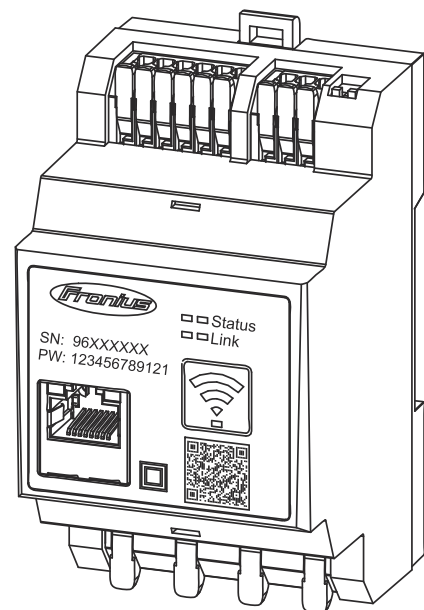


Operating Instructions

Fronius Smart Meter IP 5kA-3



EN | Operating Instructions



42,0426,0464,EA

001-24042026

Table of contents

General information	5
Safety information.....	7
Explanation of warnings and safety instructions.....	7
Safety instructions and important information.....	7
Environmental conditions.....	8
Electromagnetic fields.....	8
EMC measures.....	9
General.....	10
How information is presented in the document.....	10
Target group.....	10
Data security	10
Privacy policy	11
Documentation	12
Interventions and modifications to the product.....	12
Copyright.....	12
Fronius Smart Meter IP 5kA-3.....	13
Scope of supply	13
Description of the device	13
Intended use.....	13
Foreseeable misuse.....	13
Information on the device.....	14
Explanation of symbols.....	14
Positioning	15
Measuring accuracy	15
Backup power mode.....	16
Controls, connections and indicators	17
Product overview	17
LED status indicator	17
Installation	19
Prerequisites for connecting.....	21
Choice of location	21
Installation.....	22
Safety	22
Protective circuit.....	22
Permitted cable types for the electrical connection.....	23
Electrical connection.....	24
De-energizing.....	24
Installation.....	24
Cabling.....	24
Connecting the data communication cable.....	26
Connecting the LAN	26
WiFi configuration.....	26
MQTT.....	26
Connecting the Modbus RTU	26
Explanation of symbols.....	27
Set Modbus RTU BIAS.....	28
Setting the Modbus RTU terminating resistor.....	28
Terminating resistors.....	28
Connecting current transformers.....	31
Suitable current transformers.....	31
Connecting the current transformers	32
Commissioning	35
Commissioning the Fronius Smart Meter.....	37
Switching on the power.....	37

Access point.....	37
Opening the user interface with the QR code.....	37
Opening the user interface with the IP address.....	38
Software update.....	38
Fronius SnapINverter.....	39
General.....	39
Connect to Fronius Datamanager 2.0.....	39
Configuring the primary meter.....	39
Configuring secondary meters.....	40
Modbus participant - Fronius SnapINverter.....	40
Multi meter system - Explanation of symbols.....	41
Multi meter system - Fronius SnapINverter.....	42
Fronius GEN24 inverter.....	43
General.....	43
Installation with the browser.....	43
Configuring the primary meter.....	44
Configuring secondary meters.....	44
Modbus participant - Fronius GEN24.....	45
Multi meter system - Explanation of symbols.....	46
Multi meter system - Fronius GEN24 inverter.....	47
Fronius Wattpilot.....	49
Pairing the Fronius Smart Meter and Fronius Wattpilot.....	49
Meter aggregation.....	50
General.....	50
Meter aggregation function.....	50
Assigning phases with meter aggregation.....	52
Configuring meter aggregation.....	52
Meter aggregation - Explanation of symbols.....	53
User interface.....	55
Overview.....	57
Overview.....	57
Settings.....	58
Advanced settings.....	58
Restoring the factory settings.....	59
Changing the input current of the current transformers.....	59
Appendix.....	61
Service, maintenance and disposal.....	63
Maintenance.....	63
Cleaning.....	63
Disposal.....	63
Warranty.....	63
Technical data.....	64
Technical data.....	64

General information

Safety information

Explanation of warnings and safety instructions

The warnings and safety instructions in these instructions are intended to protect people from possible injury and the product from damage.



DANGER!

Indicates an immediately dangerous situation

Serious injury or death will result if appropriate precautions are not taken.

- Action step to escape the situation



WARNING!

Indicates a potentially dangerous situation

Death or serious injury may result if appropriate precautions are not taken.

- Action step to escape the situation



CAUTION!

Indicates a potentially dangerous situation

Minor or moderate injury may result if appropriate precautions are not taken.

- Action step to escape the situation

NOTE!

Indicates impaired work results and/or damage to the device and components

The warnings and safety instructions are an integral part of these instructions and must always be observed to ensure the safe and proper use of the product.

Safety instructions and important information

The device has been manufactured in line with the state of the art and according to recognized safety standards.



WARNING!

Incorrect operation or misuse

Serious to fatal injuries to the operator or third parties as well as damage to the device and other property of the operator may result.

- All persons involved in the commissioning, maintenance, and servicing of the device must be appropriately qualified and have knowledge of working with electrical installations.
- Read these operating instructions in full and follow them carefully and precisely.
- The operating instructions must always be kept to hand wherever the device is being used.

IMPORTANT!

In addition to the operating instructions, observe the following general and local rules:

- Accident prevention
- Fire protection
- Environmental protection

IMPORTANT!

Labels, warning notices, and safety symbols are located on the device. A description can be found in these operating instructions.

IMPORTANT!

All safety and danger notices on the device:

- Must be kept in a legible state
- Must not be damaged/marked
- Must not be removed
- Must not be covered, have anything stuck on them, or painted over

**WARNING!****Tampered-with and non-functioning protection devices**

Serious to fatal injuries as well as damage to the device and other property of the operator may result.

- ▶ Never bypass or disable protection devices.
- ▶ Any protection devices that are not fully functional must be repaired by an authorized specialist before the device is switched on.

**WARNING!****Loose, damaged, or under-dimensioned cables**

An electric shock can be fatal.

- ▶ Use undamaged, insulated, and adequately dimensioned cables.
- ▶ Fasten the cables according to the specifications in the operating instructions.
- ▶ Loose, damaged, or under-dimensioned cables must be repaired or replaced immediately by an authorized specialist.

NOTE!**Installations or modifications to the device**

The device may be damaged

- ▶ Do not carry out any alterations, installations, or modifications to the device without first obtaining the manufacturer's permission.
- ▶ Damaged components must be replaced.
- ▶ Only use original spare parts.

Environmental conditions

Operation or storage of the device outside the stipulated area will be deemed as not in accordance with the intended use.

Electromagnetic fields

During operation, due to the high electrical voltages and currents, local electromagnetic fields (EMF) occur in the environment around the inverter and the Fronius system components as well as in the area of the PV modules including the supply lines.

In the case of exposure to humans, the required limit values are observed when the products are used in line with the intended use and the recommended distance of at least 20 cm is observed.

If these limit values are complied with, according to current scientific knowledge, no health-endangering effects from EMF exposure are to be expected. If wearers of prostheses (implants, metal parts in and on the body) as well as active physical aids (pacemakers, insulin pumps, hearing aids, etc.) are in the vicinity of components of the PV system, they must consult with the responsible doctor regarding possible health risks.

EMC measures

In certain cases, even though a device complies with the standard limit values for emissions, it may affect the application area for which it was designed (e.g., when there is equipment that is susceptible to interference at the same location or if the site where the device is installed is close to either radio or television receivers). If this is the case, the operator is obliged to take action to rectify the situation.

General

How information is presented in the document

The conventions regarding how information is presented in the document, which are set out below, have been defined in order to increase the readability and comprehensibility of the document.

Application notes

IMPORTANT! Indicates application notes and other useful information. It does not indicate a harmful or dangerous situation.

Software

Software functions and elements of a graphical user interface (e.g., buttons, menu items) are highlighted in the text with this **mark up**.

Example: Click **Save**.

Instructions for action

- 1** Action steps are displayed with consecutive numbering.
- ✓ *This symbol indicates the result of the action step or the entire instruction.*

Target group

This document provides detailed information and instructions to ensure that all users can use the device safely and efficiently.

- The information is intended for the following groups of people:
 - **Technical specialists:** People with appropriate qualifications and fundamental electronic and mechanical knowledge, who are responsible for the installation, operation, and maintenance of the device.
 - **End users:** People that use the device in daily operation and want to understand its basic functions.
- Regardless of any qualifications, only perform the activities listed in this document.
- All persons involved in the commissioning, maintenance, and servicing of the device must be appropriately qualified and have knowledge of working with electrical installations.
- The definition of professional qualifications and their applicability are subject to national law.

Data security

With regard to data security, the user is responsible for:

- Backing up any changes made to the factory settings
- Saving and storing personal settings

NOTE!

Data security for network and Internet connection

Unsecured networks and a lack of safeguards can result in data loss and unauthorized access. Observe the following points for safe operation:

- ▶ Operate inverters and system components on a private, secure network. A WiFi network is considered secure if security standard WPA 2 is satisfied as a minimum.
- ▶ Keep the network devices (e.g., WiFi routers) up to date with the latest technology.
- ▶ Keep the software and/or firmware updated.
- ▶ Use a wired network to ensure a stable data connection.
- ▶ For security reasons, do not make inverters and system components accessible from the Internet via port forwarding or Port Address Translation (PAT).
- ▶ Use the solutions provided by Fronius for monitoring and remote configuration.
- ▶ The optional communication protocol Modbus TCP/IP¹⁾ is an unsecured interface. Only use Modbus TCP/IP if no other secured data communication protocol (MQTT²⁾) is possible (e.g., compatibility with older Smart Meters).

¹⁾ TCP/IP - Transmission Control Protocol/Internet Protocol

²⁾ MQTT - Message Queuing Telemetry Protocol

Privacy policy

When you connect your device (and any associated devices) to the internet, the following device and operating data (device ID/identifier, device IP address, device time, configuration settings, hardware and software information, device status log files, serial number) is sent automatically to

Fronius International GmbH, Froniusstraße 1, 4643 Pettenbach, Austria, telephone +43(0) 7242241-0, email: contact@fronius.com (controller)

and stored.

The processing of this device and operating data is carried out for the purpose of ensuring the operational safety of the device (time synchronization, provision of updates). This processing is therefore necessary for the functionality of the device and thus for the fulfillment of the contract (Art. 6 (1) (b) GDPR).

If you do not wish to have such data processed, you must manually disable the device's internet connection.

In addition, the device and operating data is also processed for the purpose of providing services as part of a supplementary digital service for your device (such as solar.web or similar) as soon as you have registered your device with such a digital service (identification). This data is processed to provide the requested digital services and is therefore necessary for the fulfillment of the contract (Art. 6 (1) (b) GDPR).

Furthermore, this data processing is also carried out for maintenance and support purposes and for handling customer concerns as well as in warranty and guarantee cases (only in individual cases and given connection between device and internet). In this context, the device and operating data may also be passed on to our cooperation partners (third-party providers and suppliers). The processing of this data is necessary for maintenance and support purposes or for processing warranty and guarantee cases and thus for the fulfillment of the contract (Art. 6 (1) (b) GDPR).

Device and operating data are also processed for analysis and diagnostic purposes in order to gain insights into the functionality of the devices and improve them accordingly. This data processing is based on our legitimate interest (Art. 6 (1) (f) GDPR).

