

User's Manual

GB

Electric energy meter

WS0101, WS0102, WS1102

WS0301, WS0302, WS1302

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ELECTRIC ENERGY METER WSXX0X



SAFETY SECTION

It is assumed that everyone who will be associated with the equipment will be familiar with the contents of the Safety Section.

WARNINGS, REGULAR INFORMATION AND REMARKS REFERRING TO CE- MARKING

Installation as well as use of the EM will involve working with dangerous currents and voltages. Professionals must handle these areas. Iskra, d.d. does not take on responsibility for the use and installation.

The energy meters are CE-marked according to the LV-directive and EMC directive for housing and light industry, which normally covers the most common use of the energy meters.

Before energising the equipment, the following should be checked:

Voltage rating and polarity;

Current transformer (CT) rating and integrity of connections;

For WSx30x the recommended maximum rating of the external protective fuse is 6A;

Important: CT must be short-circuited, before the wires are moved from terminals on the EM.

CONTAINS OF DELIVERY

The delivery contains:

- Energy meter WSx10x or WSx30x
- Quick guide

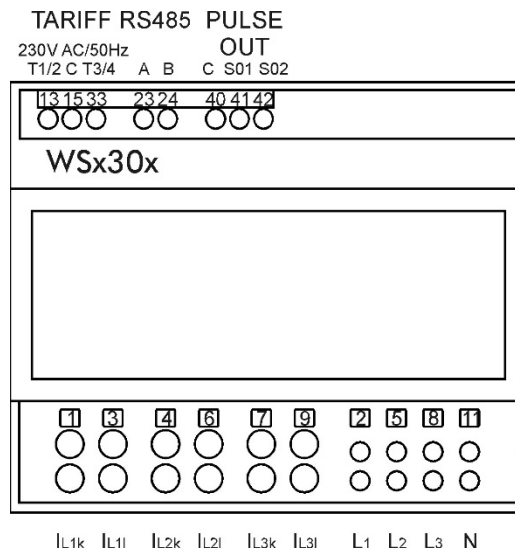
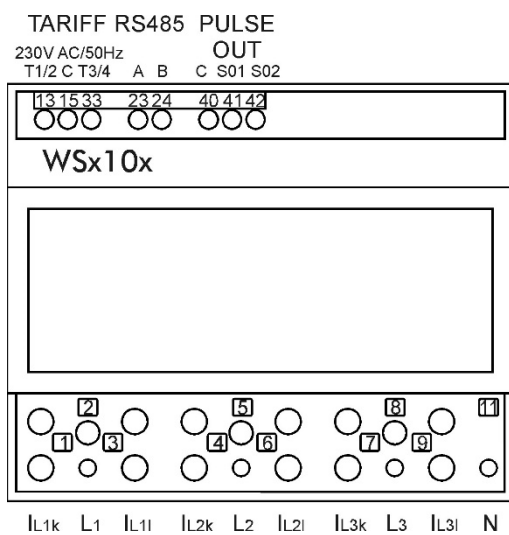
TYPES

These meters are divided, according to their features, into more groups, each with its own qualities.

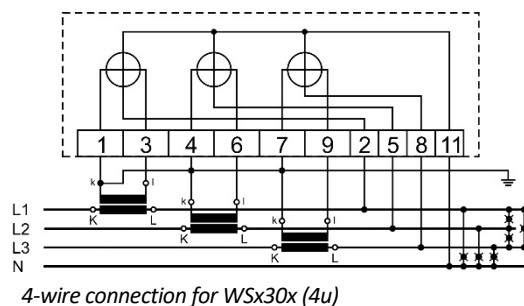
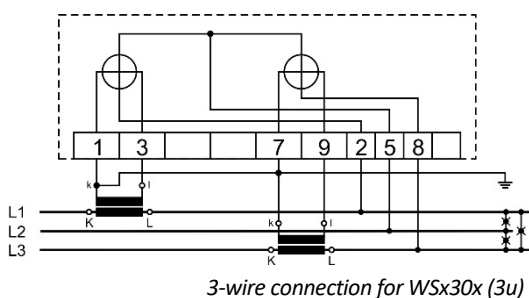
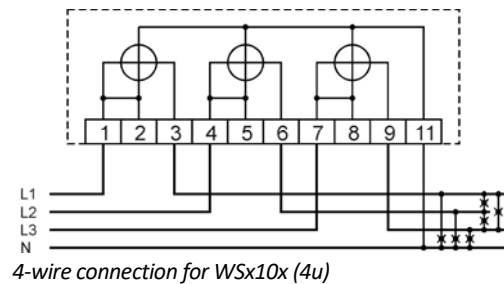
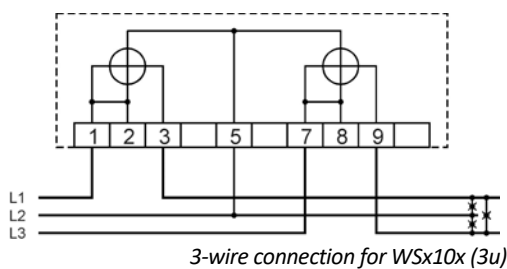
WSx30x is transformer (x/1A, x/5A) operated group of energy meters with optional RS485 communication and MODBUS protocol, tariff input and pulse output. Group WSx10x has the same features as WSx30x, but direct connection up to 65A. The energy meters can be divided also according to the way in which energy is shown. WS0x01 meters have 7-digit energy counter, WS0x02 meters have two 7-digit energy counters and finally WS1x02 meters have 2x9 - digit LCD display.

