



## THREE-PHASE ENERGY METERS WM3-6 & WM3M6

- **THREE-PHASE** DIRECT CONNECTED **DIN-RAIL** MOUNTING METER.
- **CLASS 1** FOR ACTIVE ENERGY AND **CLASS 2** FOR REACTIVE ENERGY.
- MAXIMUM CURRENT **65 A** ( $I_{max}$ ).
- **IR STANDARD COMMUNICATION**,
- 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) WM3M6 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.
- IR serial communication.
- 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

The meters WM3-6 and WM3M6 (MID certified) 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.

Meter has built-in optical (IR) communication port on the side as a standard. Special WM-USB adapter (size 1 DIN module) can easily be attached to it. It can be used for direct communication with a PC to change settings of devices without any communication installed.

Optional the meter can be equipped with the following communications:

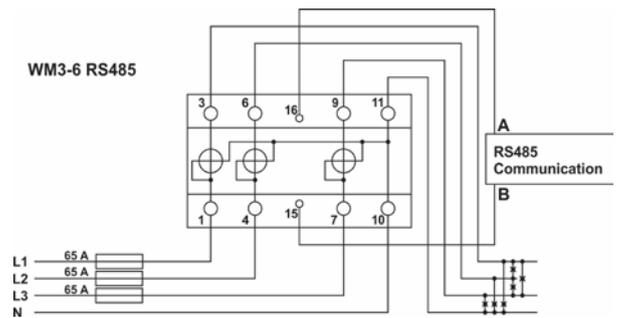
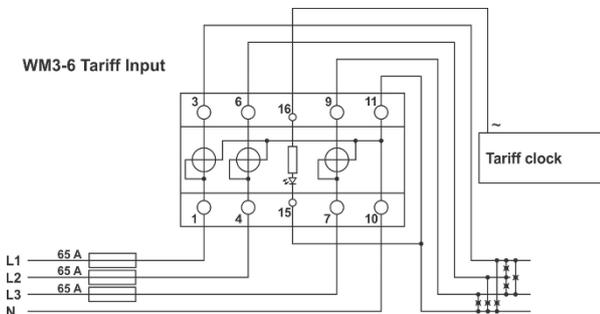
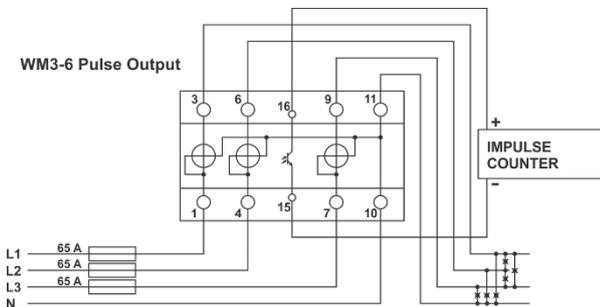
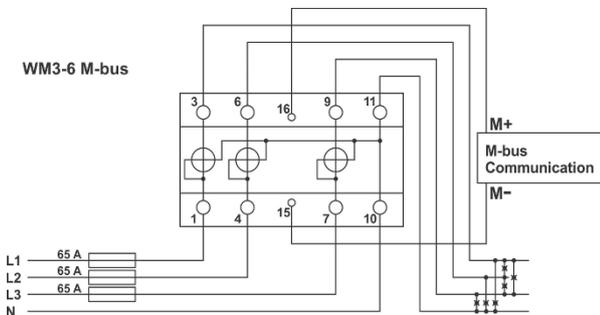
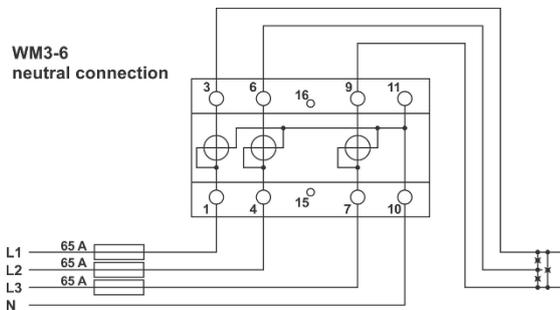
- RS485 serial communication with the MODBUS protocol.
- M-bus serial communication, which enables data transmission and thus connection of the measuring places into the network for the control and management with energy.
- Tariff input. Tariff input provides measurement of two tariffs for selected energy 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.**



