

Reliable energy measuring



Energy meter



Three-phase energy meter M3 Count

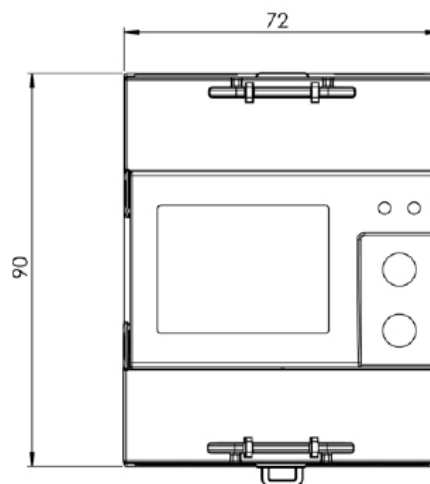
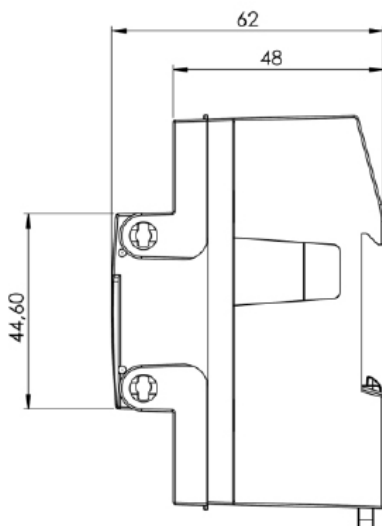


The M3 Count is a fully electronic energy meter for permanent installation in three-phase four-wire networks or single-phase two-wire networks and is designed to measure active electrical energy and record it in up to two energy tariffs. It is an indoor meter for installation as a built-in device for top-hat rail mounting, in a compact design with only 4 division units.

The M3 Count 85 energy meter is available for direct measurement connection up to 85 A limit current in low-voltage networks. The M3 Count 5//1 energy meter is designed for connection to current transformers with 5 A or 1 A secondary current in low-voltage networks.

- Illuminated display
- Menu navigation via two control buttons
- Display of active, apparent and reactive power, power factor, voltage, mains frequency, current (total and per phase)
- Alarm functionality with configurable threshold values
- Tariff switching 2 tariffs
- Alternating current approval on L1
- Voltage-free reading
- Resettable counter register
- Phase failure detection / rotating field detection
- Non-return valve
- Optional: Two-way metering for supply and consumption
- Conformity assessment according to MID
- The display capacity dynamically adjusts to consumption. Initially, 5 pre-decimal places and 3 decimal places (5.3) are displayed. As consumption increases, the decimal place shifts until 8.0 is displayed.
- 4 division units
- Converter ratio adjustable (1-6000)
- S0 Pulse output for active and reactive energy
- Optional: M-Bus
- Optional: ModBus RTU (RS 485)
- Future-proof thanks to expansion interface (additional functions via modules)

Attention! The conversion ratio can only be set after installation on calibrated/MID conformity-assessed meters. The meter must then be locked by the measuring device user.



S0 pulse output passive potential-free, according to DIN EN 62053-31 Class A and B
M3 Count 85 | M3 Count 5//1

Pulse length: 30 ms
Pulse value: 1000 pulses/kWh or pulses/kvarh (M3 Count 85)
10000 pulses/kWh or pulses/kvarh (M3 Count 5//1)
Load capacity: U max. 30 V
I max. 100 mA

M-Bus interface EN 13757-2, -3

Addressing: Primary address = 0
(can be changed via the display menu on the device)
Secondary address = Serial number
(identical to the meter manufacturer number)
Symbol rate: from 300 to 9,600 baud
(Standard 2.400 Baud)

Data transmission M-Bus:

- Energy value(s)
- Instantaneous value Power per phase and total
- Voltage per phase
- Current per phase
- Error status

ModBus RTU (RS 485)

The de facto standard MODBUS RTU applies to the RS485 (Modbus) interface.
Wiring is carried out using a twisted two-wire cable, with asynchronous bit-serial transmission (start-stop) in half-duplex mode.

Addressing: MODBUS Adress: 001
(can be changed via the display menu on the device)
Symbol rate: from 300 to 115200 Baud
(Standard 19.200 Baud)

Data transmission ModBus RTU:

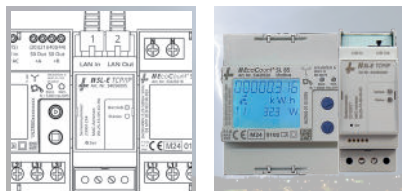
- Energy value(s)
- Instantaneous value Power per phase and total
- Voltage per phase
- Current per phase
- Error status