We store this data for as long as it is necessary to fulfill the existing contract with you. Any storage beyond this is carried out for legal reasons or if we have a legitimate interest in doing so. For more information on data processing for the solar.web-digital service, as well as our general privacy policy and your rights as a data subject, please visit <https://www.fronius.com>.

Documentation

The available documentation forms part of the product and must be read and observed. The documents belonging to the product must be kept in good condition and accessible at all times at the place of installation.

The documents do not replace state or provincial laws, regional, federal, or national laws, or regulations or standards that apply to the installation, electrical safety, and use of the product. Fronius International GmbH assumes no responsibility for compliance with or non-compliance with these laws or regulations in connection with the installation and use of the product.

Interventions and modifications to the product

Interventions in the product, such as modifications and alterations, are not permitted. Unauthorized interventions will void the warranty and warranty claims and void the user's authority to operate the equipment.

Copyright

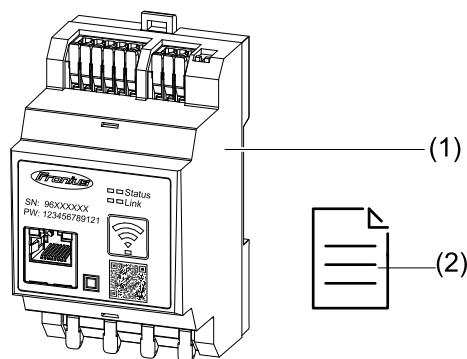
Fronius International GmbH retains the copyrights of these operating instructions.

Text, illustrations, and other media correspond to the technical state of the art at the time of publication. Fronius reserves the right to make changes. If you have any suggestions for improvement or have found a mistake in this document, we would be most grateful for your comments.

Fronius Smart Meter IP 5kA-3

Scope of supply

- (1) Fronius Smart Meter IP 5kA-3
- (2) Quick Start Guide



Description of the device

The Fronius Smart Meter IP 5kA-3 is a bidirectional electricity meter which optimizes self-consumption and records a household's load curve. The Fronius Smart Meter IP 5kA-3 provides an overview of a user's own power consumption in conjunction with a Fronius inverter or Fronius Datamanager 2.0 and a Fronius data interface.

The meter measures the energy flow to the loads or to the public grid and forwards the information via the Modbus RTU/RS485- or TCP interface (LAN/WLAN) to the Fronius inverter or the Fronius Datamanager 2.0.

Intended use

The Fronius Smart Meter IP 5kA-3 is a fixed piece of equipment for public grids of TN/TT systems and may only be used to measure loads and self-consumption.

The Fronius Smart Meter IP 5kA-3 is required for systems with a battery storage system and/or a Fronius Ohmpilot installed for communication between the individual components.

The installation is carried out on an indoor DIN rail with corresponding back-up fuses, which are adapted to the cable cross-sections of the copper conductors and to the maximum current of the meter. The Fronius Smart Meter IP 5kA-3 must only be operated in accordance with the specifications in the enclosed documentation and in accordance with local laws, regulations, provisions, standards, and within the limits of technical possibilities. Any use of the product other than as described in the intended use shall be deemed to be not in accordance with the intended purpose.

The available documentation forms part of the product and must be read, observed, and kept in good condition. It must also be accessible at all times at the place of installation. Fronius International GmbH assumes no responsibility for compliance with or non-compliance with these laws or regulations in connection with the installation of the product.

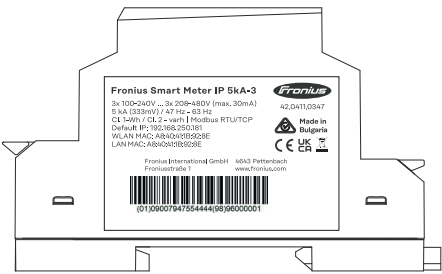
Foreseeable misuse

The Fronius Smart Meter is not suitable for billing costs to subtenants.

Interventions in the Fronius Smart Meter, e.g., modifications and alterations, are not permitted. These will render the warranty invalid and void the user's authorization to operate the equipment.

Information on the device

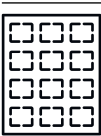
Technical data, labels, and safety symbols are located on the Fronius Smart Meter IP 5kA-3. This information must be kept in a legible condition and must not be removed, covered, pasted over, or painted over. The notices and symbols warn against incorrect operation, which may result in serious injury and property damage.



Symbols on the rating plate:

-  CE label – confirms compliance with applicable EU directives and regulations. The product has been tested by a specific notified body.
-  WEEE marking – waste electrical and electronic equipment must be collected separately and recycled in an environmentally sound manner in accordance with the European Directive and national law.
-  UKCA marking – confirms compliance with applicable UK directives and regulations.
-  RCM marking – tested according to the requirements of Australia and New Zealand.

Explanation of symbols

	PV module Generates direct current.
	Fronius Hybrid inverter Converts the direct current into alternating current and charges the battery.
	Fronius Backup Controller Automatically and securely disconnects all connected loads and generators from the public grid in the event of a grid failure or grid malfunction in accordance with the specifications of the grid operator. As soon as grid stability has been restored, the loads and generators are automatically reconnected to the public grid.
	Inverter in the system e.g., Fronius Primo, Fronius Symo



Primary meter

Records the load curve of the system and makes the measured data available for energy profiling in Fronius Solar.web. The primary meter also controls the dynamic power of feeding in.



Utility meter

Measures the measurement data relevant for billing amounts of energy (in particular kilowatt hours of energy sourced from the grid and energy fed into the grid). Based on the relevant billing data, the electricity retailer will invoice for the energy sourced from the grid and the purchaser of the surplus energy will reimburse the energy fed into the grid.



Grid

Supplies the loads in the system if insufficient power is being generated by the PV modules or supplied by the battery.



Battery

Is coupled to the inverter on the direct current side, and stores electrical energy.



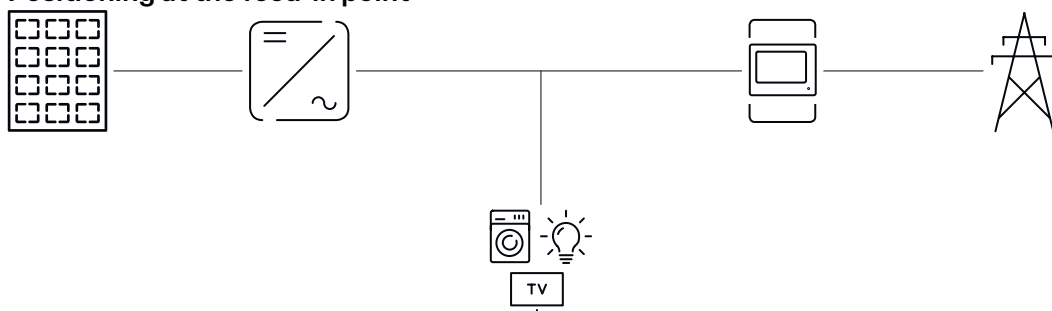
Loads in the system

e.g., washing machine, lamps, TV

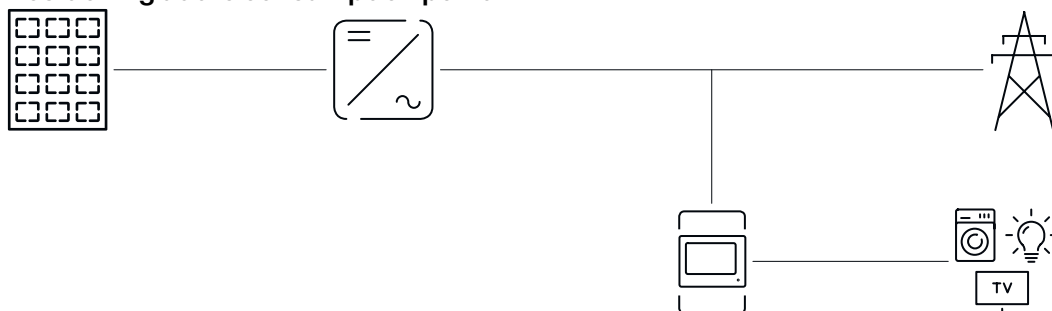
Positioning

The Smart Meter can be installed in the following positions in the system:

Positioning at the feed-in point



Positioning at the consumption point



Measuring accuracy

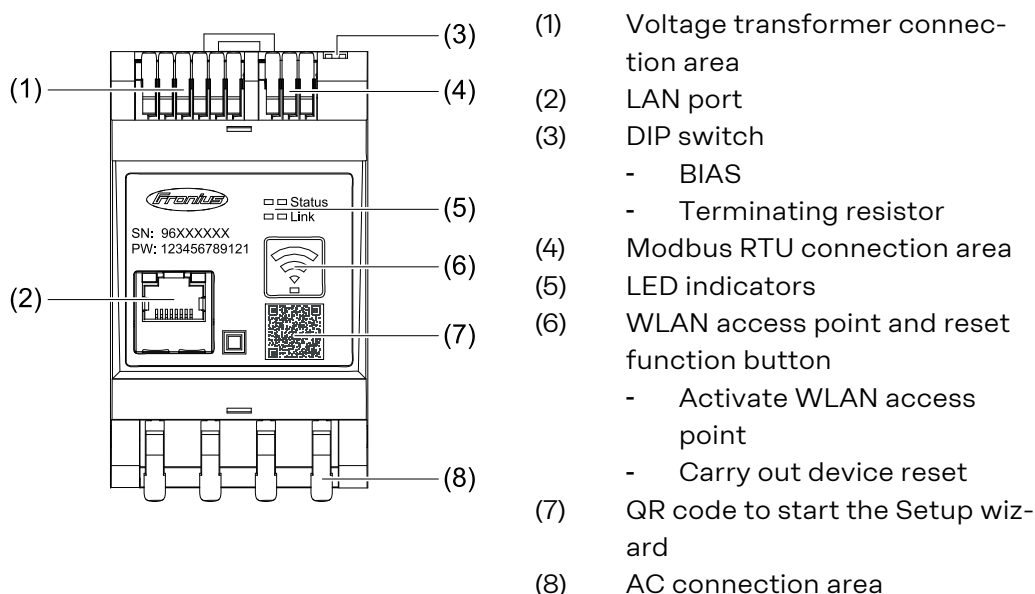
The Fronius Smart Meter IP 5kA-3 has accuracy class 1 when measuring active energy (EN IEC 62053-21) in the voltage ranges 208-480 VLL and 100-240 VLN. For further details see [Technical data](#).

Backup power mode

The Fronius Smart Meter IP 5kA-3 can be used with Modbus RTU/TCP data cabling in backup power mode. In the case of Modbus TCP data cabling, it should be noted that reconnection to the public grid requires more time because the data network (e.g., network router/switch) is restarted. Fronius recommends a data connection via Modbus RTU.

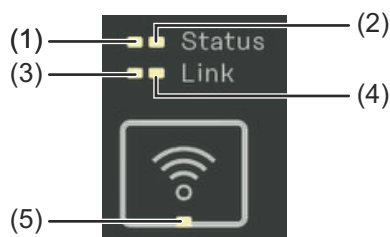
Controls, connections and indicators

Product overview



LED status indicator

The LED status indicator shows the operating status and data connection of the Fronius Smart Meter IP 5kA-3.



