

# COUNTIS E5x

## Active energy meters for electrical distribution

three-phase – connect to current transformers up to 6000 A – door-mounted



COUNTIS E53 - up to 6000 A (via CT)

### The solution for

- > Data centre
- > Building
- > Industrial process



### Strong points

- > RS485 (MODBUS) communication or pulse outputs
- > Detection of connection errors
- > Large backlit screen
- > Multi-power monitoring and meter readings on-screen
- > Socomec monitoring ecosystem: user software, remote displays

### Compliance with standards

- > IEC 62053-23 Class 2
- > IEC 62053-22 Class 0.5S
- > IEC 61557-12



### Measurement index

- > 210

### Related software

- > We offer a range of specially designed application tools, to help you make the most of your Socomec metering and monitoring devices.

### Associated current transformers



See "Current transformers".

### Function

The COUNTIS E5x is an active and reactive plug-in electrical energy meter intended for three-phase networks. It accommodates CT wiring up to 6000 A.

The COUNTIS E5x is fully integrated into the SOCOMEC monitoring ecosystem (Webview, screens, gateways, configuration software, etc.).

The user can configure the CT connection by using the keyboard and the display.

### Advantages

#### RS485 (MODBUS) communication or pulse outputs

As an easy way to centralise your consumption readings, the COUNTIS E5x is equipped with either a pulse output or an RS485 MODBUS communication output.

#### Detection of connection errors

The COUNTIS E5x is protected against phase/neutral inversion and has an integrated test mode to detect wiring errors. Any installation errors can be corrected without having to re-arrange the wiring.

Easy to install and commission – reduces costs and ensures the proper functioning of the devices.

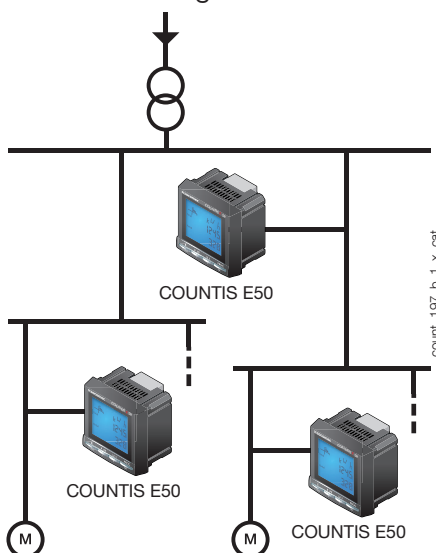
#### Large backlit screen

With its multi-display screen and hotkeys, the COUNTIS E5x is easy to use. It shows you your consumption and a wide range of electrical readings: I, U, V, S, FP, etc.

#### Multi-power monitoring and meter readings on-screen

- Multi-power monitoring:  
Currents: realtime: I1, I2, I3  
Voltages: realtime: V1, V2, V3, U12, U23, U31, F  
Power: realtime 3P, 3Q, 3S, average, maximum: 3P  
Power factor: realtime: 3PF

### Functional diagram



- Metering:  
Active power:  $\pm$  kWh  
Reactive power:  $\pm$  kvarh  
Apparent power: kVAh

#### Socomec monitoring ecosystem: user software, remote displays

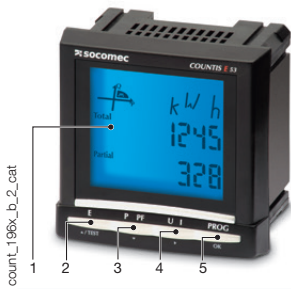
Inherent compatibility with energy management systems and Socomec gateways (Webview, screens, gateways, etc.).

### General characteristics

- Measurement accuracy: 0.5%.
- Large backlit screen.
- Shows multi-measurement and meter readings on-screen.
- Connection guaranteed.

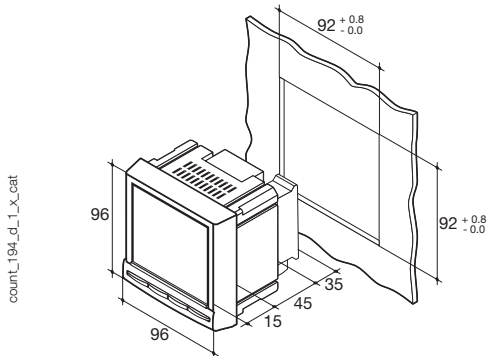
Models	Model-related specifications
E50	Pulse output
E53	RS485 MODBUS communication

#### Front panel



1. Backlit LCD
2. Button to show energy values and test mode
3. Button to show power readings and power factor
4. Button to show currents and voltages
5. Enter button for programming mode

#### Case



Type	Plug-in
Dimensions W x H x D	96 x 96 x 60 mm
Casing protection degree	IP30
Front panel protection degree	IP52
Display type	LCD with blue backlighting
Cross-section of cables for voltage and other terminals	0.5 to 2.5 mm <sup>2</sup>
Cross-section of cables for current	1.5 to 6 mm <sup>2</sup>
Weight	370 g

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

(2) Guaranteed accuracy index between  $I_{n1}$  and  $I_{max1}$

(3)  $I_{ref} = I_{n1}$  (base current) =  $10 \cdot I_{n1}$  for direct connection COUNTIS devices.