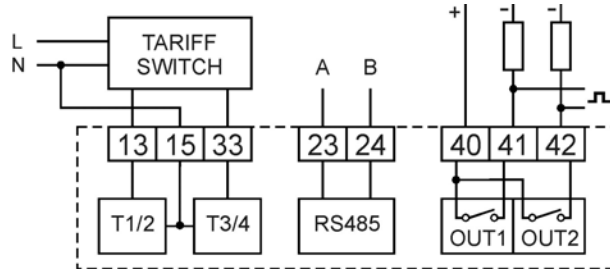
CONNECTION

Meter terminals are positioned on the bottom and the top side of the meter and are covered with the protection cover. Labels with connection diagram are located on the bottom of both covers. Current and voltage inputs are located on the bottom side as shown on the picture bellow. At direct connected meters WSx10x voltage inputs are equipped with protection bung, which allows you to physically break contact, before connecting or disconnecting voltage to the instrument and for test purposes. On the top side are connection terminals for communication, pulse output and tariff input. Regarding to the meter version either 3 or 4-wire connection can be used.



Drawing of the terminals





Connection of auxiliary circuits (the same for all versions)

Connection of the tariff inputs

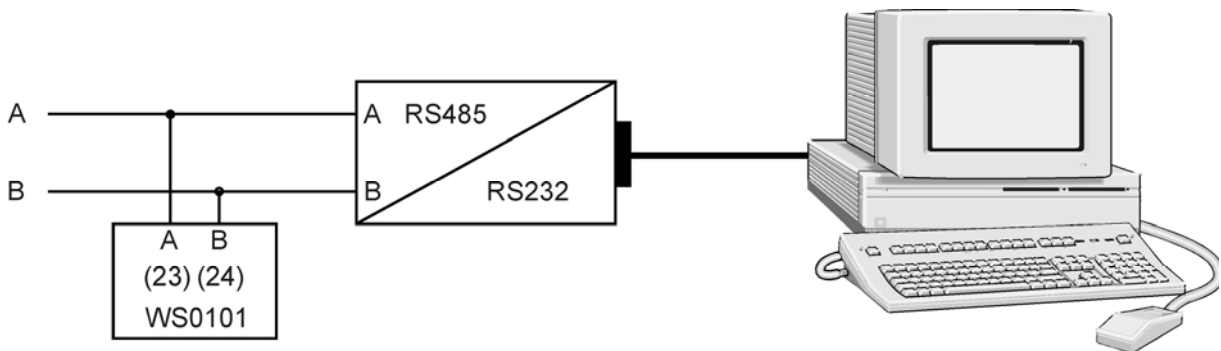
On the top side are connection terminals for tariff input (terminals 13, 15, 33). With two tariff inputs can be selected up to four tariffs. Tariff inputs are galvanic isolated from other circuits.

Connection of the pulse outputs

Pulse outputs are used for external control of the consumed energy and for testing. A number of pulses depend on consumed energy.

Connection of the communication

For RS 485 communication the PC will require either an internal RS 485 communication port or an external RS 232 / RS 485 interface. Conductors A and B should be terminated with a 120 Ω terminating resistor at the end of a string.