- (1) **Status LED 1**
Illuminated green: ready for operation
- (2) **Status LED 2**
Illuminated: Device starting up / restarting

- (3) **Link LED 1**
Illuminated green: Data connection to the network established
- (4) **Link LED 2**
Illuminated red: no data connection
Flashing red: open WiFi access point
- (5) **WiFi LED**
Flashing green: WiFi connection is being established
Illuminated green: WiFi connection is active

Installation

Prerequisites for connecting

Choice of location

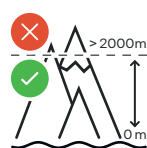
Please note the following criteria when choosing a location for the Smart Meter:

Only install on a solid, non-flammable surface.

When installing the Smart Meter in a switch cabinet or similar enclosure, make sure that it is of the appropriate safety class and that the hot air that develops will be dissipated by forced-air ventilation.



The Smart Meter is suitable for indoor installation.



The Smart Meter must not be installed or used at altitudes above 2,000 m.

Installation

Safety



WARNING!

Danger due to incorrect operation and work not carried out correctly.

This can result in serious injury and damage to property.

- ▶ Installation and commissioning may only be carried out by a qualified technician and only within the scope of the technical regulations.
- ▶ Maintenance and service work may only be carried out by service technicians trained by the manufacturer and only within the scope of the technical regulations.
- ▶ Read the installation instructions and operating instructions from the respective manufacturer before installing and commissioning the equipment.



WARNING!

Danger from mains voltage and DC voltage of PV modules or batteries.

This can result in serious injury and damage to property.

- ▶ All connection, maintenance, and service work must only be carried out when the AC and DC sides have been disconnected from the inverter and battery, and are de-energized.
- ▶ Only a qualified technician is permitted to establish the fixed connection to the public grid.



WARNING!

Danger from damaged and/or contaminated terminals.

This can result in serious injury and damage to property.

- ▶ Prior to connection work, check the terminals for damage and contamination.
- ▶ Remove any contamination while the equipment is de-energized.
- ▶ Have defective terminals repaired by an authorized specialist.

Protective circuit

The Fronius Smart Meter IP 5kA-3 is a hard-wired device and requires a disconnecting device (automatic circuit breaker).

The Fronius Smart Meter IP 5kA-3 consumes 30 mA, the nominal capacity of the disconnecting devices and the overcurrent protection is determined by the conductor cross-sections, the mains voltage, and the required breaking capacity.

- The disconnecting devices must be mounted in the same enclosure (e.g., switch cabinet) as the Fronius Smart Meter IP 5kA-3.
- The disconnecting devices must satisfy the requirements of IEC 60947-1 and IEC 60947-3, as well as all national and local regulations for electrical systems.
- To monitor multiple mains voltages, use connected automatic circuit breakers.

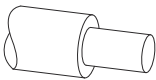
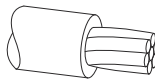
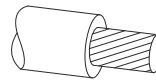
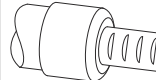
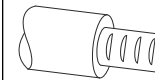
NOTE!**Disconnecting device for the mains terminals**

- The automatic circuit breaker must protect the mains terminals marked L1, L2, and L3. In rare cases, the neutral conductor has a disconnecting device, which must interrupt both neutral and non-earthed cables concurrently.

Permitted cable types for the electrical connection

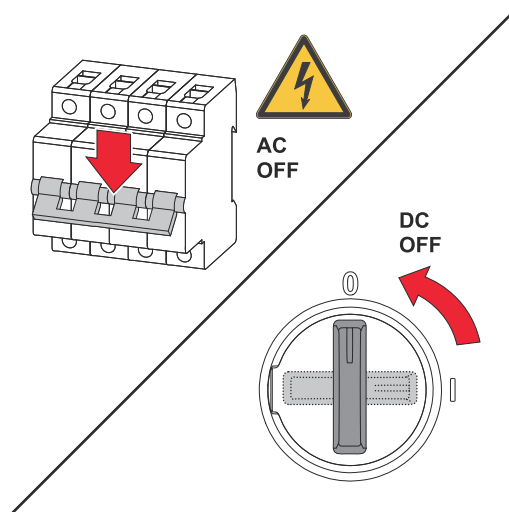
Connect round copper conductors to the mains terminals as described below. Select a sufficiently large conductor cross-section based on the actual connected power.

Permissible cable types for the mains terminals

Single-core	Multi-stranded	Fine-stranded	Fine-stranded with ferrule and collar	Fine-stranded with ferrule without collar
				
1.5-4 mm ²	1.5-4 mm ²	1.5-4 mm ²	1.5-4 mm ²	1.5-4 mm ²
Stripping length: 9-11 mm				

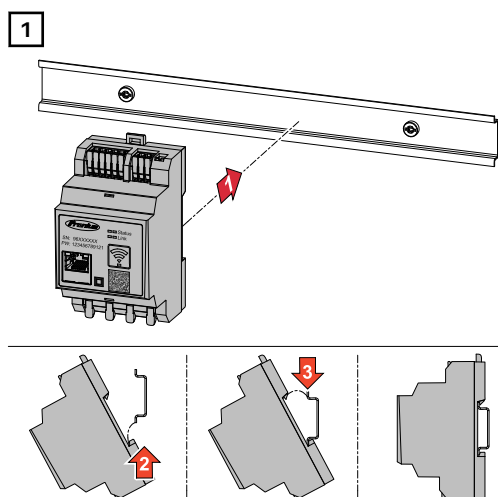
Electrical connection

De-energizing



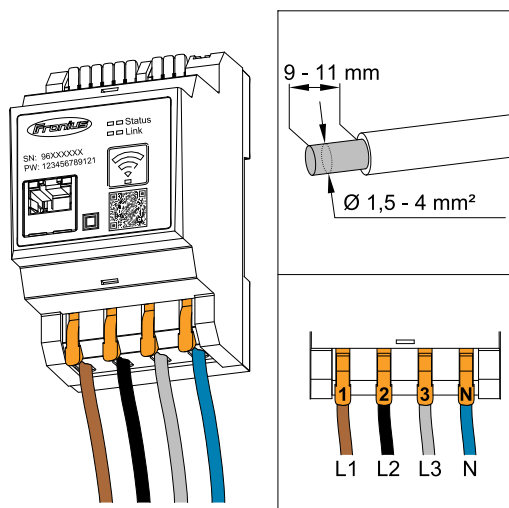
- 1 Switch off the house connection fuse and the automatic circuit breaker.
- 2 Set the DC disconnectors on all inverters to the "off" switch position.

Installation



Mount the Fronius Smart Meter IP 5kA-3 on a 35-mm DIN rail.

Cabling



WARNING!

Danger from live mains voltage inputs

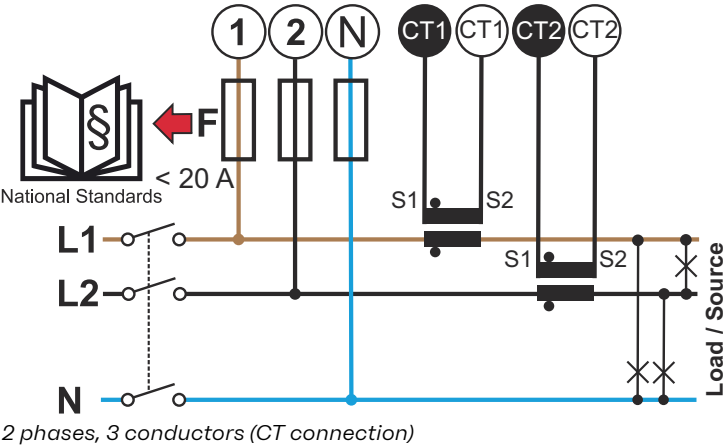
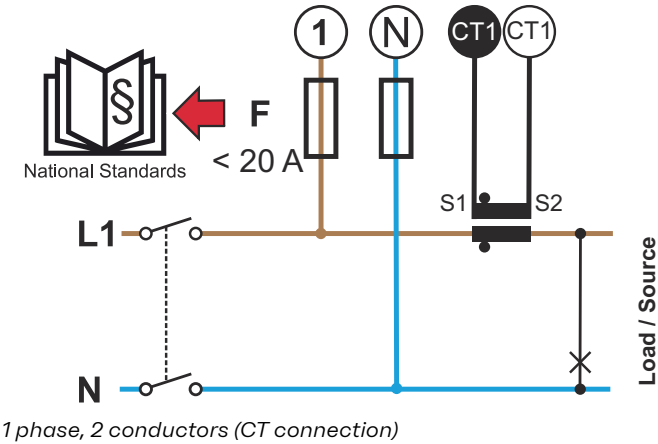
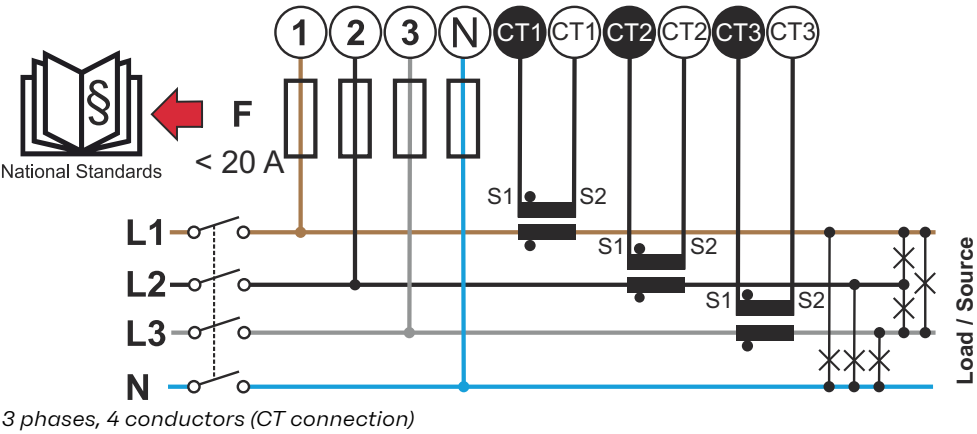
An electric shock can be fatal.

- Switch off the power supply before connecting the mains voltage inputs.

Permissible conductor cross-section of AC terminals:

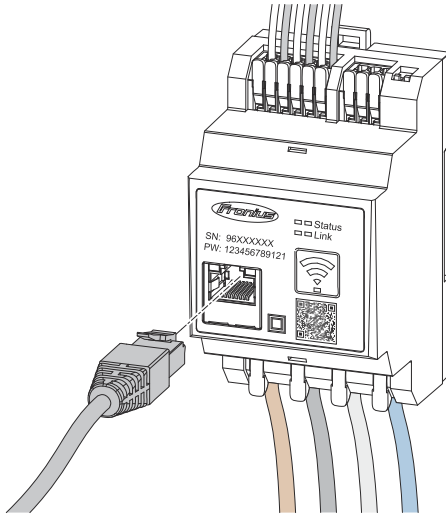
- Wire: 1.5-4 mm²

Each live conductor must be connected to the AC terminals as shown in the figures below.



