



# COUNTIS E4x

## Active energy meters

three-phase - connection to current transformers up to 12000 A

Single-circuit metering,  
measurement &  
analysis



COUNTIS E44 - MID

### The solution for

- > Industry
- > Infrastructure
- > Data centre
- > EV Chargers



### Strong points

- > RS485 (MODBUS), M-BUS, Ethernet or pulse outputs
- > Multi-tariff
- > 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



### Associated with current transformers



See "Current transformers".

### Function

The **COUNTIS E4x** is a modular electrical energy meter displaying the energies (kWh, kVAh and kVA) and other measurements 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 12000 A.

COUNTIS E42, E44, E46 and E48 are MID certified.

### Common characteristics

- Measurement accuracy: 1 % / 0,5%(MID).
- Backlit LCD display.
- Multi-measurement available on display.

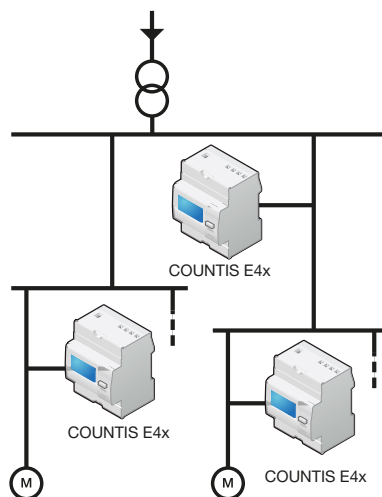
### Advantages

#### RS485 (MODBUS), M-BUS, Ethernet communication or pulse outputs

To enable the remote reporting of energy consumption, COUNTIS E4x devices have either one pulse output, one RS485 (MODBUS), M-BUS or an Ethernet Modbus TCP communication output.

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

### Principle diagram



#### MID certified B+D module

COUNTIS E products with MID certification provide the guaranteed accuracy required for applications in which sub-billing of the electrical energy consumed is necessary. "Module B+D" certification guarantees that the design and manufacturing process of products are approved by an accredited laboratory.

#### Bi-directional metering

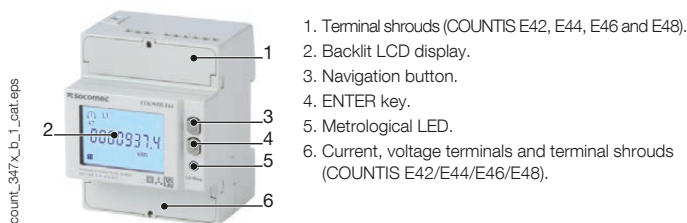
This function is for metering energy production or energy consumption.

#### Multi-measurement and load curve

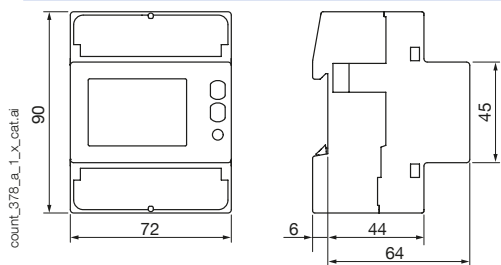
Display of electrical values (I, U, V, P, Q, S, PF) and load curve over a 3 day period via communication.

Models	Key functions
E41	Dual tariff + Pulse output
E42	Dual tariff + Pulse output + MID
E43	4 tariffs + Pulse output + RS485 MODBUS communication
E44	4 tariffs + Pulse output + RS485 MODBUS communication + MID
E45	4 tariffs + Pulse output + M-BUS communication
E46	4 tariffs + Pulse output + M-BUS communication + MID
E47	4 tariffs + Pulse output + Ethernet
E48	4 tariffs + Pulse output + Ethernet + MID

## Front panel



## Dimensions (mm)

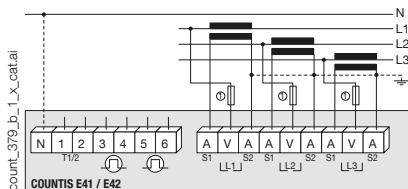


Type	modular
Number of modules	4
Dimensions W x H x D	72 x 90 x 64 mm
Case degree of protection	IP20
Front degree of protection	IP51
Display type	8-digit backlit LCD
Rigid cable cross-section	1.5 ... 6 mm <sup>2</sup>
Flexible cable cross-section	1.5 ... 6 mm <sup>2</sup>
Weight	322 g

