

THREE-PHASE ELECTRICAL ENERGY METER WM3E6

- **THE DIRECTIONAL LIMITER**, AS DEFINED IN THE SUPPLEMENT TO THE SELF-REGULATION POLICY.
- **THREE-PHASE DIRECT CONNECTED DIN-RAIL MOUNTING METER.**
- ENERGY METER, **CLASS 1 FOR ACTIVE ENERGY AND CLASS 2 FOR REACTIVE ENERGY.**
- MAXIMUM CURRENT **80 A (I_{MAX}).**
- **BUILT-IN OPTICAL (IR) COMMUNICATION PORT.**

FEATURES

- Function of directional protection for detecting the overrun of the maximum allowable generated power from renewable sources in the public distribution network.
- Three-phase direct connected DIN-rail mounting meter up to maximum current (I_{max}) 80 A.
- Basic current (I_b) 5 A.
- WM3E6:
 - **Class 1** for active energy according to EN 62053-21 and B according to EN 50470-3 .
 - **Class 2** for reactive energy according to EN 62053-23.
- Four-quadrant energy measurement (production/consumption/active/reactive).
- Reference voltage 3x230 V/400 V (U_n).
- Voltage operating range (-20 % ... +15 %) U_n .
- Reference frequency 50 Hz and 60 Hz.
- Voltage consumption per phase at $U_n < 8VA$.
- Current consumption per phase at $I_b < 8VA$.
- Temperature range according to EN 50470.
- Display LCD 7+1 digit (100 Wh resolution).
- Multifunctional front LED.
- LED constant 1000 imp/kWh.
- Measurement of:
 - Power (active, reactive, apparent) and energy (each phase and total).
 - Voltage (each phase).
 - Current (each phase).
 - Phase to phase voltage.
 - Phase to phase angle.
 - Frequency.
 - Power factor (each phase and total).
 - Power angle (each phase and total).
 - Active tariff (option).
 - THD of voltage.
 - THD of current.
- 3-DIN rail width mounting according to EN 60715.
- Sealable terminal cover.

DESCRIPTION

The WM3E6 energy meter, in combination with a latching switch, represents the directional limiter of the exported active power. The device has a preset function of directional protection for detecting the overrun of the maximum allowable generated power from renewable sources in the public distribution network, as defined in the supplement to the self-regulation policy. The WM3E6 energy meter connected to the latching switch protects the public network against the surplus of generated power. When it detects an exceeded value (depending on the connecting conditions) for more than one minute¹ in the direction of the public network, it disconnects the connection point from the public network.

Connection to the public network can be re-enabled with the on/off button. It gets activated after a delay of the 5 seconds after the disconnection of the network. Press the on/off button for 3 seconds to reconnect the public network.

The three-phase energy meter WM3E6 is also 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 calculates active/reactive/apparent power and energy, current, voltage, frequency, power factor, power angle and frequency (for each phase and total sum) from the measured signals. This smart meter can also perform basic harmonic analysis (THDU, THDI). This enables quick overview of harmonic distortion either coming from a network or generated by the load.

Microprocessor also controls LCD, LED and IR communication.

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

¹The exported active power is calculated as a moving average in the interval of one minute, thus preventing the switch off in the case of a

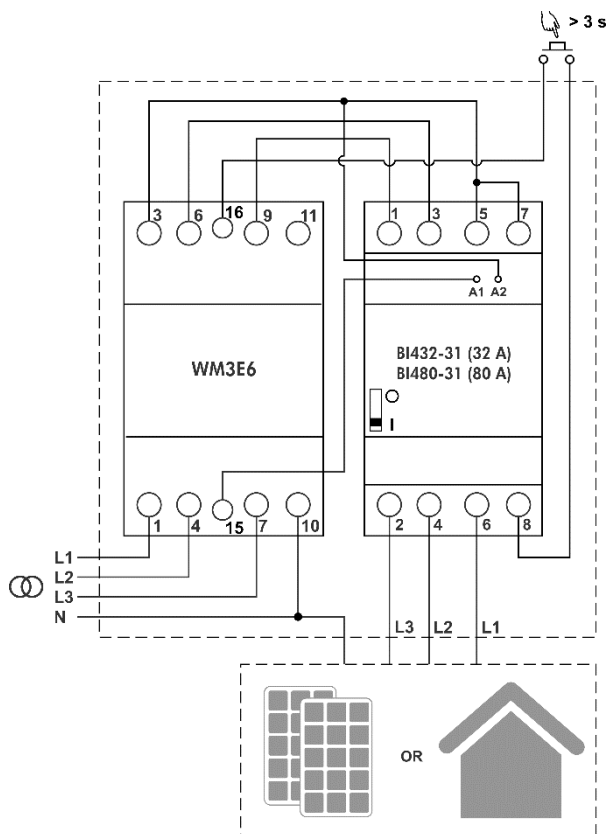
short-term tip. In the event of a longer and greater exceedance of the limit value, the reaction time of the latching switch is less than one minute.