Connecting the data communication cable

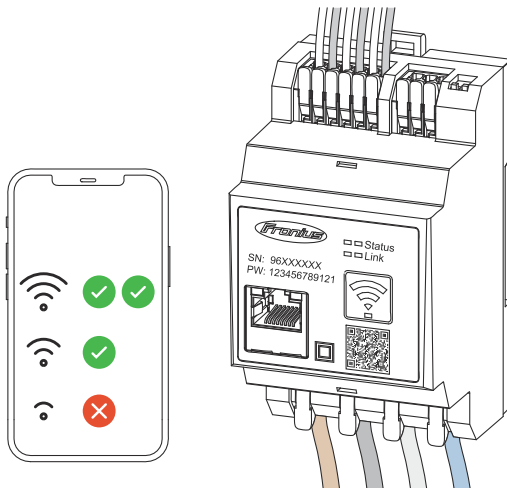
Connecting the LAN



Observe the following instructions:

- Use a shielded data cable of type CAT 5 STP (Shielded Twisted Pair) or higher.
- If the data lines are close to the mains cabling, use cables that are designed for 300 to 600 V (never less than the operating voltage).
- Use double-insulated or sheathed data cables when they are close to bare conductors.
- The use of a static IP address is recommended.

WiFi configuration



- 1 Use a smartphone to check the WiFi signal strength.

Observe the following instructions:

- Ensure sufficient WiFi signal strength at the installation site.
- If the signal strength is insufficient, connect an external antenna to the Fronius Smart Meter or install an external WiFi booster.
- Use a static IP address.

MQTT

The Fronius Smart Meter described in this document supports the MQTT communication protocol (Message Queuing Telemetry Transport). The Fronius Smart Meter is found by inverters in the same network and can be configured via the user interface of the inverter. In order for this to work, the inverter needs to support MQTT.

This interface is only suitable for communication with Fronius products and not for third-party products.

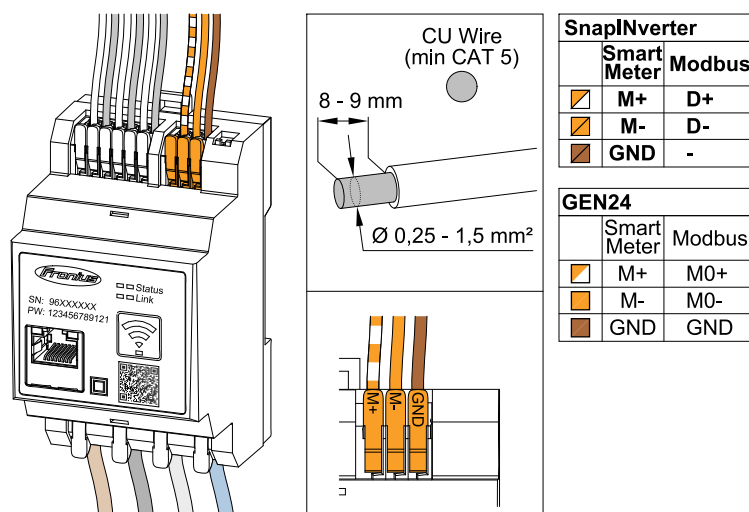
Connecting the Modbus RTU

Connect the data communication connections of the Fronius Smart Meter IP to the Modbus interface of the Fronius inverter using a CAT 5 STP (Shielded Twisted Pair) or higher data cable.

The Fronius Smart Meter IP can also be connected to the network (LAN / WLAN). This allows software updates to be carried out.

Standard Modbus address & TCP port:

- Address: 1
- TCP port: 502



To avoid interference, the terminating resistor must be used (see chapter [Setting the Modbus RTU terminating resistor](#) on page 28).

If a battery is installed in the system, the BIAS switch must be set (see chapter [Set Modbus RTU BIAS](#) on page 28).

Further settings are necessary on the user interface of the inverter and the Fronius Smart Meter IP (see [Advanced settings](#)).

IMPORTANT!

A loose wire can disable an entire area of the network. The data communication connections of the Fronius Smart Meter IP are electrically isolated from hazardous voltages.

Further information for commissioning

Observe the following information on connecting the data communication cable to the inverter.

- Use a shielded CAT 5 STP (Shielded Twisted Pair) or higher data cable to avoid interference.
- Use a mutual twisted cable pair for corresponding data lines (D+/D-, M1+/M1-).
- If the data lines are laid close to the mains cabling, cables or wires that are designed for 300 to 600 V must be used (never less than the operating voltage).
- Use double-insulated or sheathed data lines when they are close to bare conductors.
- Two wires can be installed in each terminal; the wires are twisted first, inserted into the terminal, and tightened.

Explanation of symbols



Inverter in the system
e.g., Fronius Symo GEN24



Meter - Fronius Smart Meter



Fronius device or third-party device with connection via Modbus RTU

e.g., Fronius Ohmpilot, battery, etc.



Terminating resistor

R 120 Ohm



Battery

e.g., Fronius Symo GEN24

Set Modbus RTU BIAS

When a battery and the Fronius Smart Meter are connected to the same Modbus interface on the inverter (M0 or M1), set the BIAS switch to ON.



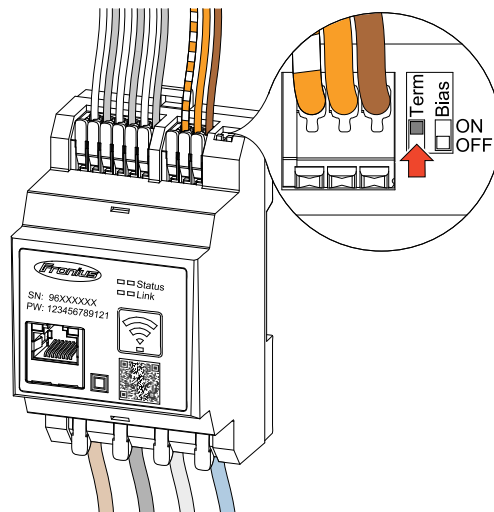
M1 M0



M1 M0



Setting the Modbus RTU terminating resistor



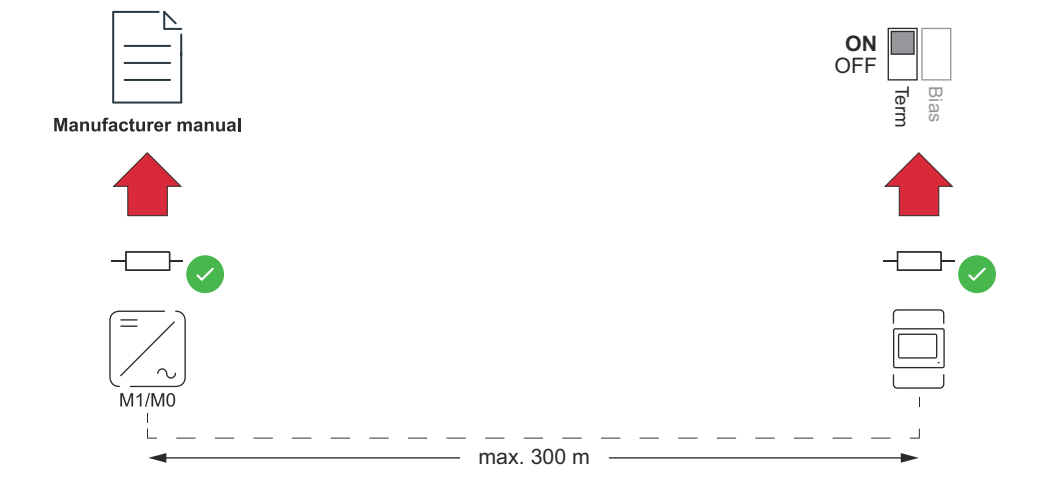
The terminating resistor is integrated in the Fronius Smart Meter IP and is set by a switch.

For information on whether the terminating resistor must be set or not, see chapter [Terminating resistors](#) on page 28.

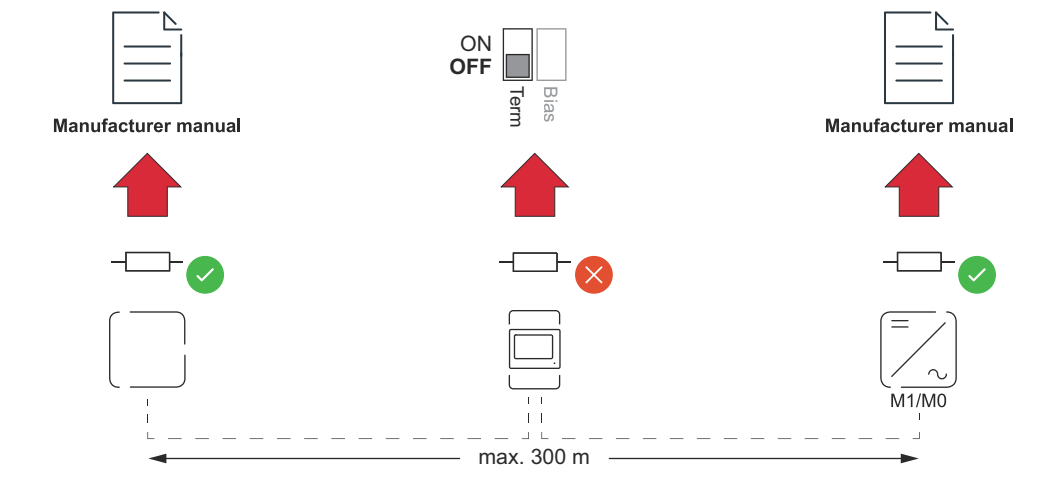
Terminating resistors

The use of terminating resistors according to the following overview is recommended in order to ensure flawless operation.

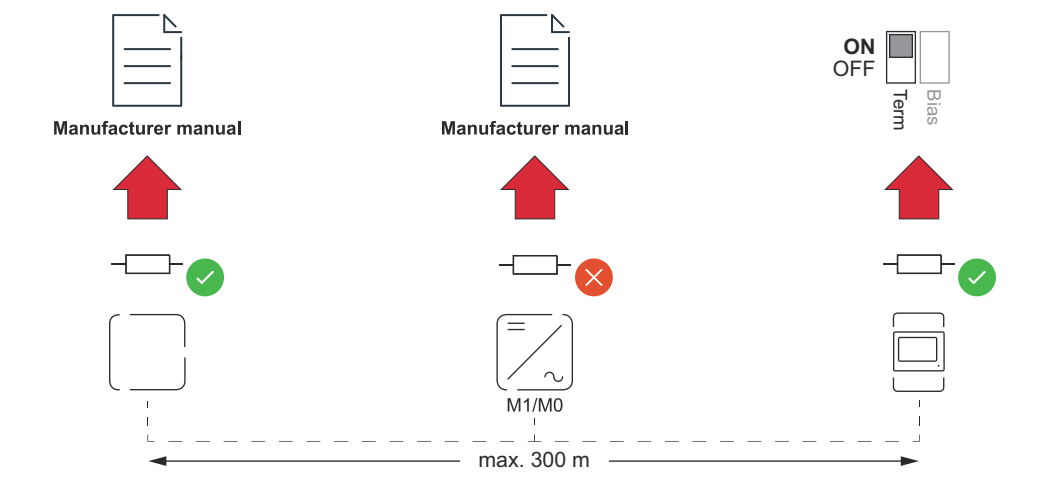
Option 1



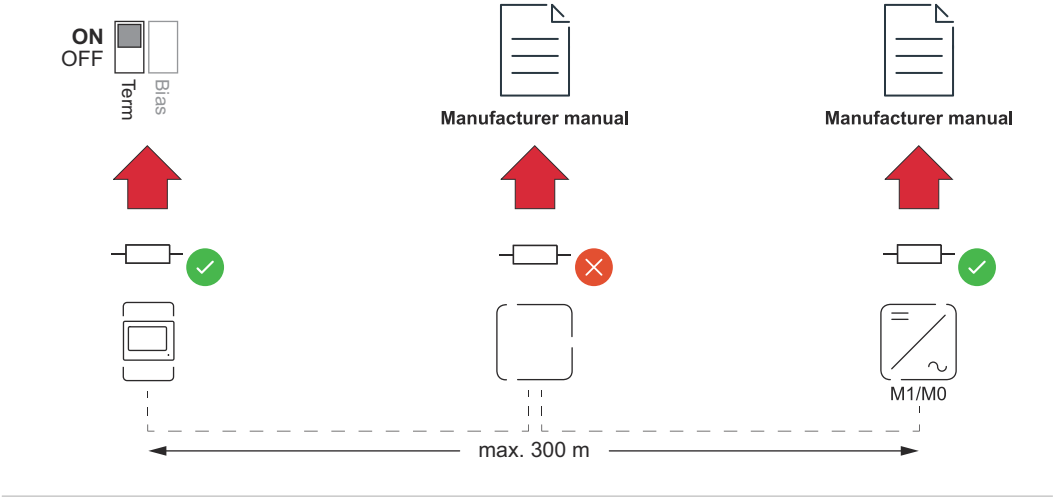
Option 2



Option 3



Option 4



Connecting current transformers

Suitable current transformers

It is recommended to use Fronius CT current transformers (item numbers 41,0010,0104 / 41,0010,0105 / 41,0010,0232). In order to ensure problem-free operation of the Fronius Smart Meter IP 5kA-3 and accurate measurement results, all connected current transformers must meet these requirements:

- The current transformer must generate 333 mV at nominal current. The nominal current of the current transformers is specified in the current transformer datasheet.
- Do not use current transformers with 1 ampere or 5 ampere output current.
- Observe the maximum input current according to the current transformer datasheets.
- Only use Rogowski coils with integrators. Failure to use integrators will result in erroneous measurement results.
- Folding and rigid current transformers can be installed. Rigid current transformers often have better performance and accuracy values. Folding current transformers have a split core and can be opened for attachment to the conductor and installed in a system without voltage interruption.



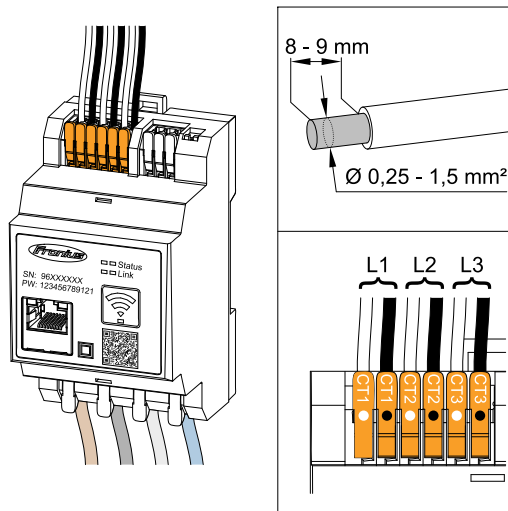
CAUTION!

Danger of electric shock due to unintentional opening of folding current transformers

This can result in severe injury and damage to property.

- Switch off the power when working on the current transformers.
- Attach plastic cable ties to the current transformer to prevent unintentional opening.

Connecting the current trans-formers



- 1 Make sure that the current transformers match the live phases. Make sure that current transformer L1 measures the current on the same phase that is monitored by voltage input L1. The same applies for phases L2 and L3. This is the only way to display correct measured values.
- 2 Make sure that the current transformers are pointing in the correct direction.

NOTE!

Observe direction information when installing the current transformers

Negative power values occur when the current transformers are connected incorrectly.

- Observe the data sheet and the marking on the current transformer (arrow indicates the direction to the load or to the public grid)
- Check the correct position of the black and white cable.

- 3 Note down the nominal current of the current transformer for each meter. These values will be required for commissioning.
- 4 Attach the current transformers to the conductor to be measured and connect the current transformer cables to the Fronius Smart Meter IP 5kA-3.



WARNING!

Danger from mains voltage

An electric shock can be fatal.

- Switch off the power supply before disconnecting live conductors.

- 5 Connect the current transformers to the terminals CT1 (white / black), CT2, and CT3. Excessively long cables can be shortened accordingly. Observe the sequence in which the phases are connected.
- 6 Route the mains conductors through the current transformers (see [Cabling](#)).

NOTE!

Cable length of the current transformers

Cables that are too long can have a negative effect on the measuring accuracy.

- If a cable extension is necessary, use a shielded 0.34 to 1.5 mm² (AWG 22-16) CAT 5 STP (Shielded Twisted Pair) cable rated for 300 V or 600 V (higher than the operating voltage).

NOTE!

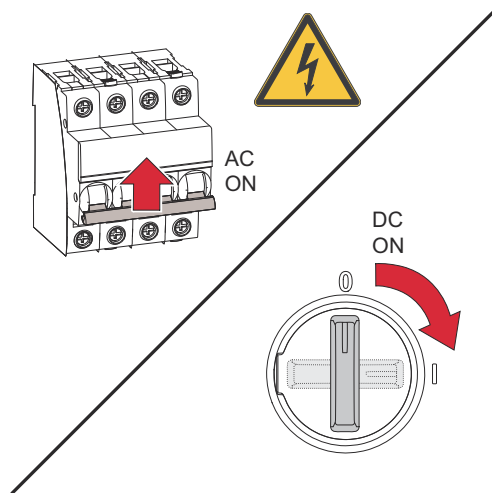
Unusual measured values on unused phases

- ▶ If unusual measured values occur on unused phases, bypass the unused current transformer inputs.
- ▶ To do so, for each unused current transformer, connect the terminal marked with a white dot to the terminal marked with a black dot using a short cable.

Commissioning

Commissioning the Fronius Smart Meter

Switching on the power



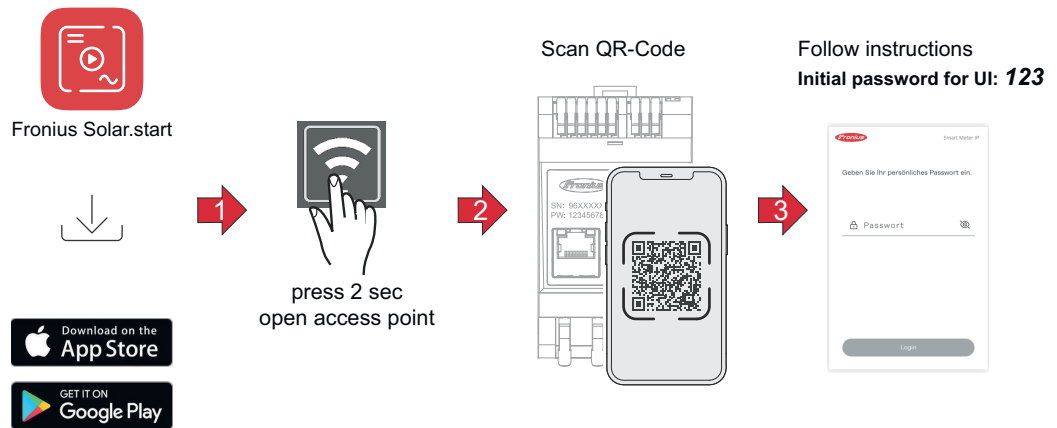
- 1 Switch on the house connection fuse and the automatic circuit breaker.
- 2 Set the DC disconnectors on all inverters to the "on" switch position.

Access point

IMPORTANT! When used for the first time, the access point activates automatically as soon as the Fronius Smart Meter is supplied with power.

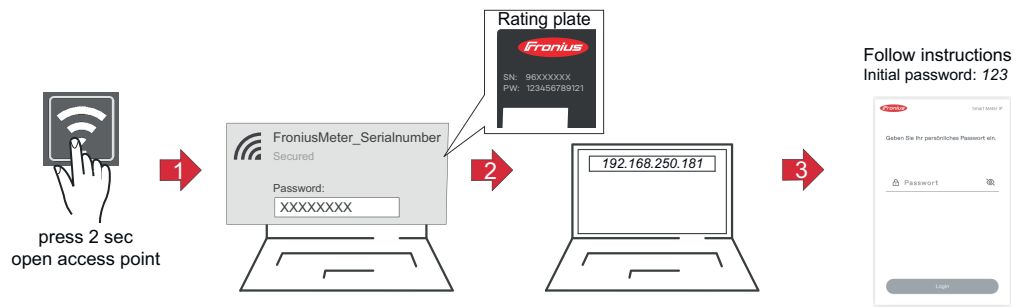
The access point deactivates after 60 minutes by default.

Opening the user interface with the QR code



- 1 Press the access point button for two seconds. Link 2 LED flashes red.
- 2 Scan the QR code on the front of the device.
- 3 Enter the initial password and press **Login**.
- 4 Follow the instructions in the installation wizard and complete the installation.
- 5 Add the Fronius Smart Meter IP 5kA-3 on the user interface of the inverter (see Commissioning GEN24 / SnapInverter).

Opening the user interface with the IP address



- 1 Press the access point button for two seconds. Link 2 LED flashes red.
- 2 Establish a connection from the end device to the access point
SSID = FroniusMeter_xxxxx (xxxx = serial number)
Password = see Smart Meter (PW)
- 3 In the browser address bar, enter and confirm the IP address 192.168.250.181.
The installation wizard is opened.
- 4 Follow the installation wizard in the individual sections and complete the installation.
- 5 Add the Fronius Smart Meter IP 5kA-3 on the user interface of the inverter (see Commissioning GEN24 / SnapINverter).

Software update

It is recommended to activate the **Automatic Updates** function during commissioning. The Fronius Smart Meter IP checks for available updates daily and automatically installs them between midnight and 6 am. A precise time can be set.

If this function is not activated, software updates can also be searched for and started manually on the user interface of the device.

The software of the Fronius Smart Meter IP is compatible with the following software versions of connected Fronius components:

- Fronius GEN24 & Tauro: full compatibility from version 1.24.1
- Fronius SnapINverter (Fronius Datamanager 2.0): full compatibility from version 3.28.1
- Fronius Symo Hybrid: full compatibility from version 1.28.1
- Fronius Wattpilot: full compatibility from version 1.9.29

Fronius SnapInverter

General

NOTE!

- ▶ Settings in the **Meter** menu item may only be entered by staff trained to do so.

IMPORTANT!

The service password must be entered to access the **Meter** menu item.

The meter is selected in the **Fronius Smart Meter** menu item. The Fronius Datamanager 2.0 automatically detects the meter type.

One primary meter and several secondary meters can be selected. The primary meter must be configured before a secondary meter can be chosen.

The Fronius Smart Meter can be connected to Modbus TCP/IP or Modbus RTU.

Connect to Fronius Datamanager 2.0

Access Point:

Activate the WiFi access point of the inverter:

- 1 Select the **Setup** menu on the inverter display.
- 2 Navigate to **WiFi Access Point**.
 - ✓ *Network (SS) and password (PW) are displayed.*
- 3 Activate the **WiFi Access Point** with the Enter ↵ key.

Establish the connection from the inverter's WiFi access point to the PC:

- 1 Establish the connection to the inverter in the network settings (the inverter is displayed with the name "Fronius_240.XXXXXX").
 - 2 Enter and confirm the password from the inverter display.
 - 3 In the browser's address bar, enter the IP address <http://192.168.250.181> and confirm.
- ✓ *The Fronius Datamanager 2.0 start page is displayed.*

LAN:

- 1 Connect the Fronius Datamanager and computer with a LAN cable.
- 2 Place the Fronius Datamanager 2.0 IP switch in the "A" position.
- 3 In the browser's address bar, enter the IP address <http://169.254.0.180> and confirm.

