

CO₂ kWh
MID EN16001
kVA CO₂



Compact Line Energy Meters

Compact Line Energy Meters from Gossen Metrawatt

Top Performance in Extremely Tight Spaces

The calibrated, compact energy meter can be used to acquire and bill active energy in industrial, household, commercial and building management applications. Relevant values are transmitted to data logging, billing and optimizing systems, as well as to building automation and control technology applications, by means of 2 pulse outputs or the integrated infrared interface and an external interface module. Modbus, M-Bus and Ethernet are currently supported, and further interfaces are in preparation, for example EIB/KNX and LON. In addition to energy, the meter also measures all of the electrical system's essential parameters and makes them available via the infrared interface. Energy and instantaneous power values appear directly at the display.

Features

- Compact double-tariff energy meter for 4 quadrants, import and export, partial- and aggregate meter and up to 30 measured values for real-time quantities
- Variants for 2, 3 and 4-wire-systems with 80 A direct-connection, or 1A or 5A transformer connection
- Programmable current transformer ratio of 1 to 10000 and additionally displayable secondary value for energy
- Double-tariff measurement with input for tariff switching
- Partial meter can be started, stopped and reset
- Active energy measurement per EN50470-3, class B, for industrial and commercial applications, as well as demanding household applications
- Cost savings thanks to initial calibration at the factory in accordance with MID, conformity assessment procedure modules B and D
- Reactive energy measurement per EN 62053-23, class 2
- Phase sequence indicator and error detection for violation of voltage, current and frequency measuring ranges
- 2 programmable pulse outputs for energy values
- Flexible communication via infrared interface and optional interface modules for M-Bus, Modbus and Ethernet
- Large LCD panel with background illumination
- Tamper-proof covers
- Top quality and outstanding reliability



Applications

- Industrial energy logging for individual production lines or machines
- Measurement of renewable energy from photovoltaic systems and wind power turbines
- Logging and billing of energy consumption at campsites, shopping centers, housing areas and wharfs
- Energy logging for hotels, convention centers and trade fair facilities
- Internal cost distribution for timesharing-condos and subleased industrial buildings
- Consumption billing for business centers
- Setup of energy logging systems
- Long distance transmission of consumption values and billing

Energy Management Systems per EN16001

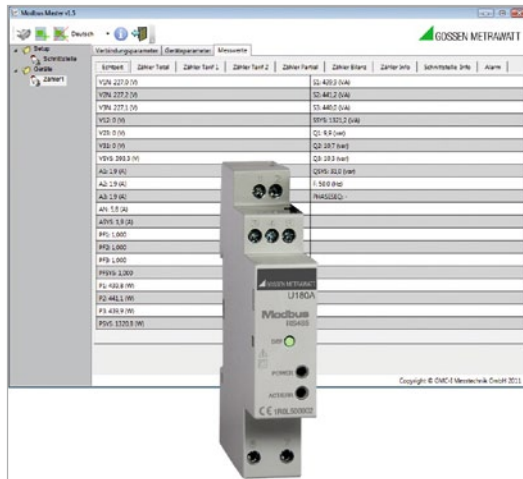
Complete energy management systems for EN 16001 are implemented on the basis of energy meters, versatile SMARTCONTROL data collectors and Energy Management Control software from Gossen Metrawatt. Get in touch with us and request a quotation for your individualized solution.

ENERGY METERS

System	Voltage	For direct connection, 80 A	For transformer connection, 1 (6) A and 5 (6) A
2-wire	230 to 240 V, 50/60 Hz	U181A	—
3-wire	3 x 400 to 415 V, 50/60 Hz	U187A	U187B
4-wire	3 x 230/400 V to 240/415 V, 50/60 Hz	U189A	U189B