INSTALLATION

See figure below.

PLEASE NOTE: Installation and use of a device also includes handling with dangerous currents and voltages therefore should be installed, operated, serviced and maintained by qualified personnel only. Make sure, that no voltage is present in the installation. It is recommended to use the protection fuse (according to the connection power of the measuring point or max. 80 A).

Connection diagram:



Auxiliary terminals

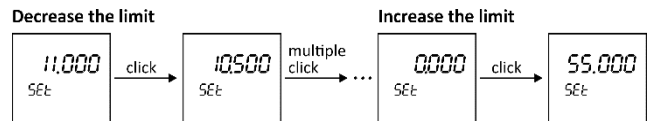
Digital input (16) is connected to button through normally open contact of the latching relay BI432-31\BI480-31.

Pulse output (15) is connected to the latching relay BI432-31\BI480-31, terminal (A1).

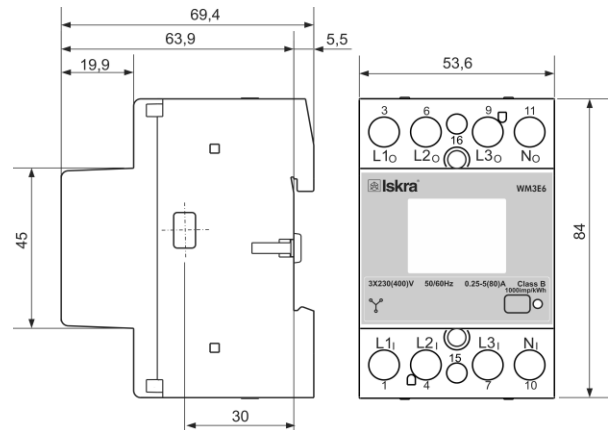
PLEASE NOTE: It is recommended to use the latching relays (BI432-31 for 32 A or BI480-31 for 80 A) of ISKRA d.o.o..

After connecting the WM3E6, set the maximum limit of active power to the desired value. It depends on the connection conditions. The default limit value is 11 kW. It can be decreased with the user button. One click lowers the limit in the step of 500 W above 10

kW and by a step of 100 W below 10 kW. Upon reaching 0 W, skip to a maximum allowable limit of 55 kW.



DIMENSIONAL DRAWING



TECHNICAL DATA

Rail mounting according DIN EN 60715.

Mechanical characteristics of input:

Main inputs:

- Contacts capacity: 1.5 mm²...25 (16) mm²
- Connection screws: M5
- Max torque: 3.5 Nm (Pz2)
- Length of removed isolation: 10 mm

Optional modules:

- Contacts capacity: 1 mm²... 2.5 mm²
- Connection screws: M3
- Max torque: 1.2 Nm
- Length or removed isolation: 8 mm

Electrical characteristics of input:

- Type (connection): three-phase (4u)
- Reference current (I_{ref}): 5 A
- Maximum current (I_{max}): 80 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 in 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 energy:

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

Voltage:

- $\pm 1\%$ measured value

Current:

- $\pm 1\%$ I_{ref} (from I_{st} to I_{ref})
- $\pm 1\%$ 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:

Type: LCD
 Number of digits: 8 (7+1)
 Height of digits: 4.52 mm
 Backlight: NO

LED:

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

Digital input:

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

Pulse output:

Rated voltage: 230 V (-20 %...+15 %)
 Maximum load current: 50 mA

Optical communication:

Type: IR
 Speed: 19200 bit/s
 Frame: 8, N, 2
 Protocol: MODBUS RTU
 Address: 33

PLEASE NOTE: All settings are fixed. The IR communication is intended for setting the meter using the WM-USB communication adapter and for connection to the iHUB-L1 wireless communication interface.

More information about the application related to the wireless WiFi iHUB-L1 communication interface is available on our website:

<https://www.iskra.eu/en/Communication-Converters/communication-gateway-iHUB-L1/>

Safety and ambient conditions:

According to 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 temperature: -25 °C...+55 °C
- Storage temperature: -40 °C...+70 °C
- Enclosure: self extinguish, complying UL94-V
- Indoor meter: DA
- Degree of pollution: 2
- Protection class: II
- Installation category: 300 V_{rms} cat.III
- Standard: IEC 62052-31

Mechanical characteristics:

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 EMC **2014/30/EU**
 EU Directive on Low Voltage **2014/35/EU**
 EU Directive WEEE **2002/96/EC**

DISPOSAL



It is forbidden to deposit electrical and electronic equipment as municipal waste.