#### Electrical characteristics

##### Measurement of currents

Type	Three-phase on CT/5A up to 6000 A
Input consumption	< 0.6 VA
Startup current ( $I_{st}$ )	40 mA
Minimum current ( $I_{min}$ )	50 mA <sup>(1)</sup>
Transition current ( $I_t$ )	250 mA <sup>(2)</sup>
Reference current ( $I_{ref}$ )	5 A <sup>(3)</sup>
Permanent overload ( $I_{max}$ )	6 A
Intermittent overload	50 A for 1 s

##### Voltage measurement

Range of measurement	86 to 520 VAC
Input consumption	< 0.1 VA
Permanent overload	800 VAC

##### Power accuracy

Reactive (according to IEC 62053-23)	Class 2
Active (according to IEC 62053-22)	Class 0.5s

##### Power supply

Self-powered	No
Auxiliary power supply $U_s$	110 to 400 VAC / 125 to 350 VDC $\pm 10\%$
Frequency	45 to 65 Hz

##### Output (pulses)

Number	1
Type	100 VDC - 0.5 A - 10 VA
Max. number of actions	$\leq 10^8$

##### Operating conditions

Operating temperature	-10 to 55°C
Storage temperature	-20 to 85°C
Relative humidity	95%

##### Communication

Link	RS485
Type	2 to 3 half duplex wires
Protocol	MODBUS® RTU
MODBUS® speed	1400 to 38400 bauds

#### References

Type	COUNTIS E50 Reference	COUNTIS E53 Reference
Output (pulses)	4850 3010	
MODBUS RS485 communication <sup>(1)</sup>		4850 3011
COUNTIS software		

(1) 4-tariff via RS485 communication.

Accessories	Available for order in multiples of	Reference
Fuse disconnect switches for voltage input protection (RM type) 3-pole	4	5701 0018
Fuse disconnect switches to protect the 1-pole + neutral auxiliary power supply (RM type)	6	5701 0017
gG 10x38 0.5 A fuses	10	6012 0000

#### Connection

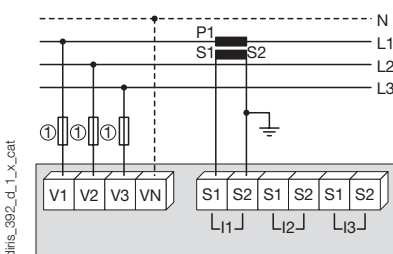
##### Recommendation:

- With an IT arrangement, you are recommended not to earth CT secondaries.

- When disconnecting the COUNTIS device, the secondary of each current transformer must be short-circuited. This operation can be carried out automatically by a PTI, which can be found in the SOCOMEC catalogue. Contact us.

##### Low voltage balanced network

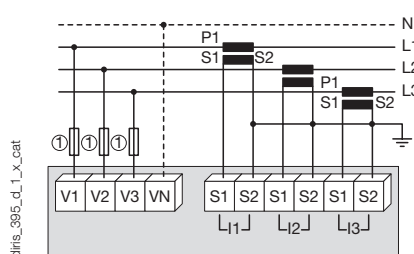
3/4 wires with 1 CTs



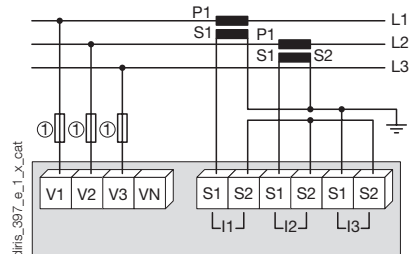
The use of 1 CT reduces the accuracy of the phase from which the current is derived by 0.5% (using a vector calculation).

##### Low voltage unbalanced network

3/4 wires with 3 CTs



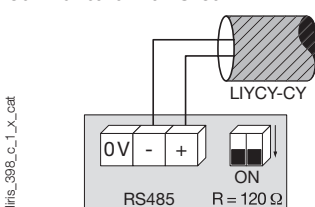
3 wires with 2 CTs



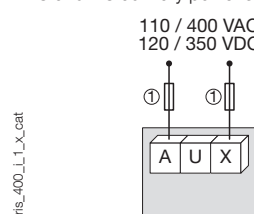
The use of 2 CTs reduces the accuracy of the phase from which the current is derived by 0.5% (using a vector calculation).

##### Additional information

Communication via RS485 link



AC and DC auxiliary power supply



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