Measuring Functions

MEASUREMENTS					
	SYMBOL		U/M	DISPLAY	COMM.
REAL-TIME VALUES	2-Wire	3/4-Wire			
Star voltage	V	$V_{\Sigma} - V_{L1-N} - V_{L2-N} - V_{L3-N}$	V		●
Delta voltage	–	$V_{L1-L2} - V_{L2-L3} - V_{L3-L1}$	V		●
Current	I	$I_{\Sigma} - I_1 - I_2 - I_3 - I_N$	A		■
Power factor	PF	$PF_{\Sigma} - PF_{L1} - PF_{L2} - PF_{L3}$	–		●
Apparent power	S	$S_{\Sigma} - S_{L1} - S_{L2} - S_{L3}$	kVA	■	■
Active power	P	$P_{\Sigma} - P_{L1} - P_{L2} - P_{L3}$	kW	■	■
Reactive power	Q	$Q_{\Sigma} - Q_{L1} - Q_{L2} - Q_{L3}$	kvar	■	■
Frequency	f	f	Hz		●
Phase sequence	–	CW/CCW	–	●	●
Power direction	Import/export	Import/export	–	●	●
ENERGY METERS	2-Wire	3/4-Wire			
Total active energy	L	$\Sigma - L1 - L2 - L3$	kWh	■	■
Total reactive energy, ind. and cap.	L	$\Sigma - L1 - L2 - L3$	kvarh	■	■
Total apparent energy, ind. and cap.	L	$\Sigma - L1 - L2 - L3$	kVAh	■	■
Energy meters, tariff T1/T2	L	Σ	kWh, kvarh, kVAh	■	■
Resettable energy meters	L	Σ	kWh, kvarh, kVAh	■	■
Energy balance	L	Σ	kWh, kvarh, kVAh	■	■
ADDITIONAL INFORMATION	2-Wire	3/4-Wire			
Momentary tariff		T	1/2		●
Secondary meter value (U187B/U189B)	–	SEC	ON/OFF	●	●
Current transformer ratio (U187B/U189B)	–	CT	SETTING VALUE	●	●
Voltage above/below limit		VOL, VUL	ON/OFF		●
Current above/below limit		IOL, IUL	ON/OFF		●
Frequency above/below limit		fOL, fUL	ON/OFF		●
Partial meter		PAR	START/STOP	●	●
Running communication		COM	ON/OFF	●	
Active SO pulses		SO-1, SO-2	ON/OFF	●	
Error status		ERR	01/02	●	●
MEANING	● = STANDARD ■ = BIDIRECTIONAL VALUE				



MODBUS

The Modbus module transmits data from the energy meter to a logging system via an RS 485 interface using the Modbus RTU or ASCII protocol. Modbus is the most popular means of transmission for communication amongst industrial devices. Modbus Master software for configuring the module and displaying measured values is included in the scope of delivery free of charge. A CD with a description of the Modbus register is provided as well.



The M-Bus module transmits data from the energy meter to a logging system using the M-Bus protocol. The M-Bus (meter bus) is a European standard in accordance with EN 13757-2/3 for reading out consumption meters. M-Bus Master software for configuring the module and displaying measured values is included in the scope of delivery free of charge. A CD with a description of the M-Bus communication protocol is provided as well.

ETHERNET

The LAN gateway module makes it possible to access an energy meter via a web browser from any PC with Internet/LAN access. The integrated web interface is laid out for Internet Explorer 7, Internet Explorer 8, Mozilla Firefox 3.xx, Apple Safari, Google Chrome, Opera and Netscape Navigator.

Password protected access to the module is possible at two levels. Whereas the administrator is able to adjust all settings, users (up to 20) can only retrieve measured values and status information.

The LAN gateway has an integrated data logger with adjustable sampling rate and selectable measured quantities. Memory content, as well as momentary measured quantities, can be downloaded as a CSV file.

Alternatively, communication can be managed by means of a Modbus TCP protocol. A CD with a description of the Modbus register is included.

FLEXIBLE COMMUNICATION

The energy meter is furnished with pulse inputs for energy quanta as standard equipment. However, retrofitable, external communications modules provide additional convenience for the incorporation of industrial and building management applications. Quick and easy connection to the meter is assured by an infrared interface at the side. Each module has a reset button for restoring default settings. This is especially helpful in the event that the selected addresses have been forgotten. Two status LEDs provide information regarding supply power and communications.



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