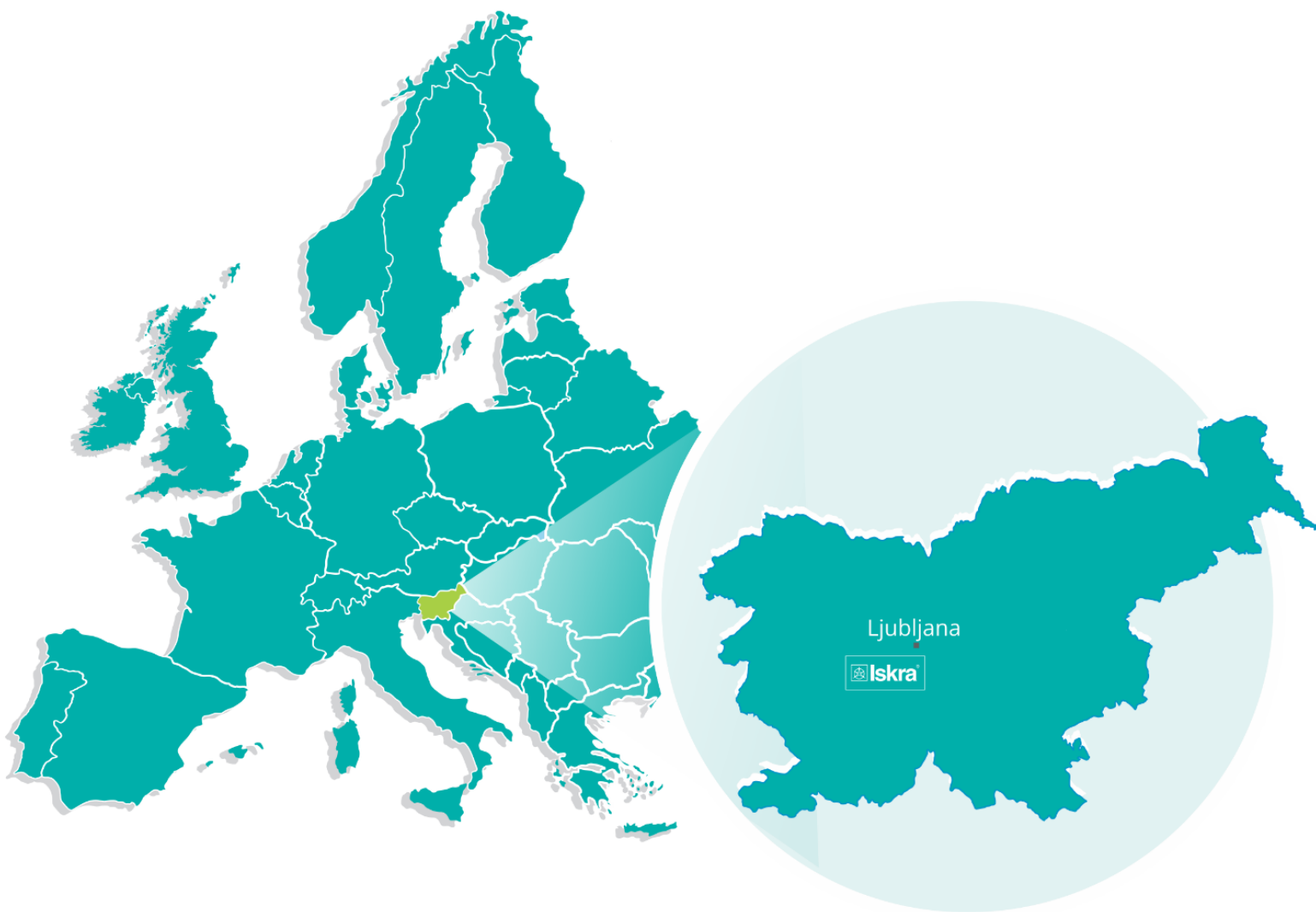
The manufacturer or provider shall take waste equipment free of charge.

ORDERING CODE

022433921000	WM3E6 230	WM3E6 230 energy meter 80 A, digital input and output, bidirectional, 3M
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DICTIONARY:

<i>RMS</i>	<i>Root Mean Square</i>
<i>PO</i>	<i>Pulse output</i>
<i>TI</i>	<i>Tariff input</i>
<i>THD</i>	<i>Total harmonic distortion</i>
<i>DI</i>	<i>Digital input</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>



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