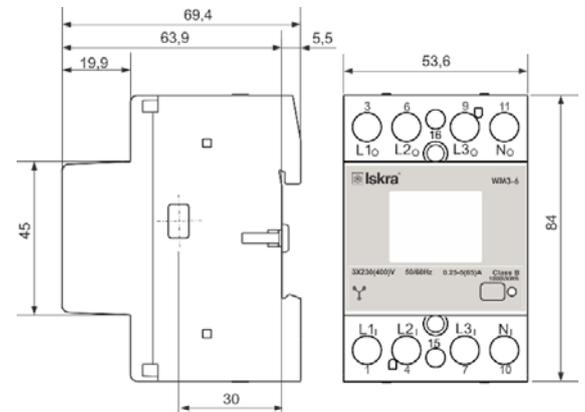
### Connection of modules:

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 mm<sup>2</sup> ... 25 (16) mm<sup>2</sup>
- Connection screws: M5
- Recommended / Max torque: 3/3.5 Nm (PZ2)
- Length or removed isolation: 10 mm

#### Optional modules

- Contact capacity: 1 mm<sup>2</sup>... 2.5 mm<sup>2</sup>
- Screws: M3
- Recommended/Max torque: 0.7/0.8Nm (PZ1)
- 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
- $\pm 1.5$  % from  $I_{min}$  to  $I_{tr}$
- $\pm 1$  % from  $I_{tr}$  to  $I_{max}$

**Reactive, Apparent energy:**

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

**Voltage:**

- $\pm 1$  % of measured value

**Current:**

- $\pm 1$  % of  $I_{ref}$  from  $I_{st}$  to  $I_{ref}$
- $\pm 1$  % of measured value from  $I_{ref}$  to  $I_{max}$

**Active Power:**

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

**Reactive, Apparent power:**

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

**Frequency:**

- $\pm 0.5$  % 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 19200 bit/s (default 19200 bit/s)
Frame:	8, N, 2
Protocol:	MODBUS RTU
Address:	33 – (default)

**Optical communication:**

Type:	IR
Connection:	via WM-USB adapter
Speed:	19200 bit/s
Frame:	8, N, 2
Protocol:	MODBUS RTU
Address:	33
Remark:	All settings are fixed

**Tariff input (option):**

Rated voltage:	230 V (-20 %...+15 %)
Input resistance:	450 k $\Omega$

**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

### WM3M6 MID certified meters

MID approval applies to non-resettable active energy counters.

