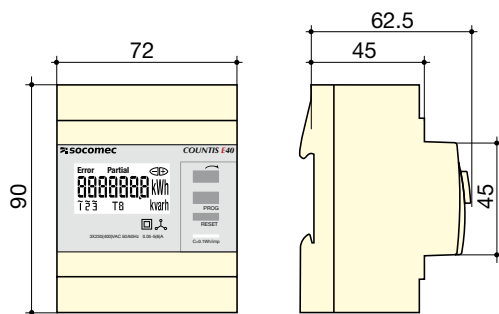
Models	Key functions
E40	Pulse output
E41	Dual tariff (2 partial counters) + Pulse output
E42	Dual tariff + MID (Reset impossible) + Pulse output
E43	Dual tariff + RS485 MODBUS communication
E44	Dual tariff + RS485 MODBUS communication + MID (Reset impossible)
E45	Dual tariff + M-BUS communication
E46	Dual tariff + M-BUS communication + MID (Reset impossible)

### Front panel



1. Terminal shrouds (COUNTIS E42, E44 and E46).
2. Backlit LCD display.
3. MID marking (COUNTIS E42, E44 and E46).
4. Serial number (COUNTIS E42, E44 and E46).
5. Navigation key.
6. Reset key.
7. Metrological LED.
8. Programming key.

### Case



Type	modular
Number of modules	4
Dimensions W x H x D	73 x 90 x 62.5 mm
Case degree of protection	IP20
Front degree of protection	IP51
Display type	backlit LCD display
Rigid cable cross-section	1.5 to 10 mm <sup>2</sup>
Flexible cable cross-section	1 to 6 mm <sup>2</sup>
Weight	230 g

### Electrical characteristics

#### Current measurement

Type	three-phase on CT/5A up to 6000 A (3000 A for MID products)
Input consumption	0.2 VA per phase
Startup current (I <sub>st</sub> )	10 mA
Minimum current (I <sub>min</sub> )	50 mA <sup>(1)</sup>
Transition current (I <sub>tr</sub> )	250 mA <sup>(2)</sup>
Reference current (I <sub>ref</sub> )	5 A <sup>(3)</sup>
Permanent overload (I <sub>max</sub> )	6 A
Intermittent overload	120 A for 0.5 s

#### Voltage measurement

Range of measurement	230 ... 400 V +/- 20 %
Consumption (VA)	2 VA
Permanent overload	280 V phase-neutral / 480 V phase-phase

#### Energy accuracy

Active (according to IEC 62053-21)	Class 0,5s
Active (according to EN 50470)	Class C (E42/44/E46)

#### Power supply

Self-supplied	yes
Frequency	50 / 60 Hz

#### Output (pulsed) (E40/E41/E42)

Number	1
Type of optocoupler	IEC 62053-31 Class A (20 ... 30 VDC)
Pulse weight	100 Wh, 1 kWh, 10 kWh, 100 kWh
Pulse duration	50 ms, 100 ms, 200 ms, 400 ms, 800 ms, 1000 ms, 1500 ms

#### Operating conditions

Operating temperature	-10 to 55 °C
Storage temperature	-20 to 70 °C
Relative humidity	85 %

Communication	E43/E44	E45/E46
Link	RS485	Connection
Type	2 half duplex wires	2 half duplex wires
Protocol	MODBUS RTU	M-BUS
Speed	4800 ... 38400 bauds	300 ... 9600 bauds

(1)  $I_{min} \leq 0.5 \cdot I_{tr}$

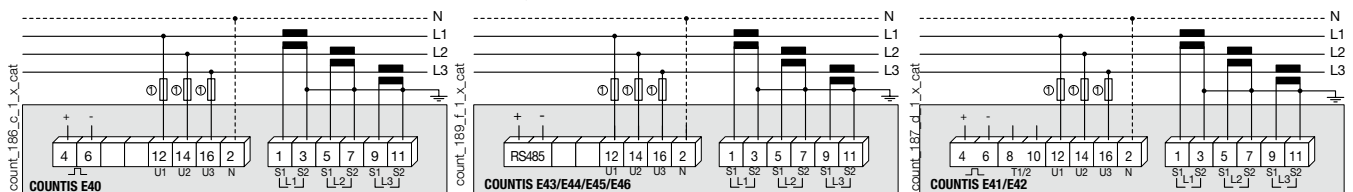
(2) The accuracy class is guaranteed between  $I_{tr}$  and  $I_{max}$ .

(3)  $I_{ref} = I_{tr}$  (base current) =  $10 \cdot I_{tr}$  for direct connection COUNTIS.

### Connection

#### Recommendation:

- For IT earthing systems, it is recommended that the CT secondary is not connected to earth.
- When disconnecting the COUNTIS, the secondary of each current transformer must be short-circuited. This operation can be carried out automatically by a SOCOMEC PT1, an accessory which is included in this catalogue. Please consult us.



1. Fuses 0.5 A gG / 0.5 A class CC.

### References

Type	COUNTIS E40 Reference	COUNTIS E41 Reference	COUNTIS E42 Reference	COUNTIS E43 Reference	COUNTIS E44 Reference	COUNTIS E45 Reference	COUNTIS E46 Reference
Via CT	4850 3008						
Via CT - Dual tariff		4850 3009					
Via CT - Dual tariff - MID			4850 3015				
Via CT - Dual tariff with RS485 MODBUS com. <sup>(1)</sup>				4850 3017			
Via CT - Dual tariff with RS485 MODBUS com. - MID <sup>(1)</sup>					4850 3014		
Via CT - Dual tariff with M-BUS com. <sup>(1)</sup>						4850 3027	
Via CT - Dual tariff with M-BUS com. - MID <sup>(1)</sup>							4850 3028
Management software for COUNTIS	See page 142						

(1) 4 tariffs through RS485 communication.