kwhiq
energy information technology



Installation Manual

IQ0102100d1

- Direct connected One Phase DIN rail Meter
- 100 Amp MODbus meter
- MID certified
- Designed for submetering of electrical loads like EV-chargers, PV-Inverters with high Amps

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Amendment

Version	Date	Remark
1.0	06/03/2023	Draft
1.1	09/03/2023	
1.1	07/01/2024	Parity: Default set to Even
1.1	07/16/2024	Passcode changed

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MID Certificate

EU Type Examination Certificate Number: **0120/ SGS0610**

KWHIQ B.V

Burgemeester Burgerslaan 40
5245 NH Rosmalen
The Netherlands

Instrument Identification:
IQ0102100d1

Single phase, Active Import/Export (kWh), Electricity Meter

Instrument Traceable Number
0120/ SGS0610

has been assessed and certified as meeting the requirements of

EU Directive 2014/32/EU

on Measuring Instruments Annex II, Module B

It is certified that the manufacturer's technical design and specimen for the above instrument has been examined and, based on the evidence submitted, it is considered that the instrument conforms to the requirements of Annex V of EU Directive 2014/32/EU

This certificate must be used in conjunction with a certificate covering the product verification as required in Annex II, Module D or Annex II, Module F

.

This certificate is valid from 15th December 2022 until 22nd May 2032
Issue 1

Certification is based on report number(s) SHES220300395901dated 19th May 2022
EMA304043/1/TR50579 dated 18th May 2022
EMA304043/1
EMA310585/1

Authorised Signature

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DU-CST-ME-002 Rev 5

EU Type Examination Cert.

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Guidelines for safety and installation



This installation guide must be consulted in all cases when manipulating parts which are marked with the Caution symbol. The installation and the operation of this device and any maintenance must be carried out by a qualified person in accordance with specific local standards and safety regulations.

Failing to obey the "Guidelines for safety and installation", the guarantee no longer applies.

Safety Instructions

- Case is sealed, do not open the meter. No warranty if case is opened.
- The meter should be installed indoor or in the outdoor electric meter box.
- The meter is intended to be installed in a Mechanical Environment 'M1', with Shock and Vibrations of low significance, as per 2014/32/EU Directive.
- The meter is intended to be installed in Electromagnetic Environment 'E2', as per 2014/32/EU Directive.

Exclusion of liability

We have checked the contents of this publication and every effort has been made to ensure that the descriptions are as accurate as possible. However, deviations from the description cannot be completely ruled out, so that no liability can be accepted for any errors or omissions in the information given. The data in this manual is checked regularly and the necessary corrections will be included in subsequent editions. If you have any suggestions, please let us know.

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For service and technical support information, please contact:

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Specifications

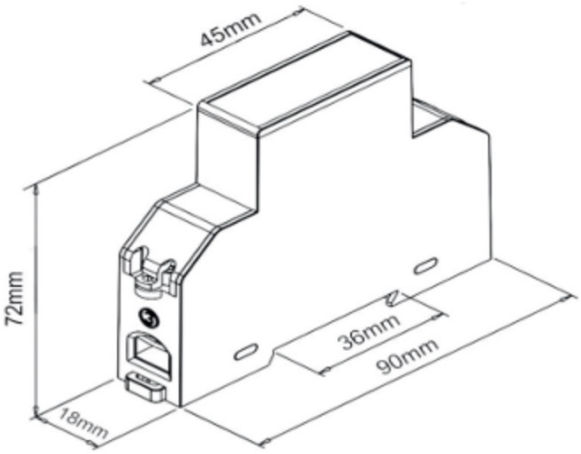
Electrical

Accuracy	Active	Class B
	Reactive	Class 2
Voltage	Rated Voltage	230V
	Voltage with standard	230V
	Operation voltage range	80% to 120% Un
Current	Rated current	5(100)A
	Starting current	20mA
Frequency	50Hz ± 2%	
Power consumption	Voltage circuit	≤1W
	Current circuit	≤12VA

Environmental

Operating temperature	-25 ° C to 70 ° C	**Storage temperature**	-30 ° C to 70 ° C
Operating humidity	≤75% RH (Max ≤95% RH)	**Case protection**	IP51 Indoor