Configuring the primary meter

- 1 Open the user interface of the Fronius Datamanager 2.0.
 - Open the browser.
 - In the browser's address bar, enter the IP address (for WiFi: 192.168.250.181, for LAN: 169.254.0.180) or enter and confirm the host and domain name of the Fronius Datamanager 2.0.
 - ✓ *The user interface of the Fronius Datamanager 2.0 is displayed*
- 2 Click on the **Settings** button.
- 3 Log in to the login area as user **Service** and enter the service password.

- 4 Call up the **Meter** menu area.
- 5 Select the primary meter **Fronius Smart Meter (RTU)** or **Fronius Smart Meter (TCP)** from the drop-down list.
- 6 Click on the **Settings** button.
- 7 When using the **Fronius Smart Meter (TCP)**, enter the IP address of the Fronius Smart Meter. A static IP address is recommended for the Fronius Smart Meter.
- 8 Set the meter position of the meter (**Feed-in point** or **Consumption point**). For more information on the position of the Fronius Smart Meter, see [Positioning](#) on page 15.
- 9 Click the button **OK** when the status **OK** is displayed. If the **Timeout** status is displayed, check the network connection and repeat the entire operation.
- 10 Click on the button ☐ ✓ to save the settings.

✓ *The Fronius Smart Meter is configured as the primary meter*

In the **Current Total View** menu area, the power of the PV modules, the self-consumption, the grid feed-in, and the battery charge (if present) are displayed.

Configuring secondary meters

- 1 Log in to the Smart Meter IP (IP WLAN: 192.168.250.181) and change the Modbus address accordingly under **Advanced settings > Data interface > Modbus address** accordingly (1 = primary meter)
IMPORTANT
A Modbus address can only be assigned once.
- 2 Open the Fronius Datamanager 2.0 user interface.
 - Open a browser.
 - In the address bar of the browser, enter the IP address (for WLAN: 192.168.250.181, for LAN: 169.254.0.180) or the host and domain name of the Fronius Datamanager 2.0 and confirm.
 - The Fronius Datamanager 2.0 user interface is displayed.
- 3 Click the **Settings** button.
- 4 Log in to the login area with the **service** user and the service password.
- 5 Open the **Meter** menu area.
- 6 Select the secondary meter from the drop-down list.
- 7 Click the **Add** button.
- 8 Enter the name of the secondary meter in the **Name** input field.
- 9 Enter the previously assigned address in the **Modbus address** input field. The secondary meter address must match the Modbus address set on the Smart Meter IP.
- 10 Add meter description.
- 11 Click the ☐ ✓ button to save the settings.

The Fronius Smart Meter IP is configured as a secondary meter.

Modbus participant - Fronius SnapInverter

Modbus RTU: A maximum of 4 Modbus stations can be connected to the Modbus terminal.

Modbus TCP: Fronius recommends using a maximum of 7 secondary meters in the system.

IMPORTANT!

Only one primary meter, one battery, and one Ohmpilot can be connected per

inverter. Due to the high data transfer of the battery, the battery occupies two participants.

Example:

Input	Battery	Fronius Ohmpilot	Number of primary meters	Number of secondary meters
Modbus	✓	✓	1	0
	✓	✗	1	1
	✗	✓	1	2
	✗	✗	1	3

Multi meter system - Explanation of symbols



Grid

Supplies the loads in the system if insufficient power is being generated by the PV modules or supplied by the battery.



Inverter in the system

e.g. Fronius Primo, Fronius Symo, etc.



Utility meter

Measures the metering data relevant for the billing of electricity quantities (primarily the kilowatt hours of grid purchases and grid power feed). On the basis of the data relevant for billing, the electricity retailer invoices a grid purchase and the purchaser of the surplus pays for the grid power feed.



Primary meter

Records the load curve of the system and makes the measured data available for energy profiling in Fronius Solar.web. The primary meter also regulates the dynamic feed-in control.



Secondary meter

Records the load curve of individual loads and producers (e.g. washing machine, lights, television, heat pump, etc.) in the consumption branch and makes the measured data available for energy profiling in Fronius Solar.web.



Modbus RTU, Third-party device

e.g. Fronius Ohmpilot, battery, etc.



Loads in the system

e.g. washing machine, lamps, TV, etc.



Additional loads in the system

e.g. heat pump



Additional producers in the system

e.g. wind power plant

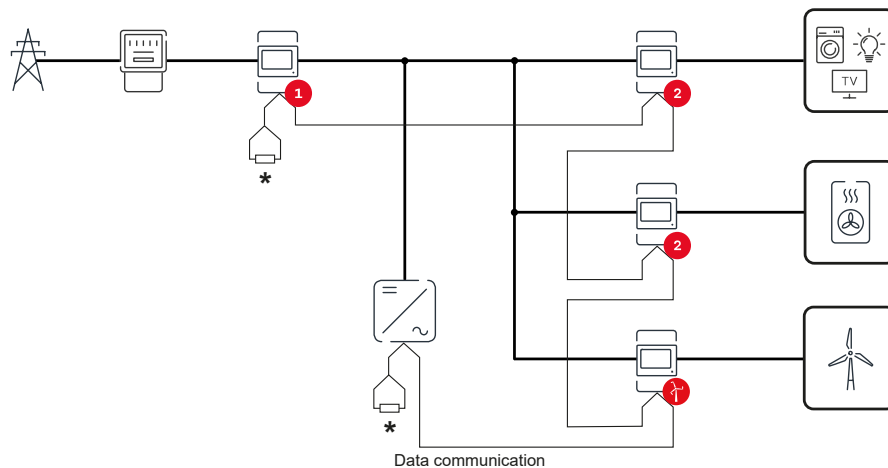
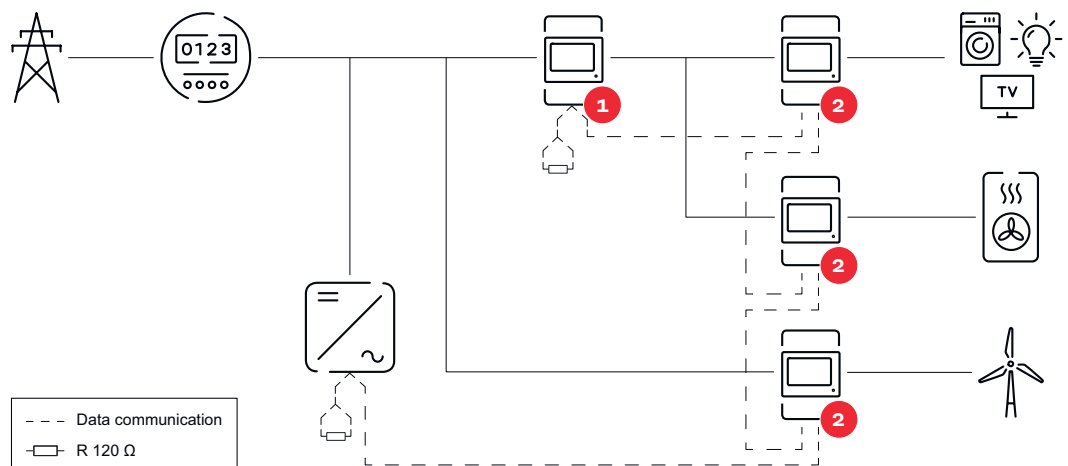


Terminating resistor
R 120 Ohm

Multi meter system – Fronius SnapINverter

If several Fronius Smart Meters are installed, set a separate address for each Smart Meter. The primary meter always receives the address 1. Number all other meters consecutively in the address range from 2 to 14. Different Fronius Smart Meter power categories can be used together.

IMPORTANT! Use a maximum of three secondary meters in a system. To avoid interference, install the terminating resistors as described in chapter [Terminating resistors](#).



Observe the following in a multi meter system:

- Each Modbus address is assigned only once.
- Place the terminating resistors individually for each channel.

Fronius GEN24 inverter

General

NOTE!

- Only specialist technicians may change the settings in the **Device Configuration** menu item.

IMPORTANT!

The service password must be entered for the **Device Configuration** menu item.

The Fronius Smart Meter can be operated in one-, two-, or three-phase mode. Select the operating mode via the **Components** menu area. The meter type is determined automatically.

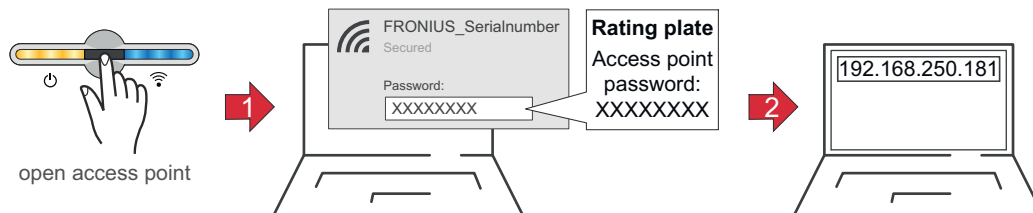
One primary meter and several secondary meters can be selected. The primary meter must be configured before a secondary meter can be chosen.

The Fronius Smart Meter can be connected to the inverter via a Modbus RTU interface, a Modbus TCP/IP interface, or via the secured MQTT interface.

Installation with the browser

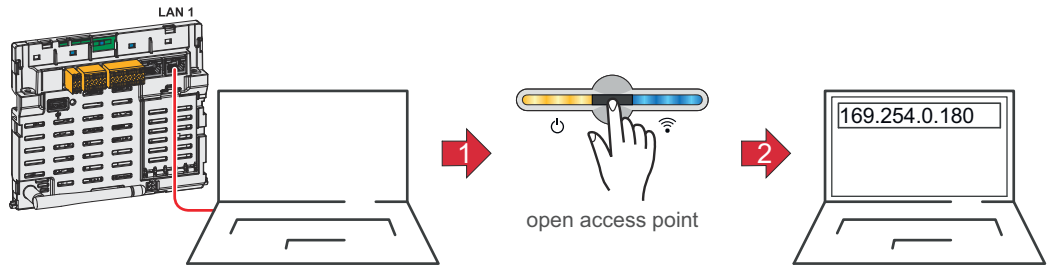
The network wizard and product setup can be performed independently. A network connection is required for the Fronius Solar.web installation wizard.

WiFi:



- 1 Open the access point by touching the sensor .
✓ *Communication LED flashes blue.*
- 2 Establish the connection to the inverter in the network settings (the inverter is displayed with the name "FRONIUS_" and the serial number of the device).
- 3 Enter the password from the rating plate and confirm.
IMPORTANT!
To enter the password, first select the **Connect using a security key instead** link in order to establish the connection with the password.
- 4 Enter the IP address 192.168.250.181 in the address bar of the browser and confirm. The installation wizard opens.
- 5 Follow the installation wizard and complete the installation in the individual areas.
- 6 Add the system components in Fronius Solar.web and commission the PV system.

Ethernet:



- 1 Establish a connection to the inverter (LAN1) using a network cable (min. CAT5 STP).
- 2 Open the access point by touching the sensor once .
✓ *Communication LED flashes blue.*
- 3 Enter the IP address 169.254.0.180 in the address bar of the browser and confirm. The installation wizard opens.
- 4 Follow the installation wizard and complete the installation in the individual areas.
- 5 Add the system components in Fronius Solar.web and commission the PV system.

