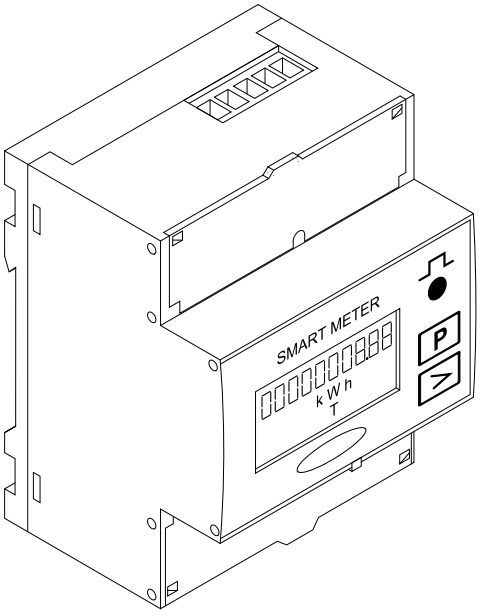
Operating Instructions

Fronius Smart Meter 50kA-3



EN | Operating Instructions

42,0426,0280,EA 018-17062026

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General information

Safety information

Explanation of warnings and safety instructions

Warnings are intended to warn people of possible injuries and to avoid personal injury and damage to the product. They relate to individual actions with and on the product.

⚠ DANGER!

Indicates an immediately dangerous situation.
Serious injury or death will result if the danger is not avoided.
▶ Action step to escape the situation.

⚠ WARNING!

Indicates a potentially dangerous situation.
Serious injury or death may result if the danger is not avoided.
▶ Action step to escape the situation.

⚠ CAUTION!

Indicates a potentially dangerous situation.
Minor or moderate injury may result if the danger is not avoided.
▶ Action step to escape the situation.

NOTE!

Indicates a situation that may result in property damage.
If the situation is not avoided, impaired work results, material damage to the product or other property are the possible consequences.
▶ Action step to avoid the situation.

Safety instructions are designed to ensure safe product use. They are preventive and help to inform users about the fundamental risks involved when dealing with the product. They do not refer specifically to individual actions with and on 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 machine outside the stipulated area will be deemed as not in accordance with the intended purpose.

For exact information on permitted environmental conditions, please refer to the technical data.

General

Device description

The Fronius Smart Meter is a bidirectional electricity meter for optimizing self-consumption and recording a household's load characteristic curve. Together with a Fronius inverter or Fronius Datamanager 2.0 and a Fronius data interface, the Fronius Smart Meter allows you to view your own power consumption. The meter measures the energy flow to the loads or to the public grid and forwards the information to the Fronius inverter or Fronius Datamanager 2.0 via the Modbus RTU/RS485 interface.

⚠ CAUTION!

Danger due to non-compliance with the safety instructions
Risk of injury and damage to the device as a result.
- ▶ Follow all safety instructions.
- ▶ Switch off the power supply before establishing the mains connection.

Information on the device

Technical data, labels, and safety symbols are located on the Fronius Smart Meter. This information must be kept in a legible condition and must not be removed, covered, painted over, or concealed by stickers or labels. The notices and symbols warn against incorrect operation that may result in serious injury and damage.

Symbols on the rating plate:

CE label
The equipment complies with all the requisite and relevant standards and directives that form part of the relevant EU directive, and therefore is permitted to display the CE label.

RCM (Regulatory Compliance Mark)
All relevant regulatory requirements in Australia and New Zealand are complied with in terms of safety and electromagnetic compatibility, as well as special requirements for radio equipment.

WEEE label
To comply with European Directive 2012/19/EU on Waste Electrical and Electronic Equipment and its implementation as national law, electrical equipment that has reached the end of its life must be collected separately and returned to an approved recycling facility. Any device that you no longer require must be returned to your distributor, or you must locate the approved collection and recycling facilities in your area. Ignoring this European Directive may have potentially adverse effects on the environment and your health.

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 people can use the machine safely and efficiently.

The information is intended for the following groups of people:

- **Technical specialists:** People with appropriate qualifications and fundamental knowledge of electronics and mechanics. The activities of a technical specialist include installation, operation, maintenance, and service work.
- **User:** People that use the machine in daily operation and want to understand its basic functions.

Regardless of any qualifications, only perform the activities listed in this document.

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/IP[1)] is an unsecured interface. Only use Modbus TCP/IP if no other secured data communication protocol (MQTT[2)]) 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.

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.

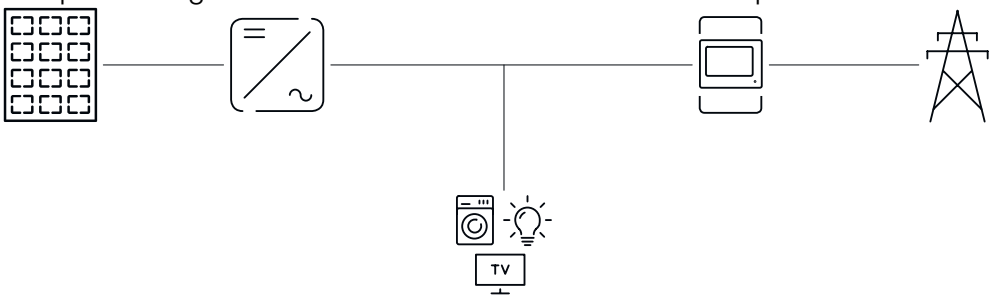
Installation

Positioning

The Fronius Smart Meter can be installed at two possible locations in the system, at the feed-in point and at the consumption point.

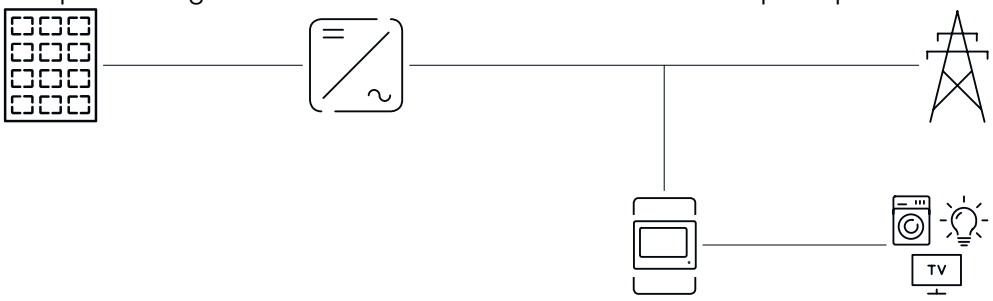
Positioning at the feed-in point

The positioning of the Fronius Smart Meter at the feed-in point.



Positioning at the consumption point

The positioning of the Fronius Smart Meter at the consumption point.