TECHNICAL DATA

ACCURACY CLASS:

Active energy	EN 50470-3 Class B
	EN 62053-21 Class 1
Reactive energy	EN 62053-23 Class 2

VOLTAGE INPUT:

Nominal voltage (U_n)	3x230/400 V or 3x400 V
Supply voltage range	0.8 ... 1.15 U_n
Consumption	< 3 VA

CURRENT INPUT (WSx10x):

Minimum current (I_{min})	0.25 A (0.5 A)
Transitional current (I_{tr})	0.5 A (1 A)
Reference current (I_{ref})	5 A (10 A)
Maximal current (I_{max})	65 A (63 A)
Starting current (I_{st})	0.02 A (0.04 A)
Consumption at I_{ref}	< 0.02 VA

CURRENT INPUT (WSx30x):

Nominal current (I_n)	5 A or 1 A
Minimum current (I_{min})	0.05 A (0.01 A)
Transitional current (I_{tr})	0.25 A or 0.05 A
Maximal current (I_{max})	6 A or 1.2 A
Starting current (I_{st})	10 mA or 2 mA
Consumption at I_n	< 0.02 VA

Frequency range:

Nominal frequency	50 Hz or 60 Hz
Frequency range	0.98 ... 1.02 f_n

Pulse output (optional):

Pulse duration	35 ms ± 5 ms
Interpulse period	> 30 ms
U_{ext}	max. 40 V
Switched current	max. 27 mA

Tariff INPUT (optional):

Nominal voltage U_n	230 V
Input voltage range	0.8 ... 1.15 U_n
Current at nominal voltage	< 0.5 mA

COMMUNICATION (optional):

Connection type:	Multi-drop (32 connections per link)
Signal levels:	RS485
Cable type:	Screened twisted pair
Maximum cable length:	1000 m
Connector:	Screw terminals
Message format:	MODBUS RTU
Data rate:	1200 to 19200 bits/s

Environmental conditions:

Climatic rating:	Indoor meter (without condensing) 3K6 according to EN 50470-1 (+55 °C to -25 °C)
Mechanical environments:	M1 according to EN 50470-1

Housing:

Material of housing:	PC unflammable, according to UL 94 V-0
Mounting:	For rail mounting 35 mm according to EN 60715
Enclosure protection:	IP 50 according to EN 60529
Weight:	WSx10x cca 560 g, WSx30x cca 420 g

Connection terminals:

Cross section of the connection leads:

Current terminals (WSx10x)	2.5 mm ² to 16 mm ²
Current terminals (WSx30x)	1 mm ² to 4 mm ²
Voltage terminals:	1 mm ² to 2.5 mm ²
Communication, pulse and tariff terminals:	max. 2.5 mm ² or 2 x 1.5 mm ²

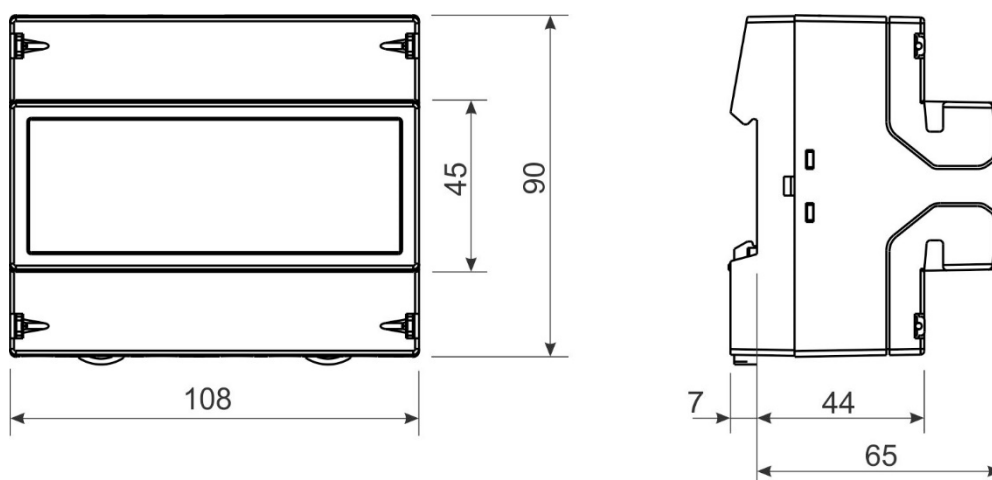
Protection

Protection for connection terminals:	IP20
Protection cover against non authorized access	

Regulations:

Protection:	Protective class II
	300 V rms , installation category III
	Pollution degree 2
Test voltage:	3.7 kV rms
	according to EN 61010-1
Electromagnetic compatibility:	EN 50470-1
Measuring instrument directive MID 2014/32/EU for active energy meters.	
	Compliance with 2002/96/EC directive

DIMENSIONAL DRAWING



All dimensions are in mm.

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