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



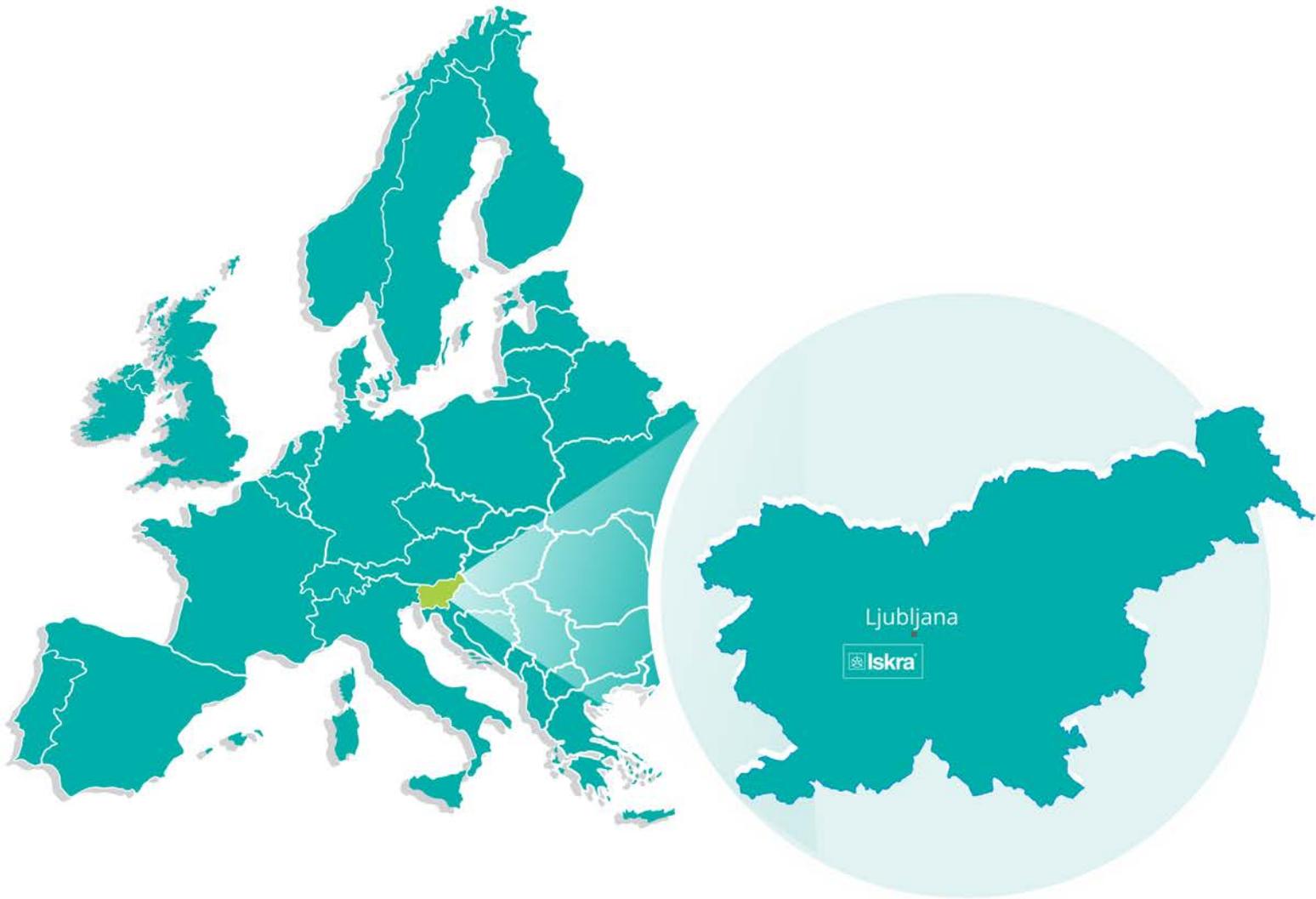
It is forbidden to deposit electrical and electronic equipment as municipal waste.  
The manufacturer or provider shall take waste equipment free of charge.

## ORDERING CODE

022433920001	WM3-6 230PB	WM3-6 230 energy meter 65A, IR, PO, bidirectional, 3M
022433920002	WM3-6 230TB	WM3-6 230 energy meter 65A, IR, TI, bidirectional, 3M
022433920003	WM3-6 230DB	WM3-6 230 energy meter 65A, IR, RS485, bidirectional, 3M
022433920004	WM3-6 230LB	WM3-6 230 energy meter 65A, IR, M-bus, bidirectional, 3M
022433920101	WM3M6 230PB	WM3M6 MID 230 energy meter 65A, IR, PO, bidirectional, 3M
022433920102	WM3M6 230TB	WM3M6 MID 230 energy meter 65A, IR, TI, bidirectional, 3M
022433920103	WM3M6 230DB	WM3M6 MID 230 energy meter 65A, IR, RS485, bidirectional, 3M
022433920104	WM3M6 230LB	WM3M6 MID 230 energy meter 65A, IR, M-bus, bidirectional, 3M

## 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>MiQen</i>	<i>ISKRA setting and acquisition Software</i>
<i>AC</i>	<i>Alternating quantity</i>
<i>IR</i>	<i>Infrared (optical) communication</i>



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