Technical specifications	M3 Count 85	M3 Count 5//1
Measurement principle	direct measurement	Converter
Measuring system	2-wire or 4-wire	4-wire
Measured voltage (U _r)	230 V (2-wire) 3 x 230/400 V (4-wire)	3 x 230/400 V
Measuring current (I)	5(85) A	1...5(6) A
Measurement type	Three-phase four-wire alternating current network or single-phase two-wire alternating current network	
Accuracy class (active energy)	B	
Form factor	4 TE DIN rail	
Own consumption (per phase)	≤ 0,6 VA	
Temperature range (operation)	3K6 (-25°C bis +55°C) interior	
Pulse values of the LED (pulse/kWh)	5.000	40.000
Mechanical environmental conditions	M2	
Electromagnetic environmental conditions	E2	
Protection class (housing)	IP 20*, with terminal cover fitted	
Connection cross-sections for live and neutral conductors	2,5 ... 25 mm ² flexible	0,5 ... 6 mm ² flexible
Connection cross-sections Additional terminals	1,5 mm ²	
Dimensions (WxHxD, in mm)	72 x 90 x 62	
Weight	0,26 kg	
MID (active energy)	yes	yes
Notification	LC display, 8 digits (5.3 ... 8.0)	
Ordering information		
M3 Count S0, Delivery and purchase	999-3851	999-3511
M3 Count M-Bus, Delivery and purchase	999-3852	999-3512
M3 Count Modbus, Delivery and purchase	999-3853	999-3513
Accessories	Art.-no.	
Door installation frame up to 6 TE	59504	

* In order to achieve the protection against dust and water ingress required by the standard (IP 51, EN 50470-1, section 5.9), the devices may only be used in meter cabinets that comply with class IP 51.

Subject to changes, errors and misprints.
Product images may contain optional equipment and modules that are not shown separately. All product images are for illustrative purposes only.

M3 Count KM TCP/IP - Communication module



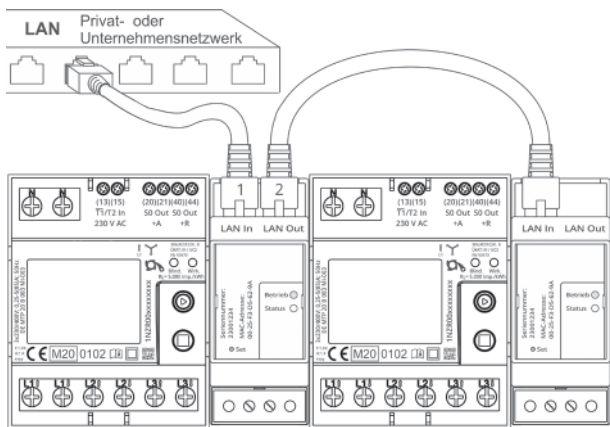
Description

The TCP/IP communication module is an extension of the M3 Count electricity meter that allows measurement data to be viewed on a web browser or transmitted to various control systems via Modbus TCP/IP.

- Available measured values for active energy consumption/supply, active power, reactive power, apparent power, voltage, current, power factor for L1, L2, L3 and ΣL, frequency, tariff, temperature and operating time
- With integrated web server (HTTP web browser)
- Configuration via web server
- Website with automatically updated measurements
- Modbus TCP
- M-Bus over Ethernet
- MQTT
- Default network setting via DHCP
- Storage values 18 month-end values
- Meter reading cycle 15 minutes over 31 days (3000 values) as ring memory
- Time synchronisation via NTP time server
- CSV export of saved data
- 2x data interface LAN RJ45, LAN In and LAN Out (switch function)
- Operating voltage: 230V

Technical specifications

Housing	90.5 x 36.3 x 62 mm (2 TE) DIN 43880
Supply	
Nominal voltage Un	230 VAC
Rated power loss	2 W
Rated frequency	50 Hz
Frequency range	47-63 Hz
Operating modes	
Addressing	IP address (factory setting DHCP) IPv4
Expansion module	
Interface 2x LAN, Out 2 Switch	
Hardware interface	Ethernet RJ45 plug connection
SW protocols	TCP/IP
Protocols	HTTP, ModBus/TCP, M-Bus, MQTT, DHCP, DNS
Interface to the M3 Count	
Hardware interface	IR (infrared) interface
Safety in accordance with DIN EN62368	
Overvoltage category	III
Clamps	
Lift clamps	Slotted, 3.5 mm screw head
Tightening torque	0.5 Nm
Environmental conditions	
Temperature	0...+55 °C
Storage temperature	-25... +70 °C
Relative humidity	0 ... 95% (non-condensing)
Protection class	II
Protection class Housing, connections	IP 20
Weight	
Weight	0.2 kg
Equipment features	
Configuration	Configuration via web server
Ordering information	
M3 Count KM TCP/IP	Art.-no . 999-0403



M3 Count KM KNX - Communication module



Communication objects for measured values from:

- Meter number
- Status
- Meter reading query
- Active energy in kWh and Wh
- 5 min and 60 min differences
- Relative forward and relative reverse meter
- Active energy in up to 2 tariffs in kWh and Wh
- Output of active power (including limit value monitoring), reactive power and current per phase L1, L2, L3 (only transmitted by energy meter type M3 Count 85)
- Output of voltage per phase L1, L2, L3
- Output of power factor (cos phi) per phase L1, L2, L3

Description

All current M3 Count energy meters can be easily integrated into KNX networks using the KNX expansion module. The KM KNX lays the foundation for energy monitoring and enables the effective use of the data obtained: to save energy, to bill in accordance with MID, or simply to visualise consumption in detail. Communication between the M3 Count and KNX takes place via an infrared interface, which is fitted as standard in M3 Count meters. Depending on the system and requirements, commissioning can be carried out either with KNX quick, with the ETS or via KNX secure.