Checklist for installation

For installation information, see the following chapters:

1. Switch off the power supply before establishing a grid connection.
2. Mount the Fronius Smart Meter (see Installation on page 13).
3. Connect automatic circuit breakers or automatic circuit breakers and disconnectors (see Protective circuit on page 13).
4. Connect the mains cable to the Fronius Smart Meter (see Cabling on page 14).
5. Mount the current transformers on the conductors. Make sure that the current transformers are pointing in the correct direction. An arrow either points to the load or the source (public grid) (see Connecting the current transformers on page 17).
6. Connect the current transformer and Fronius Smart Meter (see Connecting the current transformers on page 17).

7 Make sure that the current transformer phases match the mains voltage phases (see Connecting the current transformers on page 17).

8 Note down the nominal current of the current transformer for each meter. These values will be required during setup.

9 Connect the output terminals of the Fronius Smart Meter to the Fronius inverter (see Connecting the data communication cable to the inverter on page 17).

10 If necessary, set terminating resistors (see Terminating resistors on page 19).

11 Tug on each wire and plug to make sure that they are securely connected to the terminal blocks.

12 Switch on the power supply to the Fronius Smart Meter.

13 Check the firmware version of the Fronius inverter. To ensure compatibility between the inverter and the Fronius Smart Meter, the software must always be kept up to date. The update can be started via the inverter web page or using Solar.web.

14 Set the transformation ratio of the current and voltage transformers (see Setting the transformation ratio of the current and voltage transformers on the Fronius Smart Meter on page 20).

15 If several Fronius Smart Meters are installed in the system, set the address (see "Setting the address" under Setting the address of the Fronius Smart Meter on page 24).

16 Configure and commission the meter (see Commissioning on page 27).

Installation

The Fronius Smart Meter can be mounted on a 35 mm DIN rail. The housing comprises 4 DUs (division units, max. 72 mm).

Protective circuit

The Fronius Smart Meter is a hard-wired device and requires a disconnecting device (circuit breaker, switch, or disconnector) and overcurrent protection (automatic circuit breaker).

The Fronius Smart Meter consumes 10 - 30 mA. The nominal capacity of the disconnecting devices and the overcurrent protection is determined by the wire thickness, the mains voltage, and the required breaking capacity.

- Disconnecting devices must be mounted within sight and as close as possible to the Fronius Smart Meter; they must also be easy to use.
- 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.
- Use overcurrent protection rated for max. 6 A.
- To monitor more than one mains voltage, use connected automatic circuit breakers.
- The overcurrent protection must protect the grid terminals marked L1, L2, and L3. In rare cases, the neutral conductor has an overcurrent protection which must simultaneously interrupt neutral and ungrounded lines.

Cabling

⚠ WARNING!

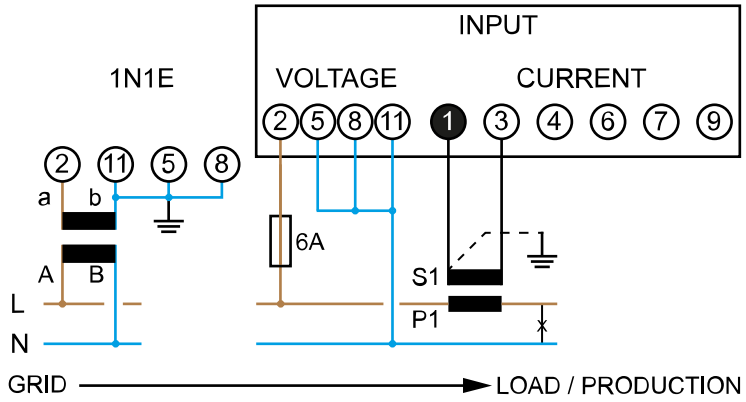
Danger from mains voltage.
An electric shock can be fatal.
▶ Switch off the power supply before connecting the mains voltage inputs to the Fronius Smart Meter.

IMPORTANT!
Do not install more than one cable per screw terminal. If necessary, use terminal blocks. The measuring inputs of the current transformers must be grounded on one side as shown in the circuit diagram.

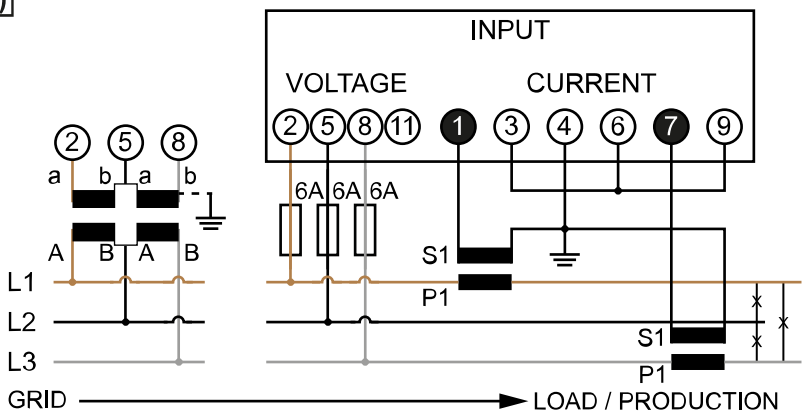
Connection cross-section:
- Wire (rigid): min. 0.05 mm² / max. 4 mm²
- Wire (flexible): min. 0.05 mm² / max. 2.5 mm²
- Recommended torque: 0.5 Nm / max. 0.8 Nm

Connect each voltage cable to the terminal strip as shown in the graphics below.

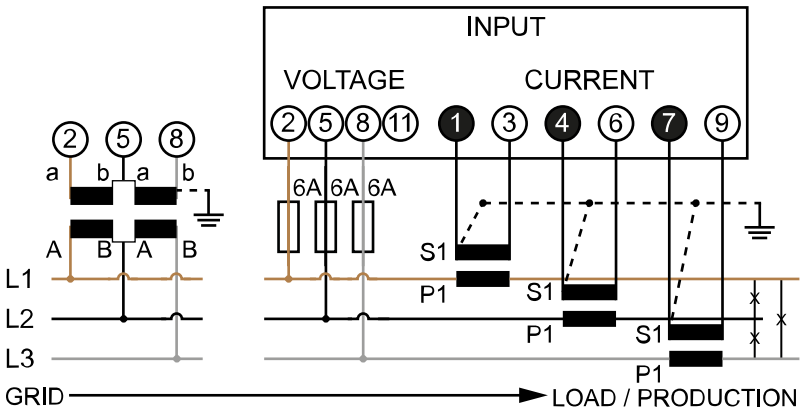
1N1E



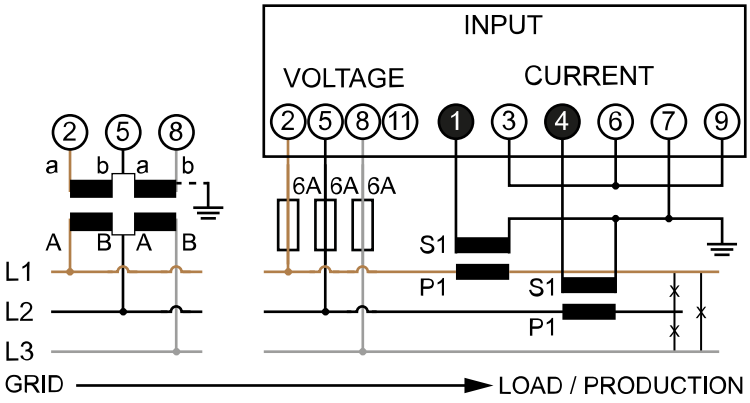
3-2E (1-3)



