



Type	Description	Code	Weight [kg]	Packaging [pcs]
3MEM65-BPO	3 phase, 65A, Pulse output, Bidirectional	004657201	0,248	1/96
3MEM65-BT	3 phase, 65A, Tariff input, Bidirectional	004657202	0,248	1/96
3MEM65-BRS	3 phase, 65A, RS485, Bidirectional	004657203	0,248	1/96
3MEM65-BMB	3 phase, 65A, M-bus, Bidirectional	004657204	0,248	1/96

- **THREE-PHASE** DIRECT CONNECTED **DIN-RAIL** MOUNTING METER.
- **CLASS 1 FOR ACTIVE ENERGY** AND **CLASS 2 FOR REACTIVE ENERGY**.
- MAXIMUM CURRENT **65 A** (I_{max}).
- OPTIONAL MODULES: RS485, M-BUS COMM., TARIFF INPUT, PULSE OUTPUT.

FEATURES

- Three phase direct connected DIN-rail mounting meter.
- Class 1 for active energy according to EN 62053-21 and MID approval (option) 3MEM65 for class B according to EN 50470-3.
- Class 2 for reactive energy according to EN 62053-23.
- Bidirectional energy measurement (import/export).
- Maximum current 65 A (I_{max}).
- Basic current 5 A (I_b).
- Reference voltage 3x230 V/400 V (U_n).
- Voltage operating range (-20 % ... +15 %) U_n .
- Reference frequencies 50 Hz and 60 Hz.
- Power consumption voltage circuit < 8 VA at U_n per phase.
- Power consumption current circuit < 0.8 VA at I_b per phase.
- Temperature range climatic condition as indoor meter according EN 50470.
- Display 7+1 digit (100 Wh resolution).
- Multifunctional front red LED.
- LED constant 1000 imp/kWh.
- Measurements of:
 - power (active/reactive/apparent)
 - energy (active/reactive/apparent, each phase and total),
 - voltage for each phase,
 - current for each phase,
 - phase to phase voltage
 - phase to phase angle,
 - frequency,
 - power factor (for each phase and total),
 - power angle (for each phase and total),
 - active tariff (option),
 - THD of voltage,
 - THD of current.
- Pulse output according to EN 62053-31 (option).
- Tariff input (option).
- RS485 Serial communication (option).
- M-bus Serial communication (option).
- DIN-rail mounting according to EN 60715.
- Sealable terminal cover.
- 3 DIN modules width.

DESCRIPTION

3MEM65 meters are intended for energy measurements in three-phase electrical power network and can be used in residential, industrial and utility applications. Meter measures energy directly in 4-wire networks according to the principle of fast sampling of voltage and current signals. A built-in microprocessor measures power (active/reactive/apparent), energy (active/reactive/apparent), current, voltage, frequency, power factor, power angle and frequency for each phase and total sum, THD of voltage and THD of current.

Microprocessor also controls LCD, LED, IR communication and optional extensions.

Connecting terminals can be sealed up against non-authorized access with protection covers. They are built to be fastened according to EN 60715 standard.

Optional the meter can be equipped with the following communications:

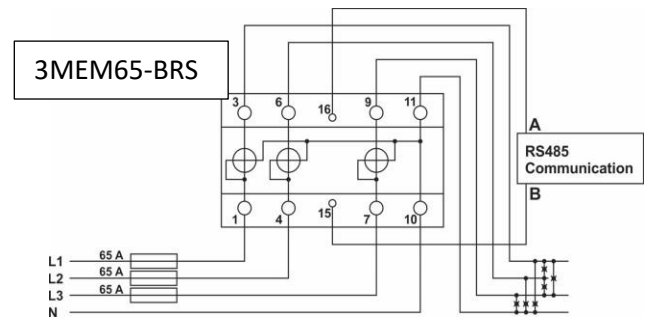
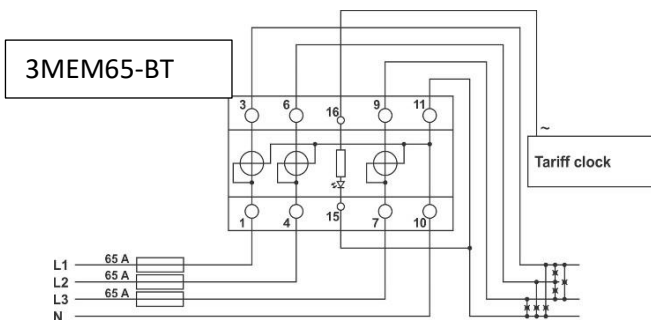
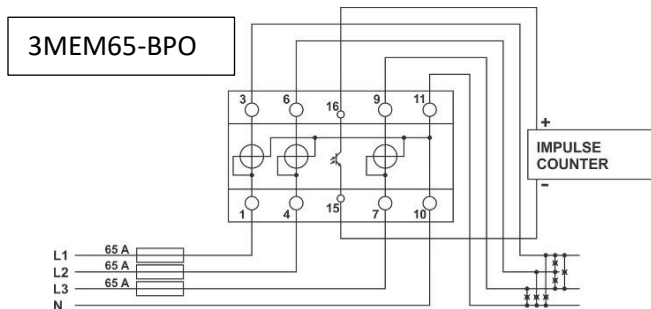
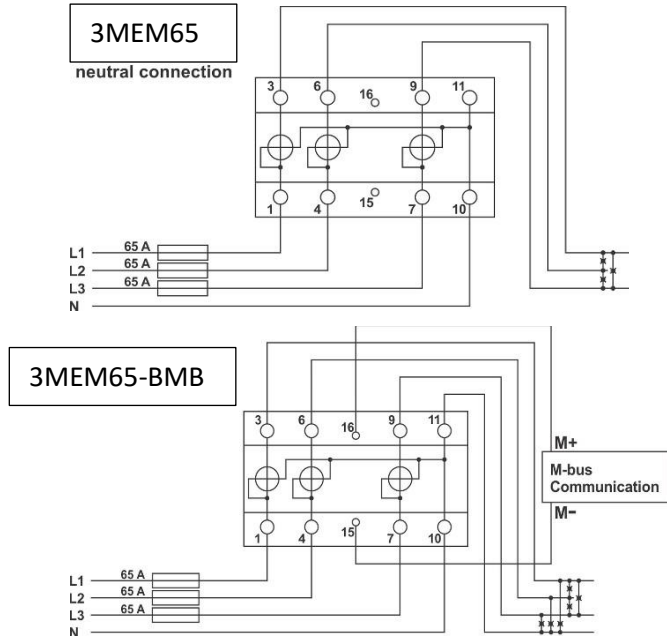
- RS485 serial communication with the MODBUS protocol.
- M-bus serial communication, which enables data transmission and thus connection of the measuring places into the network for the control and management with energy.
- Tariff input. Tariff input provides measurement of two tariffs for selected energy registers.
- A built-in pulse output (option). It is designed for sending data to the devices for checking and monitoring consumed energy.

On the housing there are only two terminals, thus only one functional extension is possible (serial communication, tariff input, pulse output).

INSTALLATION

See figures below.

NOTE: Neutral wire must be connected to the meter.



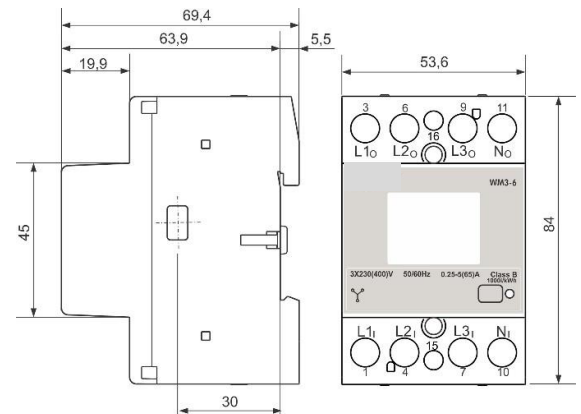
Connection of modules:

Meter can be equipped with different modules. Table below is showing equipped combinations.

Auxiliary terminal	15	16
M-Bus	M-	M+
Pulse output	SO-	SO+
Tariff input	AC2	AC1
RS485*	B	A

*It is recommended to use ferrite bead on communication line RS485 (two turns) to reduce radiated emission.

DIMENSIONAL DRAWINGS



TECHNICAL DATA

Rail mounting according DIN EN60715.