- Suitable for all M3 Count energy meters
- KNX SECURE-compatible
- With integrated KNX bus coupler
- ETS programmable with coding switch setting 0
- Supports KNX quick (commissioning also possible without ETS)



Technical specifications	
Housing	W 18 x H 60 x D 90 mm (1TE DIN 43880)
Mounting	35 mm DIN distribution rail
Height	53 mm above top-hat rail
Power supply	
Operating voltage via bus	KNX BUS
Operating modes	
Version:	Data transmission for electrical measured values
Data transmission	KNX standard
KNX interface	
HW interface	Black/red terminal for connection to stranded wire type 1 (TP-1)
Max. group addresses:	108
Max. SECURE group keys:	64
Interface to M3 Count	
HW interface	IR infrared interface 2 (Tx, Rx)
SW protocol	proprietary
Safety according to DIN EN62368	
Degree of contamination	2
Operating voltage	30 VDC (max) via KNX bus line
Environmental conditions	
Temperature	-5...+45 °C
Relative humidity	0 ... 95% (non-condensing)
Protection class	II
Protection type	IP 20 (built-in device front)
Weight	
Weight	0,2 kg
Ordering information	
M3 Count KM KNX	Art.-no. 999-0402

M3 Count KM OMS, Wireless M-Bus - Communication module



Key features of the wireless M-Bus communication module:

- **IR interface:** The infrared interface on the side of the module automatically detects the connected M3 Count type and transmits the meter readings.
- **Plug & Play:** The module automatically detects the type of M3 Count meter, enabling quick and easy commissioning.
- **Wireless communication:** Transmits the meter readings in C1 mode (default) every 60 seconds via Wireless M-Bus. The transmission takes place in a normal telegram and is encrypted as MODE 7 to ensure maximum data security.
- **Internal and external antenna options:** With its internal antenna, the OMS module can be quickly and easily placed next to the M3 Count meter and put into operation. For special installation requirements, an external antenna can also be connected and configured.
- **Battery-powered:** The module can be installed more flexibly next to the meter without 230 V mains power.
- **USB interface:** Enables additional settings and adjustments to be made to the Wireless M-Bus module to configure it to specific requirements.
- **Telegram types:** short, normal or long telegram with 18 monthly values

Änderungen, Irrtümer und Druckfehler vorbehalten.
Produktabbildungen können optionale Ausstattungen und Module enthalten, die nicht separat ausgewiesen werden. Alle Produktabbildungen dienen ausschließlich der Veranschaulichung des Produktes.

Description

The OMS communication module serves as an expansion module for the M3 Count series three-phase energy meters. The module establishes communication for the wireless transmission of meter readings via wireless M-Bus (868 MHz) between the electricity meter and a data collection point (gateway).

With its IR (infrared) interface on the left side, it enables a simple and contactless connection to the electricity meter for recording meter data. The meter readings are transmitted unidirectionally by radio according to the Wireless M-Bus standard in accordance with EN13757-4 at 868 MHz in operating modes T1, C1 or S1 and are OMS-compliant.

Data transmission can be either unencrypted MODE 0 or AES-encrypted according to MODE 5 or MODE 7. The interval for data transmission can be flexibly set between 40 seconds and 900 seconds.

Technical specifications

Housing	90.5 x 36.3 x 62 mm (2 TE) DIN 43880
Mounting	35 mm DIN distribution rail EN 60715

Supply

Power supply	Lithium 3.0V, permanently soldered, non-replaceable and rechargeable
Designed operating life	10 years
Data backup	Flash memory; daily

Technical specifications RF function (according to DIN EN 300.220 V3.1.1)

Method	S1-m, T1 or C1 (unidirectional)
Max RF output power	11 dBm
Range	Up to 775 m in open field, depending on antenna selection and environmental conditions.
Frequencies	868.350 MHz (S1-m method) 868.950 MHz (T1 method) 868.950 MHz (C1 method)

Interfaces

Wireless M-Bus	DIN EN 13757-3/4 / OMS compliant
Encryption	AES 128; MODE 0 (no encryption), MODE 5 / MODE 7
USB	USB Typ C

Interface to M3 Count

HW interface	IR infrared interface 2 (Tx, Rx)
SW protocol	proprietary

Antenna types

Internal standard antenna	integrated standard antenna
External antenna connection	Blue FAKRA C RA (w) connector

Environmental conditions

Temperature	0...+55 °C
Storage temperature	-25...+70 °C
Relative humidity	0 ... 95% (non-condensing)
Protection class	II
Protection type	IP 20
Weight	0.2 kg

Ordering information

Art.-no.	
M3 Count KM Wireless M-Bus	999-0404
Accessories External adhesive antenna 1.5 m cable	4673

Reliable energy measuring



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