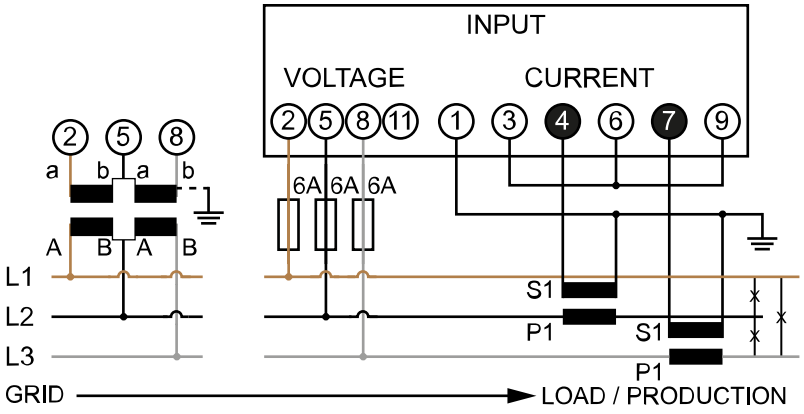
3-3E

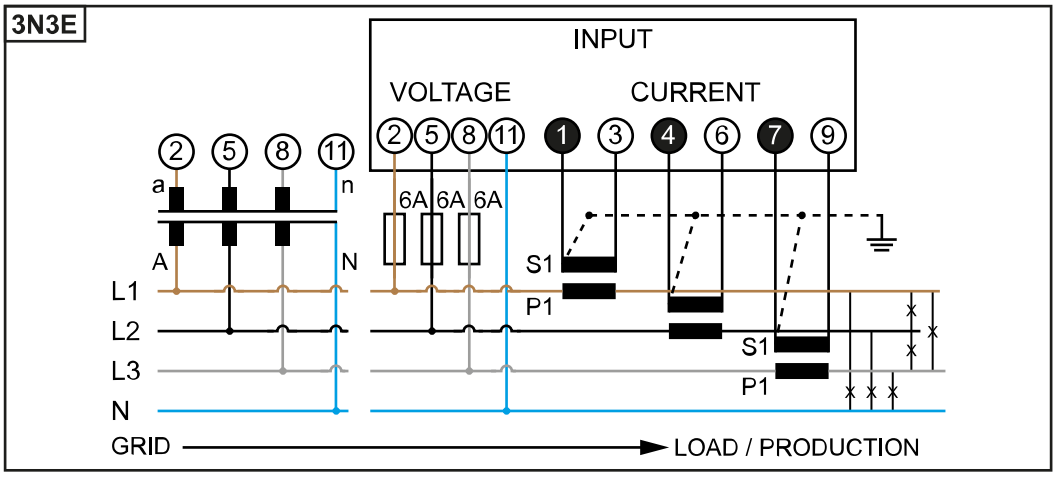


3-2E (1-2)



3-2E (2-3)





Selection criteria for current transformers

General
Do not use current transformers with a voltage output.
Current transformers are directional. If they are mounted backwards or with swapped wires, the measured power will be negative.

Primary current
Maximum current per phase. A current transformer with a primary current greater than the maximum expected current per phase should be selected. The closer the expected current is to this value, the more precise the measurement will be.

Secondary current
The current transformer must supply alternating current at a nominal current of 1 or 5 A. The nominal values for the current transformer are listed in the current transformer data sheet.

Power
The Fronius Smart Meter needs 0.3 VA to carry out its measurements. Losses also occur on the outgoing and return leads. The power of the current transformer must be greater than the sum total of the power of the Fronius Smart Meter and the leads. The higher the power, the better.

Line resistances at different cross-sections (copper wires)						
Secondary current [A]	Cross-section [mm²]	Line resistances at different lead lengths (outgoing and return lead)				
		0.5 m	1.0 m	2.5 m	5 m	10 m
5	1.5	0.3 VA	0.6 VA	1.5 VA	2.9 VA	5.8 VA
5	2.5	0.2 VA	0.4 VA	0.9 VA	1.8 VA	3.6 VA
5	4	-	-	0.6 VA	1.1 VA	2.2 VA

Example
The length of the outgoing and return lead (0.5 m each) between the Fronius Smart Meter and the current transformer is a total of 1 m and has a copper cable cross-section of 1.5 mm²; the line resistance is therefore 0.6 VA according to the table above. The self-consumption of the Fronius Smart Meter is 0.3 VA.
Line resistance 0.6 VA + self-consumption 0.3 VA = 0.9 VA
→ A current transformer with a rating of 1 VA, 1.5 VA, 5 VA, or higher is suitable here.

Accuracy class
Use Class 1 or better (Class 0.5, 0.2, etc.). Class 1 is equivalent to a deviation of ± 1% of the secondary current at maximum power.

Mounting
Rigid or hinged.
"Rigid" is usually cheaper with better power and accuracy values. Hinged current transformers can be opened for attachment to the conductor. To prevent it being opened inadvertently, a plastic cable tie can be secured to the current transformer. Hinged current transformers can be installed in a system without interrupting the voltage.

Connecting the current transformers

- Make sure that the current transformers match the voltage 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.
- Make sure that the current transformers are pointing in the correct direction. Observe the data sheet for the current transformer.

Attach the current transformers to the conductor to be measured and connect the current transformer cables to the Fronius Smart Meter. Always switch off the power supply before disconnecting live conductors.

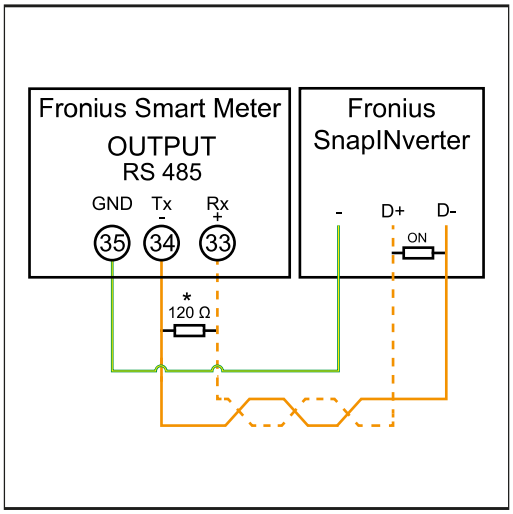
The current transformers are connected to connections 1 and 3; 4 and 6; 7 and 9. If necessary, excessively long cables can be shortened accordingly. Observe the sequence in which the phases are connected. Accurate power measurement is only ensured if the mains voltage phases match the current phases.