Mechanical characteristics of input:

Main inputs

- Contacts capacity:
Rigid (flexible) 1.5 mm² ... 25 (16) mm²
- Connection screws: M5
- Max torque: 3.5 Nm (PZ2)
- Length or removed isolation: 10 mm

Optional modules

- Contact capacity: 1 mm²... 2.5 mm²
- Screws: M3
- Max torque: 1.2 Nm
- Length or removed isolation: 8 mm

Measuring input:

Type:	three phase (4u)
Reference current (I_{ref}):	5 A
Maximum current (I_{max}):	65 A
Minimum current (I_{min}):	0.25 A
Transitional current (I_{tr}):	0.5 A
Starting current:	20 mA
Power consumption at I_{ref} :	< 0.1 VA
Nominal voltage (U_n):	3x230 V/400 V (-20 %...+15 %)
Power consumption per phase at U_n :	< 8 VA Nominal
frequency (f_n):	50 Hz and 60 Hz
Minimum measuring time:	10 s

Accuracy:

Active energy:

- class 1 EN 62053-21
- class B EN 50470-3
- ± 1.5 % from I_{min} to I_{tr}
- ± 1 % from I_{tr} to I_{max}

Reactive, Apparent energy:

- class 2 EN 62053-23
- ± 2.5 % from I_{min} to I_{tr}
- ± 2 % from I_{tr} to I_{max}

Voltage:

- ± 1 % of measured value

Current:

- ± 1 % of I_{ref} from I_{st} to I_{ref}
- ± 1 % of measured value from I_{ref} to I_{max}

Active Power:

- ± 1 % of nominal power ($U_n * I_{ref}$) from I_{st} to I_{ref}
- ± 1 % of measured value from I_{ref} to I_{max}

Reactive, Apparent power:

- ± 2 % of nominal power from I_{st} to I_{ref}
- ± 2 % of measured value from I_{ref} to I_{max}

Frequency:

- ± 0.5 % of measured value

LCD:

Number of digits:	8 (7+1)
Height of digits:	4.52 mm

LED:

Colour:	red
Pulse rate:	1000 imp/kWh
LED on:	no load indication

Pulse output (option):

Pulse rate:	1000 imp/kWh
Pulse duration:	32 ms \pm 2 ms
Rated voltage DC:	27 V max
Switched current:	27 mA max
Standard:	EN 62053-31 (A&B)

M-BUS Serial communication (option):

Type:	M-bus
Speed:	300 bit/s to 9600 bit/s (default 2400 bits/s)
Protocol:	M-bus
Address:	0 – (default)

RS485 Serial communication (option):

Type:	RS485
Speed:	1200 bit/s to 38400 bit/s (default 38400 bit/s)
Frame:	8, N, 2
Protocol:	MODBUS RTU
Address:	33 – (default)

Tariff input (option):

Rated voltage:	230 V (-20 % +15 %)
Input resistance:	450 k Ω

Ambient conditions and Safety:

According standards for indoor active energy meters.
Temperature and climatic condition according to EN 62052-11:

• Dust/water protection	IP50 (For IP51 it should be installed in appropriate cabinet.)
• Operating temp. range:	-25°C... +55°C
• Storage temp. range	-40 °C... +70°C
• Enclosure material:	self-extinguish complying UL94 V
• Indoor meter:	yes
• Degree of pollution:	2
• Protection class:	II
• Installation category	300 V _{rms} cat.III
• Standard:	IEC 62052-31
Mechanical environment:	M1
Electromagnetic environment:	E2
Humidity:	non condensing
Weight (with packaging):	216 g (230 g)
Installation:	DIN Rail 35 mm
Dimensions (W x H x D):	53.6 mm x 84 mm x 64 mm (69 mm)
Package dimensions (W x H x D):	57 mm x 93 mm x 85 mm
Colour:	RAL 7035

EU DIRECTIVES CONFORMITY

EU Directive on Measuring Instruments **2014/32/EU**.

EU Directive on EMC **2014/30/EU**.

EU Directive on Low Voltage **2014/35/EU**.

EC Directive WEEE **2002/96/EC**.

DISPOSAL



It is forbidden to deposit electrical and electronic equipment as municipal waste. The manufacturer or provider shall take waste equipment free of charge.

DICTIONARY:

<i>RMS</i>	<i>Root Mean Square</i>
<i>PO</i>	<i>Pulse output</i>
<i>TI</i>	<i>Tariff input</i>
<i>PA</i>	<i>Power angle (between current and voltage)</i>
<i>PF</i>	<i>Power factor</i>
<i>THD</i>	<i>Total harmonic distortion</i>
<i>MODBUS</i>	<i>Industrial protocol for data transmission</i>
<i>AC</i>	<i>Alternating quantity</i>
<i>IR</i>	<i>Infrared (optical) communication</i>