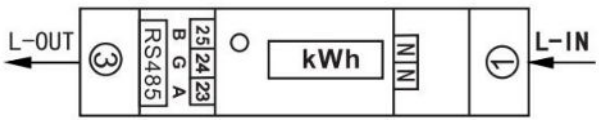
Dimensions

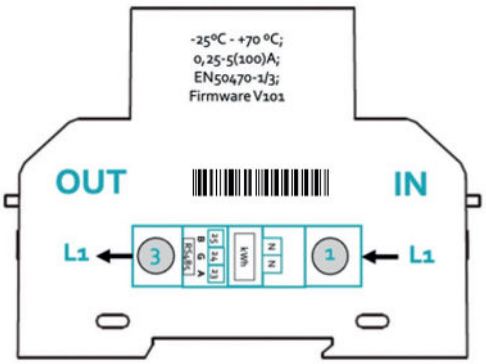


Display format



Wiring diagram

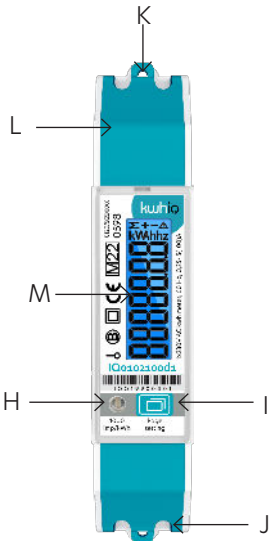




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General description

Front view



H	Impulse indication
I	Button for data checking
J	L-out
K	L-in
L	Neutral Wire
M	LCD screen

Button instruction

Button	Function
 Page setting	Short Press: next page
	Long press: go to setup menu

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LCD display

LCD Scrolling Display Page

LCD Scrolling Display Page		
Page	Content	Unit
1	Total active energy	kWh
2	Forward active energy	kWh
3	Reverse active energy	kWh
4	Total reactive energy	kWh
6	Resettable reactive energy	kWh
7	Voltage	V
8	Current	A
9	Active power	W
10	Reactive power	W
11	Apparent power	VA
12	Power factor	PF
13	Frequency	Hz
14	Forward active demand	W
15	Forward maximum active demand	W
16	Reverse active demand	W
17	Reverse maximum active demand	W
18	Forward reactive power demand	Var
19	Forward maximum reactive demand	Var
20	Reverse reactive demand	Var
21	Reverse maximum reactive demand	Var

Long press the button for more than 3 seconds at any Scrolling Display Page to enter the Information Display.

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LCD Information Display Page

LCD Information Display Page		
Page	Content	Format
1	SETUP (Long press here and enter the password to enter the setup page)	
2	12-digit serial number of the meter	000000000000
3	Modbus communication address	1-247
4	Baud rate	6 = 9.600 7 = 19.200 8 = 38.400 9 = 115.200
5	Parity	0=None 1=Odd 2=Even (default)
6	Stop bit	1=1 bit (default) 2=2 bit
7	Scrolling time	0-99 seconds
8	Demand calculation method & cycle	1-30 minutes
9	Combination code	1-total =forward 2-Total=reverse 3-Total =forward +reverse (default) 4-Total=Forward- Reverse

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Installation



CAUTION:

- Turn off and if possible lock all sources supplying the energy meter and the equipment that is connected to it before working on it.
- Always use a properly rated voltage sensing device to confirm that power is off.

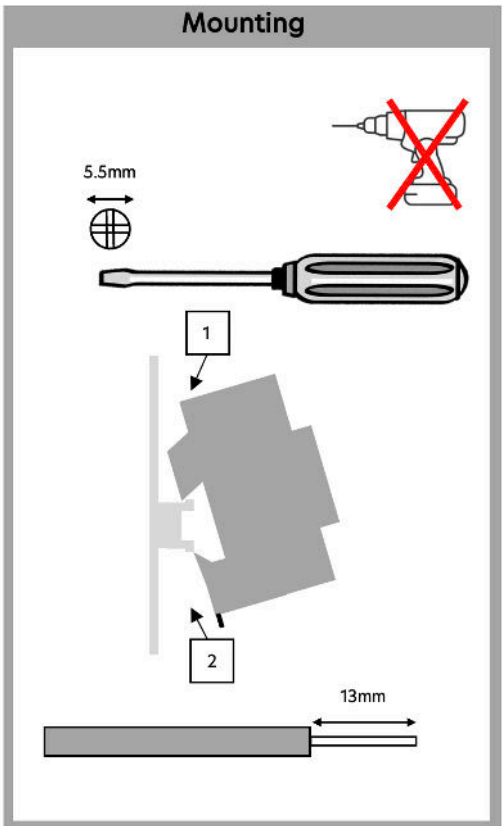


WARNING:

- The installation should be performed by qualified personnel familiar with applicable codes and regulations.
- Use insulated tools to install the device.
- A fuse, thermal cut-off or single-pole circuit breaker should be fitted on the supply line and not on the neutral

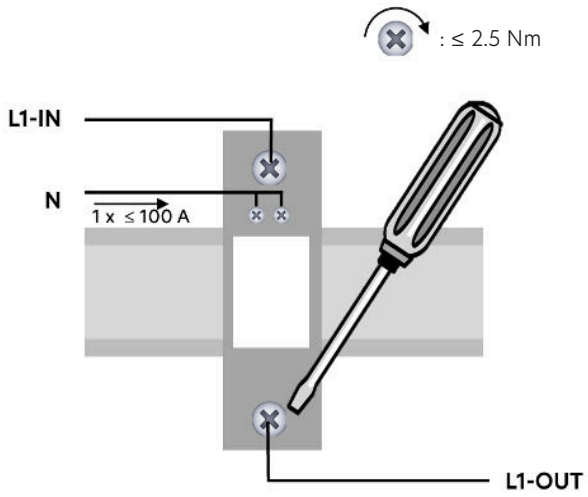
Mounting

Mount the device in a DIN-rail cabinet



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Electrical install procedure