Suitable voltage transformers

Suitable voltage transformers: Only voltage transformers with a voltage range from 210 to 440 V (phase - phase) may be used. The voltage transformers must be connected to terminals 2, 5, 8, and 11 at the point of direct voltage measurement.

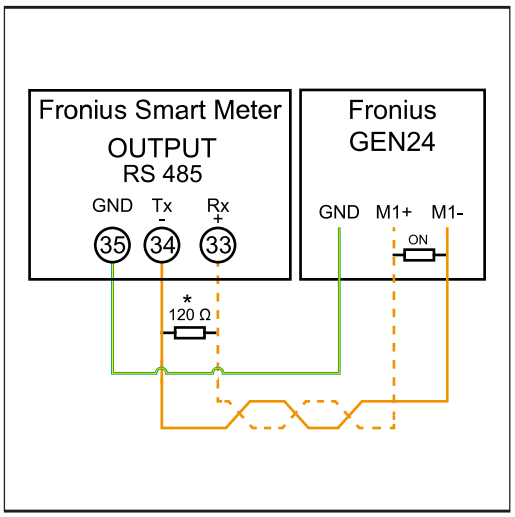
Connecting the data communication cable to the inverter

Fronius SnapINverter:
Connect the data communication connections of the Fronius Smart Meter to the Fronius system monitoring in the inverter. Several Smart Meters can be installed in the system, see chapter Multi meter system—Fronius SnapINverter on page 22.



1. Connect **35** to **-**.
2. Connect **34** to **D-**.
3. Connect **33** to **D+**.

Fronius GEN24 inverter:
Connect the data communication connections of the Fronius Smart Meter to the Modbus interface of the Fronius GEN24 inverter. Several Smart Meters can be installed in the system, see chapter Multi meter system - Fronius GEN24 inverter on page 23.



1 Connect **35** to **GND**.
2 Connect **34** to **M1-**.
3 Connect **33** to **M1+**.

IMPORTANT!

More information on successful commissioning.
Note the following information about connecting the data communication cable to the inverter.

- Use cables of type CAT5 or higher.
- The maximum cable length between the Fronius inverter and Fronius Smart Meter is 300 meters.
- Use a mutual twisted cable pair for data lines that belong together (D+, D- and M1+, M1-).
- If the output cables are close to the grid cabling, use wires or cables that are designed for 300 V to 600 V (never less than the operating voltage).
- Use double-insulated or sheathed output cables when they are close to bare conductors.
- Use shielded twisted pair cables to avoid faults.
- The outputs of the Fronius Smart Meter are electrically isolated from hazardous voltages.

Terminating resistors - explanation of symbols



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



Meter - Fronius Smart Meter
Terminating resistor R 120 Ohm is included in the scope of supply.



Fronius or third-party device, connection via Modbus RTU
e.g., Fronius Ohmpilot, battery, etc.

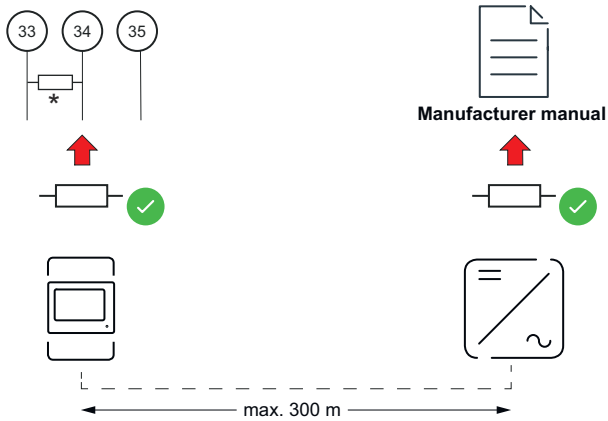


Terminating resistor
R 120 Ohm

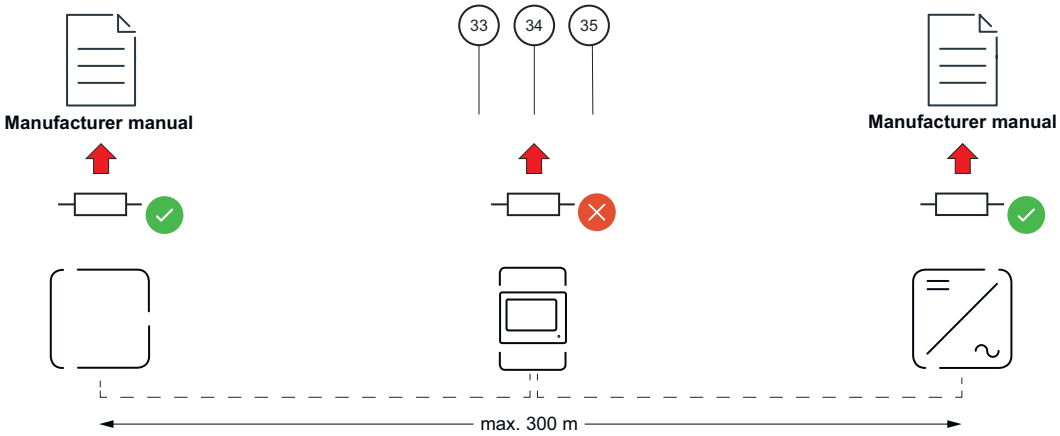
Terminating resistors

Due to interference, the use of terminating resistors according to the following overview is recommended for flawless operation.

