COUNTIS M4x

Active energy meters for OEM

three-phase - up to 10000 A via CT

COUNTIS M44

Function

The **COUNTIS M4x** meters are modular energy meters designed for three-phases metering with connection via CT and are suitable for applications up to 10000 A for machine manufacturers (Bulk packaging). They can directly display both active (kWh) and reactive energy (kvarh) on a backlit LCD screen.

With multifunction monitoring and compact size in 4 modules width, they support RS485 MODBUS RTU or MBUS communication and are suited for both commercial or industrial power distribution systems.

COUNTIS M44 and M46 have MID certification.

Advantages

Communication

- RS485 communication (MODBUS RTU) or MBUS communication.
- Energy values can be remotely transmitted via the communication output (computer, BMS, etc.) to a system for billing analysis, energy savings or energy cost management.
- 2 available pulse outputs : one with configurable pulse weight and duration, the second with fixed 3200 Wh/imp.

Multi-parameters measurement and load acquisition

Remote collection of multiple electrical parameters through communication: I, U, V, P, Q, S, PF, THD, demand, energies.

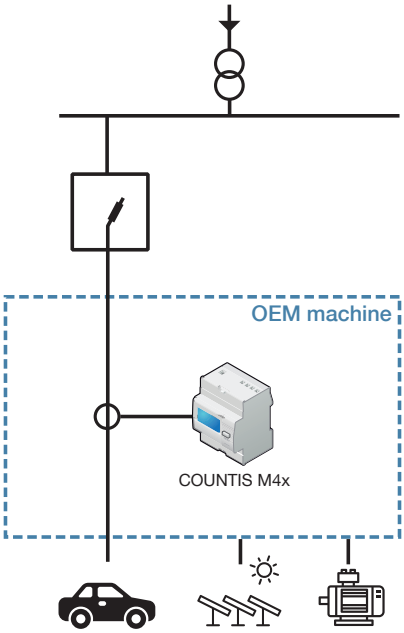
Compact

4 modules width only.

MID Module B+D certified

COUNTIS M units comply with the MID directive to guarantee accuracy and reliability when metering, compulsory for energy billing applications. “Module B+D” certification guarantees that the design and manufacturing process of products are approved by an accredited laboratory.

Functional diagram



Extended temperature range

Operating temperature from -40°C up to +70°C without degrading any functions of the meter.

Bulk packaging

The packaging and accessories of these meters are optimised for high quantities requirements :

- Unboxing and integration are quicker
- Packaged with large quantities to simplify ordering and shipping process.

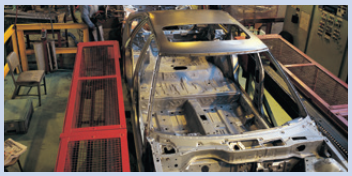
General Characteristics

- Compact design.
- Measurement accuracy: 0.5%.
- Backlit LCD display.
- Demand monitoring.
- Total harmonic distorsion.

Model	Key functions
M44	2 pulses output + RS485 MODBUS communication + MID
M46	2 pulses output + M-Bus communication + MID

The solution for

- EV chargers
- Inverters
- OEM machines



Strong points

- Bulk packaging
- Communication and pulse outputs
- Multi-parameters measurement and load acquisition
- Compact
- MID Module B+D certified
- Extended temperature range

MID certification

- COUNTIS M units comply with the MID directive to guarantee accuracy and reliability when metering, compulsory for energy billing applications.
- COUNTIS M MID feature tamper-proof components to prevent fraud.

Conformity to standards

- IEC 62053-22
- IEC 62053-23
- EN50470-1
- EN50470-3

Associated with current transformers

See “Current transformers”.