Configuring the primary meter

- 1 Open the user interface of the inverter.
 - Open the browser.
 - In the browser's address bar, enter the IP address (for WiFi: 192.168.250.181, for LAN: 169.254.0.180) or enter and confirm the host and domain name of the inverter.✓ *The user interface of the inverter is displayed.*
 - 2 Click on the **Device Configuration** button.
 - 3 Log in to the login area with the user **Technician** and the technician password.
 - 4 Call up the **Components** menu area.
 - 5 Click on the **Add components** button.
 - 6 Select the connection type under **Type (Fronius Smart Meter (RTU) or Fronius Smart Meter (TCP) or Fronius Smart Meter (MQTT))**.
 - If the **Fronius Smart Meter MQTT** connection type is used, the Fronius Smart Meter IP is automatically listed.
 - If the **Fronius Smart Meter (TCP)** connection type is used, enter the IP address of the Fronius Smart Meter IP. A static IP address is recommended in this case.
 - 7 Set the position of the meter (**Feed-in point** or **Consumption point**) in the **Position** drop-down list. For more information on the position of the Fronius Smart Meter IP, see [Positioning](#).
 - 8 Click on the **Add** button.
 - 9 Click the **Save** button to save the settings.
- ✓
- The Fronius Smart Meter is configured as the primary meter.*

Configuring secondary meters

- 1 Establish a connection to the Smart Meter IP (IP WLAN: 192.168.250.181).
- 2 Open a browser.

- 3 Log in to the Smart Meter IP user interface and change the Modbus address accordingly under **Advanced settings > Data interface > Modbus address** (1 = primary meter)
This setting is necessary when using Modbus TCP and RTU.
- 4 Open the user interface of the inverter.
 - Open a browser.
 - In the address bar of the browser, enter the IP address (IP address for WLAN: 192.168.250.181, IP address for LAN: 169.254.0.180) or the host and domain name of the inverter and confirm.
 - The user interface of the inverter is displayed.
- 5 Click the **Device configuration** button.
- 6 Log in to the login area with the **Technician** user and the technician password.
- 7 Access the **Components** menu area.
- 8 Click the **Add component** button.
- 9 Select connection type (**Fronius Smart Meter (RTU)** or **Fronius Smart Meter (TCP)**).
- 10 In the **Position** drop-down list, select the meter type (producer/load meter).
- 11 Enter the previously assigned address in the **Modbus address** input field. The secondary meter address must match the Modbus address set on the Smart Meter IP.
- 12 Enter the name of the meter in the **Name** input field.
- 13 In the **Category** drop-down list, select the category (**producer** or **load**).
- 14 If using **Fronius Smart Meter (TCP)**, enter the IP address of the Fronius Smart Meter IP under **IP Address**. A static IP address is recommended
- 15 Click the **Add** button.
- 16 Click the **Save** button to save the settings.

The Fronius Smart Meter IP is configured as a secondary meter.

Modbus participant – Fronius GEN24

Modbus RTU:

The inputs M0 and M1 can be freely selected. A maximum of 4 Modbus participants can be connected to the Modbus terminal on the inputs M0 and M1.

Modbus TCP/Fronius Smart Meter MQTT:

Fronius recommends using a maximum of 7 secondary meters in the system.

IMPORTANT!

Only one primary meter, one battery, and one Ohmpilot can be connected per inverter. Due to the high data transfer of the battery, the battery occupies two participants.

Example 1:

Input	Battery	Fronius Ohmpilot	Number of primary meters	Number of secondary meters
Modbus 0 (M0)	✗	✗	0	4
	✓	✗	0	2
	✓	✓	0	1

Input	Battery	Fronius Ohmpilot	Number of primary meters	Number of secondary meters
Modbus 1 (M1)	✗	✗	1	3

Example 2:

Input	Battery	Fronius Ohmpilot	Number of primary meters	Number of secondary meters
Modbus 0 (M0)	✗	✗	1	3
Modbus 1 (M1)	✗	✗	0	4
	✓	✗	0	2
	✓	✓	0	1

Multi meter system - Explanation of symbols



Grid

Supplies the loads in the system if insufficient power is being generated by the PV modules or supplied by the battery.



Inverter in the system

e.g. Fronius Primo, Fronius Symo, etc.



Utility meter

Measures the metering data relevant for the billing of electricity quantities (primarily the kilowatt hours of grid purchases and grid power feed). On the basis of the data relevant for billing, the electricity retailer invoices a grid purchase and the purchaser of the surplus pays for the grid power feed.



Primary meter

Records the load curve of the system and makes the measured data available for energy profiling in Fronius Solar.web. The primary meter also regulates the dynamic feed-in control.



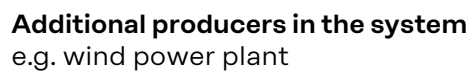
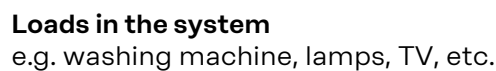
Secondary meter

Records the load curve of individual loads and producers (e.g. washing machine, lights, television, heat pump, etc.) in the consumption branch and makes the measured data available for energy profiling in Fronius Solar.web.



Modbus RTU, Third-party device

e.g. Fronius Ohmpilot, battery, etc.



If several Fronius Smart Meters are installed, set a separate address for each Smart Meter. The primary meter always receives the address 1. Number all other meters consecutively in the address range from 2 to 14. Different Fronius Smart Meter power categories can be used together.

IMPORTANT! Use a maximum of seven secondary meters in a system. Data connection via RTU and TCP is possible. To avoid interference, install the terminating resistors as described in chapter [Terminating resistors](#).



Observe the following in a multi meter system:

- Connect the primary meter and a battery to different channels (recommended).
- Distribute the remaining Modbus participants evenly.
- Each Modbus address is assigned only once.
- Place the terminating resistors individually for each channel.

Fronius Wattpilot

Pairing the Fronius Smart Meter and Fronius Wattpilot

- 1 Open the Fronius Solar.wattpilot app.
- 2 Activate the **Use PV surplus** slider under **Settings > Cost optimization**.
- 3 Select **Inverter/Smart Meter IP**.
 - ✓ *The available system components are displayed.*
- 4 Select the desired system component.
- 5 Select **Paired**.

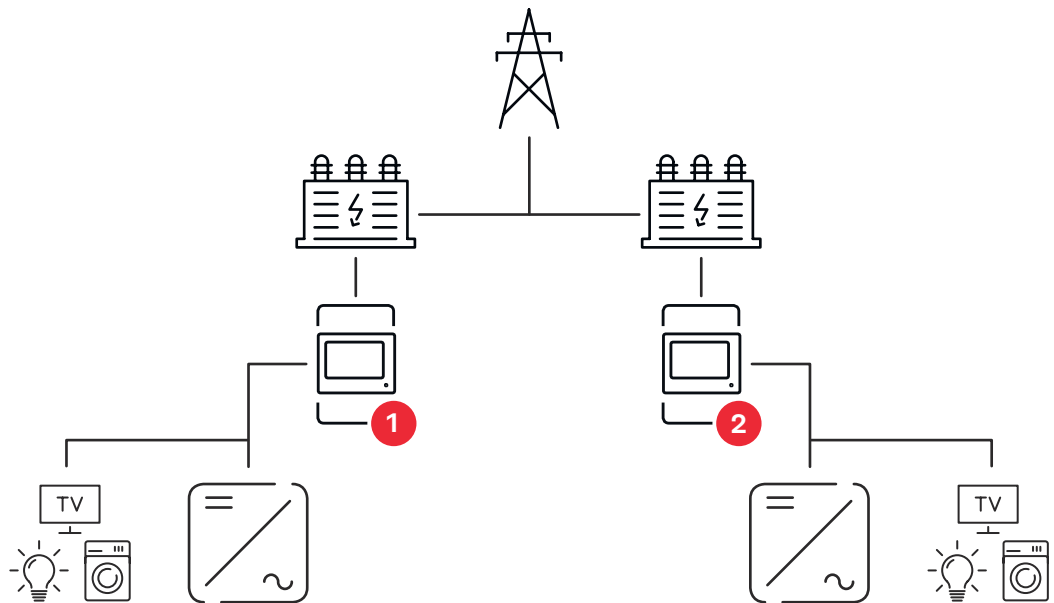
Meter aggregation

General

IMPORTANT!

Settings in the **Settings > Interfaces > Meter aggregation** menu may only be made by trained and qualified personnel.

The meter aggregation function is suitable for use in the commercial sector only.



Meter aggregation function

The meter aggregation function aggregates the measured values of a maximum of six Fronius Smart Meter IP 5kA-3. A higher-level Fronius Smart Meter IP 5kA-3 serves as the primary Smart Meter and recognizes the secondary Fronius Smart Meter IP 5kA-3.

The prerequisites for this are:

- The primary Smart Meter and all secondary Smart Meters are Fronius Smart Meters IP 5kA-3.
- All Smart Meters are in the same network.
- All Smart Meters have the same software version installed.

The aggregated measured values include:

- The energy values
- The active power
- The reactive power
- The apparent power

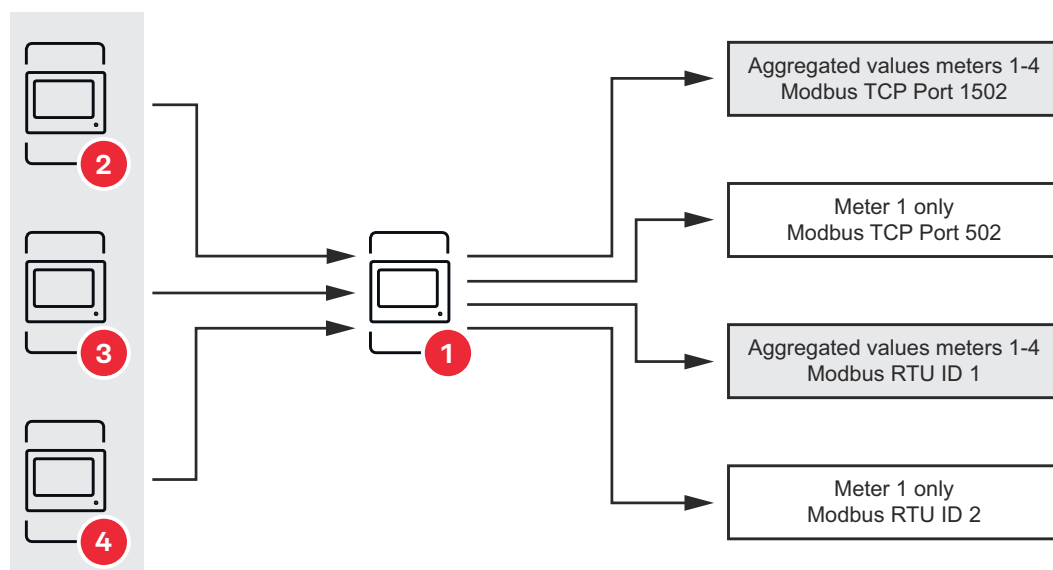
The aggregation of the measured values does not take into account any power loss.

The user interface of the inverter displays the primary Smart Meter and the secondary Smart Meters. The data interfaces used display the measured values.

The aggregated measured values are made available via:

- Modbus TCP Port 1502
- Modbus RTU ID 1
- MQTT

The measured values of the primary Smart Meter are provided via either Modbus TCP port 502 or Modbus RTU ID 2.