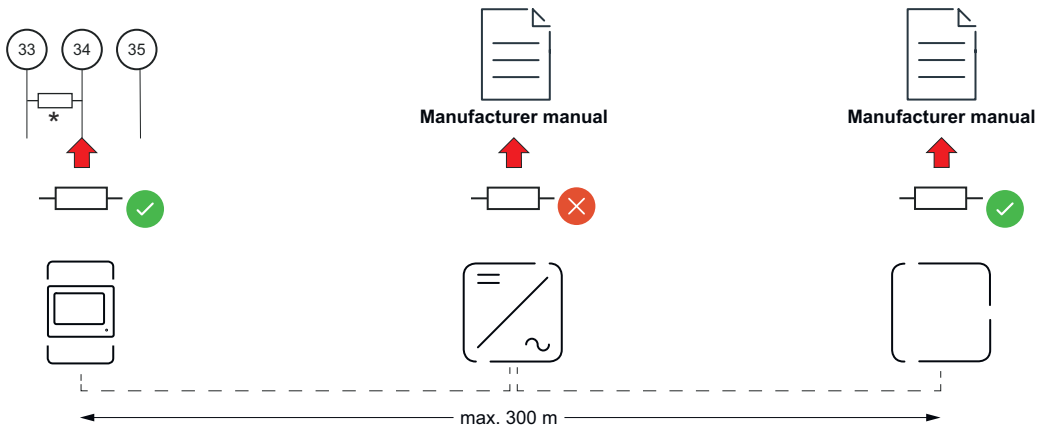
OPTION 1

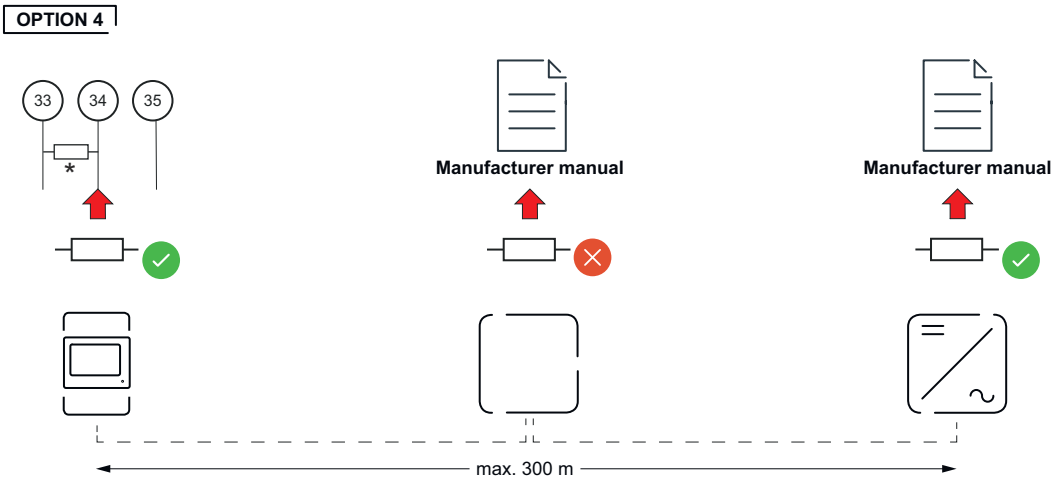


OPTION 2



OPTION 3





* The terminating resistor on the Fronius Smart Meter is installed between **33** and **34**. The terminating resistor R 120 Ohm is included with the Fronius Smart Meter.

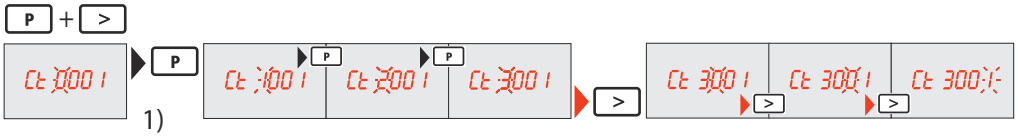
Setting the transformation ratio of the current and voltage transformers on the Fronius Smart Meter

Only the transformation ratio of the current and voltage transformers must be set. All other parameters have already been set in advance.

Password (0001):



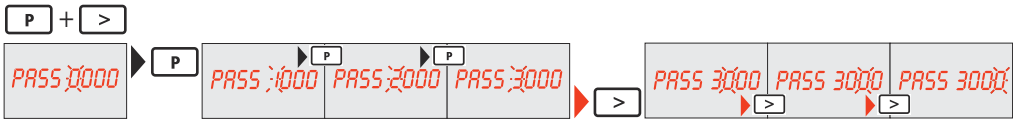
Transformation ratio of the current transformers[1] (0001 - 9999[2]):



Transformation ratio of the voltage transformers[1, 3] (001.0 - 500.0[2]):



Change password and write it down[4]:



[1]**IMPORTANT!** Changing the transformation ratios will reset the meter data in the Fronius Smart Meter to 0.

[2] Transformation ratio in the current transformer x Transformation ratio of the voltage transformers = max. 1,000,000.

[3] Changeover only when using voltage transformers (direct voltage measurement Vt = 1).

[4] **IMPORTANT!** The password cannot be reset.

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.



Fronius Smart Meter
measures the metering data relevant for the billing of electricity quantities (grid consumption and grid feed-in). 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.



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 controls the dynamic power of feeding in.



Secondary meter
records the load curve of individual generators and loads 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.



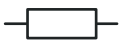
Loads in the system
e.g., washing machine, lights, television, etc.



Additional loads in the system
e.g., heat pump



Additional producers in the system
e.g., wind power plant



Terminating resistor
R 120 Ohm

Modbus participant - Fronius SnapINverter

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

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 2 subscribers.

Example:

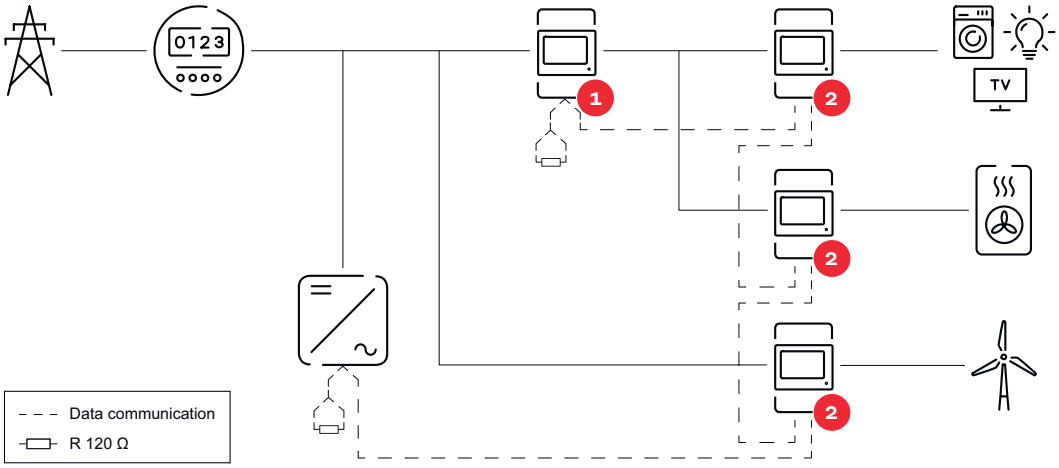
Input	Battery	Fronius Ohmpilot	Number of primary meters	Number of secondary meters
Modbus	✓	✓	1	0
	✓	✗	1	1
	✗	✓	1	2
	✗	✗	1	3