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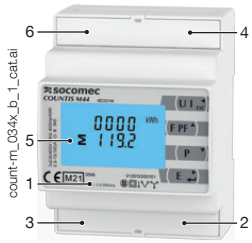
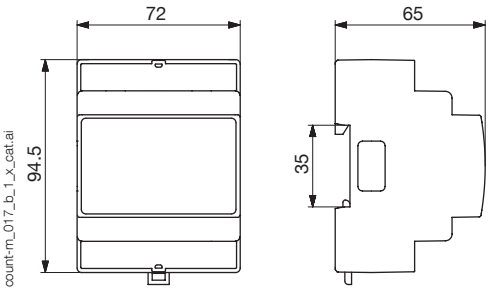
Front panel



1. Pulse LED (2.5 Wh/imp)
2. Optional auxiliary power supply
3. Voltage measurement
4. Current transformers
5. LCD display screen
6. Pulses output + M-bus or RS485

Dimensions (mm)



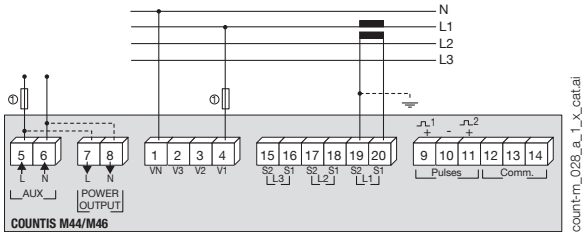
Type	modular
Number of modules	2
Dimensions W x H x D	72 x 94.5 x 65 mm
Case degree of protection	IP 20
Front degree of protection	IP 51
Display type	LCD
Rigid cable cross-section	1.5 … 2.5 mm²
Flexible cable cross-section	1.5 … 2.5 mm²

Electrical characteristics

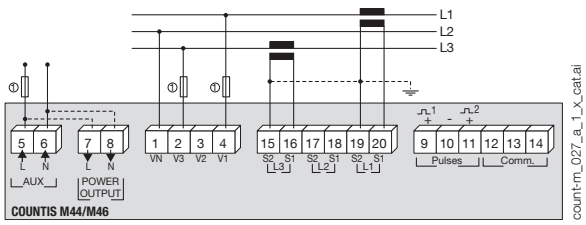
Current measurement	
Type	three-phase on CT1
Primary current	1-10000 A
Secondary current	1 A or 5 A
Input consumption	< 10 W
Overcurrent withstand	30 I_{max} for 0.5s
Voltage measurement	
Voltage AC (U_n)	3x230 / 400 VAC
Voltage range	80%~120% of U_n
Frequency	50 or 60 Hz ±2%
AC voltage withstand	4 KV for 1 minute
Impulse voltage withstand	6KV~1.2 µs waveform
Auxiliary power supply	
Voltage	85-275 VAC 50/60 Hz ±10% 120-380 VDC ±20%
Power consumption	< 2 W / 10 VA
Output (pulse)	
Pulse output 1	configurable : 0.001, 0.01, 0.1, 1, 10, 100 pulses per kWh/kvarh
Pulse output 2	non-configurable : 3200 pulses per kWh
Type of optoisolated	5-27 VDC - 27 mA DC max.
Pulse duration	60 / 100 / 200 ms
Accuracy	
Voltage / Current / Frequency	0.5% / 0.5% / 0.2%
Power factor / Active power / Reactive power / Apparent power	1%
Active energy	Class 0.5s IEC 62053-22 Class C EN50470-1/3 (MID version only)
Reactive energy	Class 2 IEC 62053-23
Total harmonic distortion	1% up to 31st harmonic
Values refresh rate	1s
Operating conditions	
Operating temperature	-40°C to +70°C
Storage temperature	-40°C to +70°C
Relative humidity	0 to 95%, non-condensing

Terminals and connections

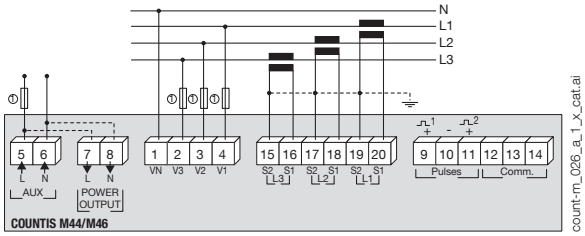
Single phase 2 wires with 1 CT (1P+N)



3 phases 3 wires with 2 CT (3P)

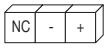


3 phases 4 wires with 3 CT (3P+N)

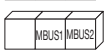


N - L: network input.
N' - L': network output.

Comm. terminals for RS485:



Comm. terminals for M-bus:



(1) 1 A fast blow fuse.

References

Type	COUNTIS M44 Reference	COUNTIS M46 Reference
Via CT - RS485 MODBUS Communication + MID	48C0 **3144**	
Via CT - M-Bus Communication + MID		48C0 **3146**