Software version

The meter aggregation function is available from software version 3.0.3-003. If the software is updated for a primary Smart Meter, all secondary Smart Meters will also receive an update notification.

NOTE!

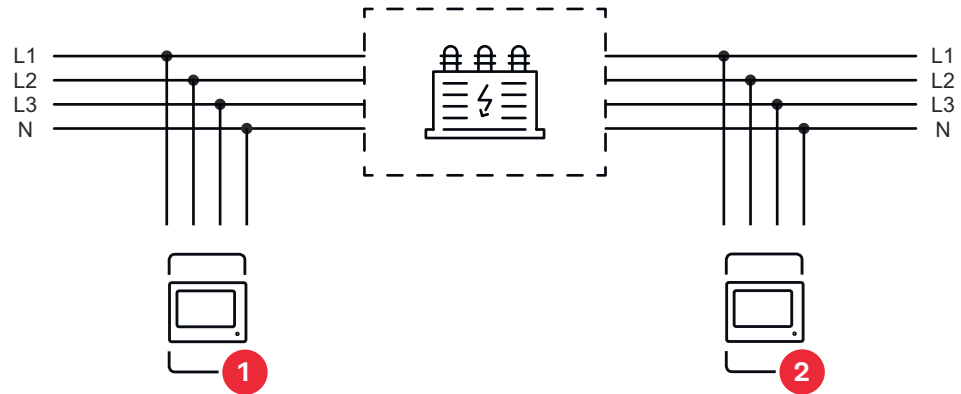
A data connection via LAN is required for operation.

Compatible components:

- Fronius Wattpilot
- Fronius Datamanager 2.0
- Fronius Hybridmanager
- Fronius GEN24 inverter
- Fronius Tauro
- Fronius Verto

Assigning phases with meter aggregation

Phase assignment version 1:



Phase assignment version 2:



Configuring meter aggregation

To use the meter aggregation function, make the following settings in the user interface of the Fronius Smart Meter IP 5 kA-3:

- ☐ All Smart Meters used for meter aggregation are Fronius Smart Meter IP 5kA-3.
- ☐ All Smart Meters used for meter aggregation have the same number of phases and the same phase assignment.
Smart meters with a different phase assignment are displayed but cannot be used for meter aggregation. A configuration error appears in the user interface in this case.
- ☐ All Smart Meters used for meter aggregation are installed and commissioned correctly.
- ☐ All Smart Meters used for meter aggregation in the system are in the same network.
- 1** Open the Fronius Solar.start App.

- 2 Scan the QR code on the primary Smart Meter.
✓ *The user interface of the Smart Meter IP opens.*
 - 3 Log in and navigate to **Settings > Interfaces**.
 - 4 Select and allow **Meter aggregation**.
✓ *The list of compatible Smart Meters is displayed.*
 - 5 Select a Smart Meter from the displayed list.
✓ *The list of Smart Meters that have already been configured is displayed.*
 - 6 In the **Connect to Fronius device** menu, select an inverter. Follow the instructions in the respective inverter operating instructions.
- ✓ *The **Meter aggregation** function is activated and set up.*

When **Scan** is selected, the primary Fronius Smart Meter IP 5kA-3 checks whether other secondary Smart Meters are available for the meter aggregation function in the network.

Meter aggregation – Explanation of symbols



Grid

supplies the loads in the system if insufficient power is being generated by the PV modules or supplied by the battery.



Inverter in the system



Transformer



Primary meter

records the load curve of the system and makes the measured data available. The primary meter aggregates the measurement data of the defined Smart Meters.



Secondary meter

records the load curve of individual generators and loads.



Loads in the system

, e.g., washing machine, lights, television, etc.

User interface

Overview

Overview

	Measurement data and connections An overview of the measurement data (e.g., voltage, amperage, frequency, etc.) and the data communication connections is displayed.
	Language The desired language can be set here via the drop-down menu.
	Change password After entering the initial password (123), a new password must be assigned: Password guidelines - At least 6 characters - At least 3 of the following 4 properties: Upper case letters, lower case letters, numbers, special characters If the password has been forgotten, the Smart Meter must be reset (see chapter Restoring the factory settings on page 59).
	Advanced settings For more information on the settings, see chapter Advanced settings on page 58.
	Info Various information about the Fronius Smart Meter IP is displayed here. This information can be helpful in support cases.
	Logout The current user is logged out.

Settings

Advanced settings

Network

The WLAN or LAN connection can be configured here. The use of a static IP address is recommended.

Meter values

Here all values can be set to 0 or meter values can be corrected manually. The input current of the current transformers can be changed, see [Changing the input current of the current transformers](#) on page 59.

Software update

Software update settings can be made here. It is possible to configure an automatic update.

Data interfaces

Several data interfaces can be used simultaneously.

Detailed views - Entering the login data is required.

- **Expert view:** All available measured values of the Fronius Smart Meter IP are displayed.
- **REST/JSON:** The current measured data are displayed.
- **REST/XML:** Only visible if the **REST/XML** interface is enabled under **Data interfaces**. The current measured data are displayed.

Data interfaces

- **REST/XML:** To enable the REST/XML interface.
 - **Fronius Backend:** A connection to a Message Queuing Telemetry Transport (MQTT)-Broker can be set up via the Fronius backend. This setting is required for Fronius EMIL, for example. For further information, please contact your Fronius system partner.
 - **Modbus (TCP and RTU):**
 - **Modbus address:** Must be changed accordingly when multiple meters are in operation (1 = primary meter)
 - **Modbus TCP Port:** This value must match the setting on the inverter (standard port: 502).
-

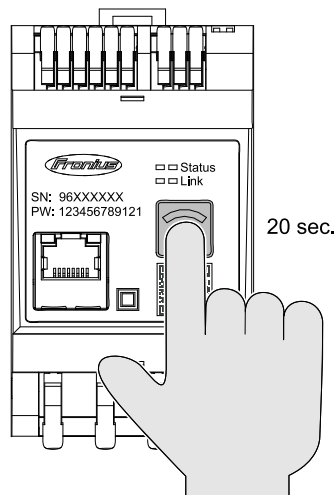
Single-phase/multiphase

The connection type of the Fronius Smart Meter IP can be selected here.

Restart device

Click on **Restart device** to restart the Fronius Smart Meter IP.

Restoring the factory settings



Press and hold the **WLAN access point and reset** button for 20 seconds to reset the Fronius Smart Meter IP 5kA-3 to factory settings.

- All LEDs on the Fronius Smart Meter IP 5kA-3 go out and the device restarts (can take max. 10 minutes).
- All measured values are set to 0 and the configuration is reset.
- If the factory settings are restored, the device must be reconfigured (see [Commissioning the Fronius Smart Meter](#)).

Changing the input current of the current transformers

The input current of the current transformers can be changed after commissioning:

- 1 Open the menu **Advanced settings > Meter values**.
- 2 Click the **Current transformer** button.
- 3 Enter the input current of the connected current transformers in amperes and click **Next**.
The input current value is stated in the current transformer user information.
- 4 Confirm the change of the value by clicking on **Save**.

Appendix

Service, maintenance and disposal

Maintenance Maintenance and service work may only be carried out by a technical specialist.

Cleaning Wipe the device, if necessary, with a damp cloth.
Do not use cleaning agents, scouring agents, solvents, or similar products to clean the device.

Disposal Waste electrical and electronic equipment must be collected separately and recycled in an environmentally sound manner in accordance with the European Directive and national law. Used equipment must be returned to the distributor or through a local authorized collection and disposal system. Proper disposal of the used device promotes sustainable recycling of resources and prevents negative effects on health and the environment.

Packaging materials

- Collect separately
 - Observe local regulations
 - Crush cardboard boxes
-

Warranty Detailed warranty conditions specific to your country can be found at <https://www.fronius.com/en/download-center?searchword=Warranty+conditions>.

If there is a warranty for the relevant product, register the product at <https://warranty.fronius.com/> and activate or extend the warranty.

Technical data

Technical data

Measurement input	
Nominal voltage (3-phase) incl. tolerance	208 - 480 V
Nominal voltage (1-phase) incl. tolerance	100 - 240 V
Self-consumption	30 mA
Rated frequency Tolerance	50 - 60 Hz 47 - 63 Hz
Maximum current, $I_{\max}$	5000 A
Short-time overload (EN IEC 62053-21, EN IEC 62053-23)	$3 \times I_{\max} / 20 \text{ s}$
Self-consumption (max. current)	max. 5 W
Current distortion factor	according to EN IEC 62053-21
Power factor Working range (EN IEC 62053-21, EN IEC 62053-23)	active $\cos\phi$ 0.5 ind - 0.8 cap, reactive $\sin\phi$ 0.5 ind - 0.5 cap
Current transformer (kCT)	1 - 5000 e.g., CT 800/333 mV Only use Rogowski coils with integrators. Failure to use integrators will result in erroneous measurement results.

Energy	
Active energy accuracy (EN IEC 62053-21) / Class B (EN IEC 50470-3)	Class 1
Reactive energy accuracy (EN IEC 62053-23)	Class 2
Response time after switching on (EN IEC 62053-21, EN IEC 62053-23)	< 5 s

Output	
RS485 communication Electrically isolated from input and auxiliary voltage	
Standard	RS485 - 3 conductors
Transfer	serial, asynchronous
Protocol	Modbus RTU
Addresses	1 - 255
Bit count	8
Stop bit	1
Parity bit	none - even - odd

Output	
Baud rate (Modbus transmission speed)	9600 bit/s
Response time	≤ 200 ms

WiFi	
Frequency range	2412 - 2472 MHz
Channels used	Channel: 1-13 b,g,n HT20 Channel: 3-9 HT40
Power	<18 dBm
Modulation	802.11b: DSSS (1Mbps DBPSK, 2Mbps DQPSK, 5.5/11Mbps CCK) 802.11g: OFDM (6/9Mbps BPSK, 12/18Mbps QPSK, 24/36Mbps 16-QAM, 48/54Mbps 64-QAM) 802.11n: OFDM (6.5 BPSK, QPSK, 16-QAM, 64-QAM)

Insulation (EN IEC 62052-11, EN IEC 62053-21)	
Installation category	II
Pollution degree	PD2
Insulation voltage	4 kV RMS
Surge withstand capability Test circuit	4 kV 1.2/60 μs Voltage input, current transformer input, communication
Test voltage Test circuit	2.5 kV RMS. 50 Hz/1 min Voltage input, current transformer input, communication
Test voltage Test circuit	4 kV RMS. 50 Hz/1 min All circuits and ground

Electromagnetic compatibility	
Test standard	Test according to EN IEC 62052-11

Environmental conditions	
Reference temperature	25 °C (± 5 °C)
Operating range	-25 to +55 °C
Limit temperature for storage and transport	-30 to +80 °C
Max. humidity	93%
Max. power loss (for thermal dimensioning of the switch cabinet)	≤ 6 W
Overvoltage category	III

Housing	
Housing	3 modules according to DIN 43880

Housing	
Connection	Spring-type terminals
Mounting	35 mm DIN rail
Housing material	PA-765 UL
Protection class (EN 60529)	IP20 housing, IP30 connections
Weight	132 grams

Terminals	
Voltage input	
Wire	min. 1.5 mm ² / max. 4 mm ²
Data output and current transformer input	
Wire	min. 0.25 mm ² / max. 2.5 mm ²



fronius.com/en/solar-energy/installers-partners/products-solutions/monitoring-digital-tools

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