Multi meter system—Fronius SnapINverter

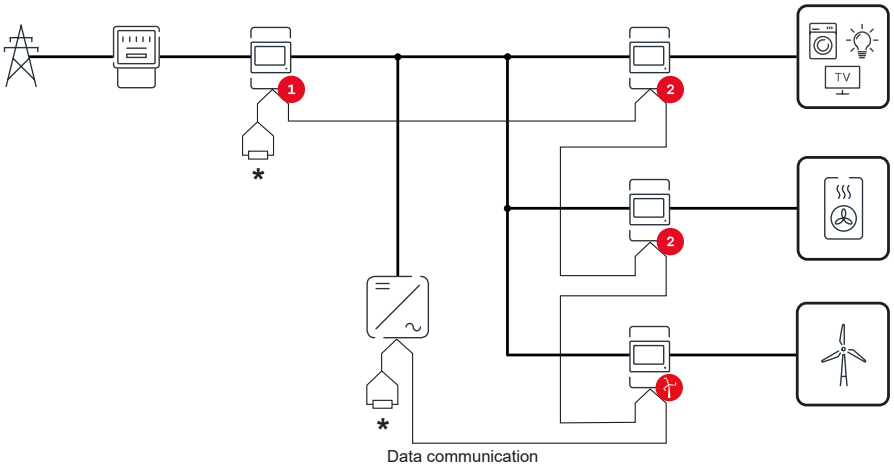
If several Fronius Smart Meters are installed, set a separate address for each Smart Meter. The primary meter always receives the address 1. Number all other meters consecutively in the address range from 2 to 14. Different Fronius Smart Meter power categories can be used together.

Multi meter system—Modbus RTU cabling

To avoid interference, install the terminating resistors as described in chapter Terminating resistors.



*Position of the primary meter in the consumption branch. *Terminating resistor R 120 Ohm*



*Position of the primary meter at the feed-in point. *Terminating resistor R 120 Ohm*

Observe the following in a multi meter system:
- Each Modbus address is assigned only once.
- Place the terminating resistors individually for each channel.

Modbus participant - Fronius GEN24

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.

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 2 subscribers.

Example 1:

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

Example 2:

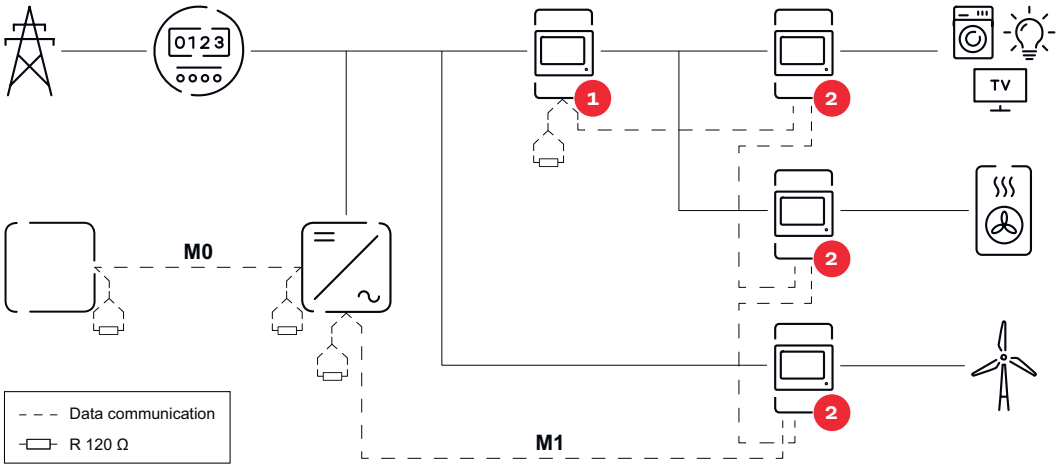
Input	Battery	Fronius Ohmpilot	Number of primary meters	Number of secondary meters
Modbus 0 (M0)	✗	✗	1	3
Modbus 1 (M1)	✗	✗	0	4
	✓	✗	0	2
	✓	✓	0	1

Multi meter system - Fronius GEN24 inverter

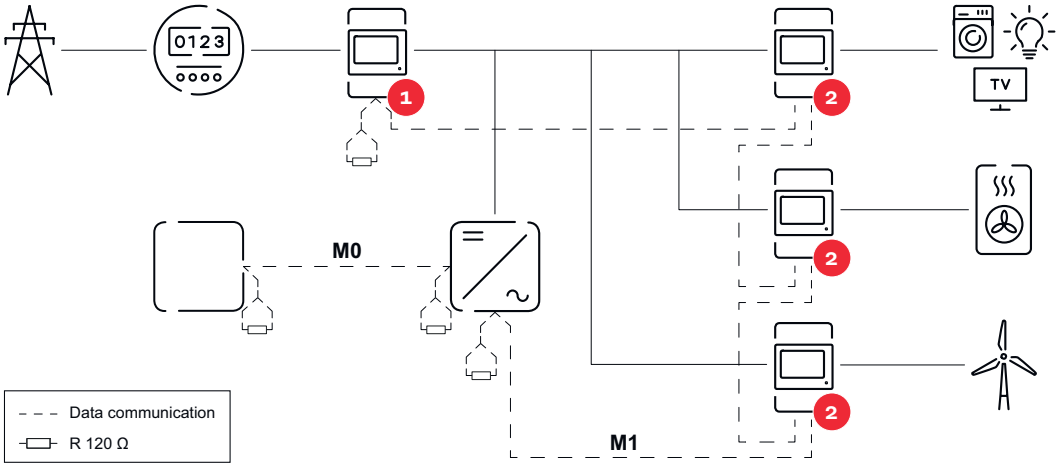
If several Fronius Smart Meters are installed, a separate address must be set for each one (see Setting the address of the Fronius Smart Meter on page 24). The primary meter always receives the address 1. All other meters are numbered consecutively in the address range from 2 to 14. Different Fronius Smart Meter power categories can be used together.

IMPORTANT!
Use no more than Use 7 secondary meters in the system. To avoid interference,

it is recommended to install the terminating resistors according to the chapter Terminating resistors on page 19.



*Position of the primary meter in the consumption branch. *Termination resistance R 120 Ohm*



*Position of the primary meter at the feed-in point. *Termination resistance R 120 Ohm*

The following must be observed in a multi meter system:

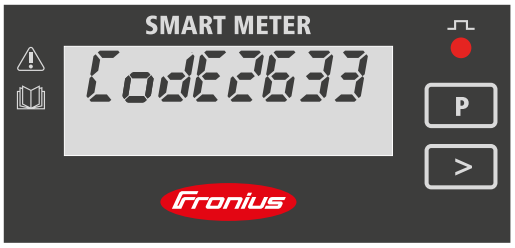
- Connect the primary meter and the battery to different channels (recommended).
- Distribute the remaining Modbus participants evenly.
- Each Modbus address is assigned only once.
- Place the terminating resistors individually for each channel.