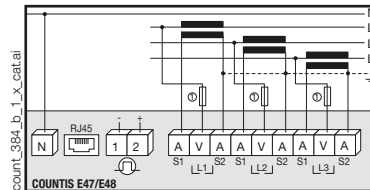
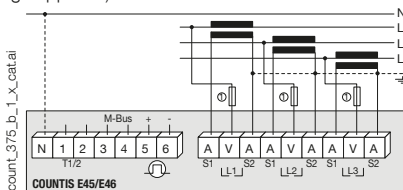
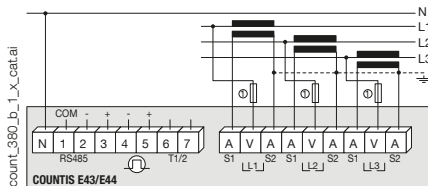
## Connection

### Recommendation:

- Connecting the CT secondaries is strictly prohibited in IT earthing systems; it is however optional in TT/TN earthing arrangements.
- When disconnecting the COUNTIS, the secondary of each current transformer must be short-circuited. This operation can be carried out automatically by a SOCOMEC PTI, an accessory which is included in this catalogue. Please consult us.



**WARNING:** The neutral conductor must be connected on models COUNTIS E43/E44/E47/E48 (the neutral conductor is represented by the solid line in the image opposite). The neutral conductor is optional on models E21 / E22 / E25 / E26 (the neutral conductor is represented by the dashed line in the image opposite).



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

## References

Type	COUNTIS E41 Reference	COUNTIS E42 Reference	COUNTIS E43 Reference	COUNTIS E44 Reference	COUNTIS E45 Reference	COUNTIS E46 Reference	COUNTIS E47 Reference	COUNTIS E48 Reference
Via CT - Dual tariff	4850 3063							
Via CT - Dual tariff + MID		4850 3064						
Via CT - Dual tariff + MODBUS communication via RS485 <sup>(1)</sup>			4850 3065					
Via CT - Dual tariff + MODBUS communication via RS485 + MID <sup>(1)</sup>				4850 3066				
Via CT - Dual tariff + M-Bus communication <sup>(1)</sup>					4850 3067			
Via CT - Dual tariff + M-Bus communication + MID <sup>(1)</sup>						4850 3068		
Via CT - Dual tariff + Ethernet Modbus TCP communication <sup>(1)</sup>							4850 3056	
Via CT - Dual tariff + Ethernet Modbus TCP communication + MID <sup>(1)</sup>								4850 3057

(1) 4 tariffs through RS485 communication.

Accessories	To be ordered in multiples of	Reference
Panel mounting kit 4 modules		192J 8015
10x 4U sealing kits		4850 309U
Fuse disconnect switches to protect 3-pole voltage inputs (RM type)	2	5701 0018
gG 10x38 0,5 A fuses	10	6012 0000

## Electrical characteristics

Current measurement	
Type	three-phase on CT1 and 5A up to 12000 A
Input consumption	0.5 VA max. per phase
Startup current (I <sub>st</sub> )	1 mA - Class C
	2 mA - Class 1
Minimum current (I <sub>min</sub> )	10 mA
Transition current (I <sub>tr</sub> )	50 mA
Reference current (I <sub>ref</sub> )	1 A
Permanent overload (I <sub>max</sub> )	6 A
Intermittent overload	120 A for 0.5 s
Voltage measurement	
Range of measurement	230 ... 240 V ± 20 %
Consumption (VA)	7.5 VA max (0.5 W) per phase E41/E42/E45/E46 3.5 VA max (1 W) per phase E43/E44/E47/E48
Permanent overload	290 V phase-neutral / 500 V phase-phase
Energy accuracy	
Active (according to IEC 62053-21)	Class 1
Active (according to EN 50470)	Class C
Reactive (according to IEC 62053-22)	Class 2
Power supply	
Self-supplied	yes
Frequency	50 / 60 Hz
Output (pulse)	
Number	2 (E41/E42) 1 (E43 ... E48)
Type of optoisolated	250 VAC/DC - 100 mA (E41/E42) 27 VDC - 27 mA (E43 ... E48)
Pulse weight	1 Wh ⇒ CT = 1 ... 4 5 Wh ⇒ CT = 5 ... 24 25 Wh ⇒ CT = 25 ... 124 125 Wh ⇒ CT = 125 ... 624 1000 Wh ⇒ CT = 625 ... 3124 10000 Wh ⇒ CT = 3125 ... 12000
Pulse duration	50 ± 2 ms ON time 30 ± 2 ms OFF time
Operating conditions	
Operating temperature	-25 ... +55 °C
Storage temperature	-25 ... +75 °C
Relative humidity	80 %

Communication	COUNTIS E43/E44	COUNTIS E45/E46	COUNTIS E47/E48
Link	RS485	Wired	RJ45
Type	2 to 3 half duplex	2 half duplex	Full duplex
Protocol	MODBUS RTU	M-BUS	MODBUS TCP, HTTP, NTP, DHCP
Speed	1200 ... 115200 bauds	300 ... 9600 bauds	10/100 Mbps