(A)	(mm²)	(Nm)
0-32	1-6	0.9-1.2
32-65	10-14	1.5-2.0
65-100	16-25	2.0-2.5

Maximum cable size:



Maximum screw torque:

Communication install procedure

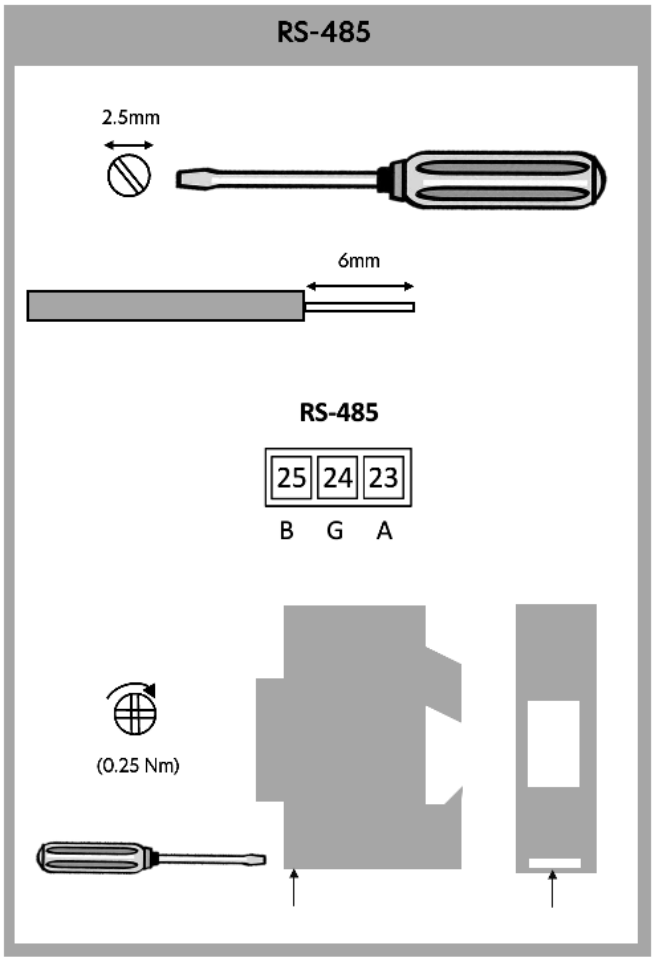
Maximum cable size: 2.5 mm²



Screw Torque:

Wire the device in accordance to the Wiring Diagram. If the bare wire is visible above the terminal bridge, shorten the stripped part of the wire.

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Operation

Scrolling function

- Automatic scroll: Every 5 seconds the meter will display the next programmed data page (depending on the setting).
- Button scroll: Each short press on the meter button will display the next programmed data page.

Set modbus parameters

By default, the modbus parameters are:

Modbus id	1
Baud rate	9.600
Parity	Even
# Stop bits	1

Meter settings can be adjusted in two ways:

- Manually through the use of the button and display page
- Serially through Modbus commands (see Modbus registers).

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Manually adjusting meter settings

Navigate to the Setting page of the LCD Display layout:



Enter the passcode in the Setting Page (factory settings: 5947). Short press to alter the blinking number. Long press at a blinking number to enter it.

After entering the passcode, scroll through the Setting Page tabs. To alter a certain setting, long press its tab in the Setting page, adjust its blinking values using short presses and confirm using long presses.

Modbus registers (partly)

A selection of the most important modbus registers:

Page	Reg unit	Modbus Reg Address (DEC)	Modbus Reg Address (HEX)	Modbus Reg Length	Modbus Reg Type
Serial Number E-meter	UNITLESS	4096	0x1000	3	12-bit serial number, hexadecimal
Modbus ID	1-247	4099	0x1003	1	
Forward Active Energy	kWh	270	0x010E	2	INT32(6+2)
Reverse Active Energy	kWh	280	0x0118	2	INT32(6+2)
Forward Power	Watt	260	0x0104	2	INT32(5+0)
Reverse Power	Watt	Negative Forward Power			
Instantaneous Voltage	Volt	256	0x0100	2	INT32(3+3)
Instantaneous Current	Ampère	258	0x0102	2	INT32(2+3)
Instantaneous active power	Watt	260	0x0104	2	INT32(2+3)

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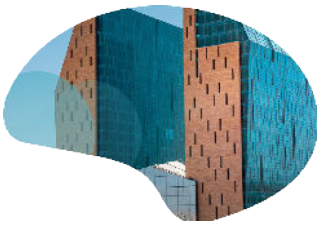
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