Menu structure

A graphic view of the menu structure can be found in the User Information that is supplied as standard.

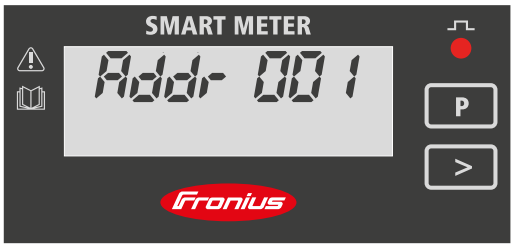
Setting the address of the Fronius Smart Meter

Symbol	Name	Event	Function
P	Prog	1 x	Increases the set value
>	Page	1 x	Moves the cursor
> + P	Enter	1 x	Confirms the entry



1 Press "Prog" and "Page" at the same time to enter the code.

2 Enter the password "2633". Increase the value with "Prog" and change to the next digit with "Page".



3 Press "Prog" and "Page" at the same time again to switch to the menu item "Addr" (address).

4 Set the relevant address.
- Permissible values: 1 - 14

IMPORTANT!

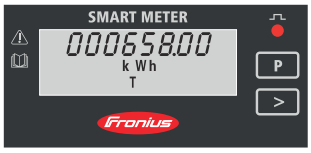
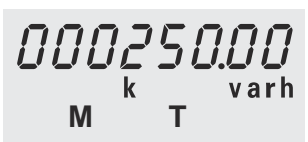
Only configure the menu items "Password" and "Address".

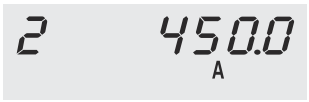
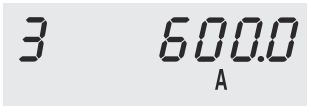
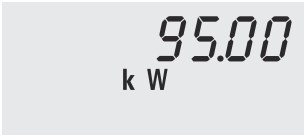
▶ The parameter **„Node A“** is preset and must not be changed.

Reading the Fronius Smart Meter operating parameters

Symbol	Name	Event	Function
>	Page	1 x	Continue to the next screen
>	Page	5 seconds	Reset value / change menu

The following illustrations are symbolic representations. The values displayed vary for each individual unit.

Display	Description
	**Total active energy consumed**
	Total reactive energy
	**Total active energy produced** Press arrow key for 5 seconds to reset the value
	**Partial reactive energy** Press arrow key for 5 seconds to reset the value

Display	Description
	**Maximum effective power average value** Press arrow key for 5 seconds to reset the value
	**Effective power average value**
	**Voltage and current menu** Press the arrow key and wait 2 seconds until the next display (current phase L1) appears.
	**Current phase L1**
	**Current phase L2**
	**Current phase L3**
	**Chained voltage phase L1-L2**
	**Chained voltage phase L2-L3**
	**Chained voltage phase L1-L3**
	**Effective power**
	**Reactive power**
	**Apparent power**

Commissioning

Fronius SnapINverter

General

IMPORTANT! Settings in the "Meter" menu item may only be entered by staff trained to do so!

The service password must be entered for the "Meter" menu item.

Three-phase or one-phase Fronius Smart Meters may be used. In both cases, selection is made via the "Fronius Smart Meter" item. The Fronius Datamanager 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.

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 Fronius Smart Meter as the primary meter

1 Go to the Fronius Datamanager website.
- Open the web 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 Fronius Datamanager and confirm.
- The Fronius Datamanager website will be displayed.

2 Click the **"Settings"** button.

3 Log in to the login area with the **"service"** user and the service password.

4 Open the **"Meter"** menu area.

5 Select the primary meter from the drop-down list.

6 Click the **"Settings"** button.

7 In the pop-up window, set the 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 12.

8 Click the **"Ok"** button when the OK status is displayed. If the *Timeout* status is displayed, try again.

9 Click the ✓ button to save the settings.

The Fronius Smart Meter is configured as a primary meter.

The **"Current general view"** menu area displays the power of the PV modules, self-consumption, the energy fed into the grid, and the battery charge (if available).

Configuring the Fronius Smart Meter as a secondary meter

1 Go to the Fronius Datamanager website.
- Open the web 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 Fronius Datamanager and confirm.
- The Fronius Datamanager website will be displayed.

2 Click the **"Settings"** button.

3 Log in to the login area with the **"service"** user and the service password.

4 Open the **"Meter"** menu area.

5 Select the secondary meter from the drop-down list.

6 Click the **"Add"** button.

7 Enter the name of the secondary meter in the **"Name"** input field.

8 Enter the previously assigned address in the **"Modbus address"** input field.

9 Add meter description.

10 Click the ✓ button to save the settings.

The Fronius Smart Meter is configured as a secondary meter.

Fronius GEN24 inverter

General

IMPORTANT! Settings in the "Device configuration" menu item may only be entered by staff trained to do so!

The service password must be entered for the "Device configuration" menu item.

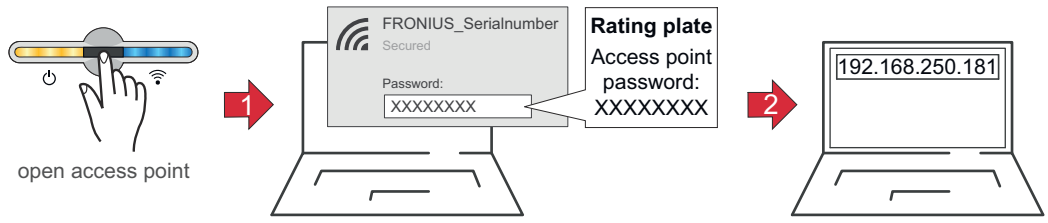
Three-phase or one-phase Fronius Smart Meters may be used. In both cases, selection is made via the "Components" menu area. The meter type is determined automatically.

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

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).

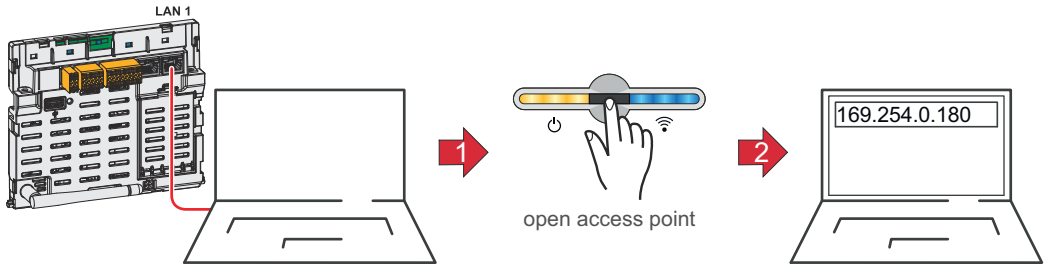
3 Enter the password from the rating plate and confirm.
IMPORTANT!
To enter the password, first select the **Connect using a security key instead** link in order to establish the connection with the password.

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 Fronius Smart Meter as the primary meter

1 Access the inverter website.
- Open the web 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 inverter website is displayed.

2 Click the **"Device configuration"** button.

3 Log in to the login area with the **"Technician"** user and the technician password.

4 Access the **"Components"** menu area.

5 Click the **"Add component"** button.

6 In the "Position" drop-down list, set the 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 12.

7 Click the **"Add"** button.

8 Click the **"Save"** button to save the settings.

The Fronius Smart Meter is configured as a primary meter.

Configuring the Fronius Smart Meter as a secondary meter

1 Access the inverter website.
- Open the web 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 inverter website is displayed.

2 Click the **"Device configuration"** button.

3 Log in to the login area with the **"Technician"** user and the technician password.

4 Access the **"Components"** menu area.

5 Click the **"Add component"** button.

6 In the **"Position"** drop-down list, select the meter type (producer/load meter).

7 Enter the previously assigned address in the **"Modbus address"** input field.

8 Enter the name of the meter in the **"Name"** input field.

9 In the "Category" drop-down list, select the category (producer or load).

10 Click the **"Add"** button.

11 Click the **"Save"** button to save the settings.

The Fronius Smart Meter is configured as a secondary meter.

Technical data

Technical data

Modbus transmission speed: 9600 baud
Parity bit: None
Software version: Datamanager 3.7.2 / Energypackage 1.3.3

Input	
Three-phase nominal voltage Operating range	400 - 415 V 363 to 457 V
Single-phase nominal voltage Operating range	230 - 240 V 210 to 264 V
Voltage transformer ratio (kVT)	1 - 1500.0 e.g., VT 20000/400V kVT = 50 For direct connection: kVT = 1
Self-consumption - voltage path (max. voltage)	4.5 VA (1.85 W) for 440 V
Nominal frequency Tolerance	50 - 60 Hz 47 to 63 Hz
Nominal current, Ib	1 A + 5 A
Maximum current, Imax	6 A
Starting current	20 mA
Current transformer ratio (kCT)	1 - 9999 e.g., TC 800/5A kCT = 160
Short-time overload (EN/IEC 62053-21, EN/IEC 62053-23)	20 Imax / 0.5 s
Self-consumption - current path (max. current)	0.3 W for phase
Maximum value kVT x kCT	5,000,000 (CT/1A) or 1,000,000 (CT/5A)
Current total harmonic distortion	In acc. with EN/IEC 62053-21
Power factor Operating range (EN/IEC 62053-21, EN/IEC 62053-23)	Active cosφ 0.5 ind to 0.8 cap, Reactive sinφ 0.5 ind to 0.5 cap

Energy	
Max. display	As per table
Resolution	As per table
LED indicator	1 pulse / 0.1 Wh
Active energy accuracy (EN/IEC 62053-21)	Class 1
Reactive energy accuracy (EN/IEC 62053-23)	Class 2
Response time after switch-on (EN/IEC 62053-21, EN/IEC 62053-23)	< 5 s

kCT x kVT	Maximum display		Resolution
1 to 9.9	9 9 9 9 9 9 . 9 9	kWh / kvarh	10 Wh / varh
10 to 99.9	9 9 9 9 9 9 9 . 9	kWh / kvarh	100 Wh / varh
100 to 999.9	9 9 9 9 9 9 9 9	kWh / kvarh	1 kWh / varh
1000 to 9999.9	9 9 9 9 9 9 . 9 9	MWh / kvarh	10 kWh / varh
≥ 10000	9 9 9 9 9 9 9 . 9	MWh / kvarh	100 kWh / varh

Average power	
Measured variable	Effective power
Calculation	Average value over set period of time
Integration time	5 / 8 / 10 / 15 / 20 / 30 / 60 minutes

Operating hours counter	
Operating hours counter	Hours and minutes
Resolution	7-digit (5 hours + 2 minutes)
Max. display	99,999 h 59 min
Counting start	3-phase effective power
Programmable values	0.10 to 50% Pn
3-phase effective power	In acc. with 400 V 5 A - 3464 W
Operating hours counter reset	Accessible via keypad or locked

Output	
Energy pulse Pulse output compatible with S0 EN/IEC 62053-31 Optical relay with NO contact SPST-NO, floating	
Contact load	110 V DC/AC - 50 mA
Assignable energy	Active or reactive energy
Pulse value	10 Wh (Varh) - 100 Wh (Varh) - 1 kWh (kVarh) - 10 kWh (kVarh) - 100 kWh (kVarh) - 1000 kWh (kVarh)
Pulse duration	50 - 100 - 150 - 200 - 300 - 400 - 500 ms
RS485 communication Electrically isolated from input and auxiliary voltage	
Standard	RS485 - 3 conductors
Transmission	Serial, asynchronous
Protocol	Modbus RTU
Addresses	1 to 255
Number of bits	8
Stop bit	1
Parity bit	None - even - odd
Baud rate	4800 - 9600 - 19200 bit/s
Response time	≤ 200 ms

Insulation (EN/IEC 62052-11, 62053-21)	
Installation category	III
Pollution degree	2
Insulation voltage	300 V phase-neutral
Impulse withstand voltage Test circuit	5 kV 1.2/60 µs Voltage input, current input, pulse output, communication
Test voltage Test circuit	2.75 kV r.m.s. 50 Hz / 1 min Voltage input, current input, pulse output, communication
Test voltage Test circuit	4 kV r.m.s. 50 Hz / 1 min All circuits and ground

Electromagnetic compatibility	
Test in acc. with EN/IEC 62052-11	

Operating conditions	
Reference temperature	23 °C (±2 °C)
Operating range	-5 to 55 °C
Temperature limit for storage and transport	-25 to 70 °C
Tropical model	
Max. power loss (for thermal dimensioning of the switch cabinet)	≤ 2.8 W

Housing	
Housing	4 modules according to DIN 43880
Sealable front and terminal cover	
Connection	Screw connection
Mounting	Can be snapped onto 35 mm DIN rail
Housing material	Polycarbonate, self-extinguishing
Degree of protection (EN 60529)	IP54 front, IP20 connections
Weight	260 grams

Screw terminals	
Measuring input	
Wire (rigid)	Min. 0.05 mm² / max. 4 mm²
Wire (flexible)	Min. 0.05 mm² / max. 2.5 mm²
Recommended torque	0.5 Nm / max. 0.8 Nm
Output	
Wire (rigid)	Min. 0.05 mm² / max. 4 mm²
Wire (flexible)	Min. 0.05 mm² / max. 2.5 mm²
Recommended torque	0.5 Nm / max. 0.8 Nm

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.



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At www.fronius.com/contact you will find the contact details of all Fronius subsidiaries and Sales & Service Partners.