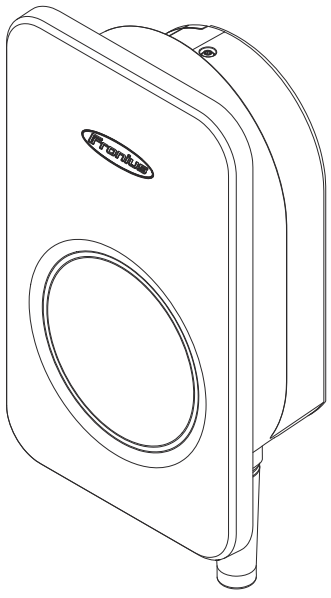
Operating Instructions

Fronius Wattpilot Flex

Home 11 C6
Home 22 C6
Home 22 CP6
Pro 11 C6E
Pro 22 C6E
Pro 22 CP6E



EN | Operating Instructions

42,0426,0546,EA 008-18082026

Table of contents

General information 7

Safety information 9
Explanation of warnings and safety instructions 9
Safety instructions and important information 9
EMC measures 10
Protection of people and equipment 11
Electromagnetic fields 11
Residual current-detection 11
Surge protection device 12
Safety functions 12
General 13
Information on the device 13
How information is presented in the document 13
Accessories and spare parts 14
Declaration of Conformity 14
Suitable inverters 14
Suitable generators from third-party manufacturers 14
Webinars and how-to videos 15
Target group 15
Data security 15
Privacy policy 16
Updates 16
Copyright 16
Fronius Wattpilot Flex 18
Intended use 18
Foreseeable misuse 18
Scope of supply 19
Data communication 19
Keys and symbols 20
Product overview 20
Card reader 20
Operating mode buttons 20
LED status indicator 21
Energy/power display 25
ID chip 25
Reset card 26
Functions 27
Overview 27
Phase changeover 27
Phase unbalanced load 27
PV surplus 27
Prioritization of Fronius Ohmpilot and battery storage 29
Flexible electricity price 31
Adhering to measurement regulations 31
Dynamic load balancing 32
General 32
Operating principle 32
Priority 33

Installation and Startup 35

Installation location and position 37
Selecting a location 37
Installation position 37
Support foot 38
Installation 39
Safety 39

Permitted cables for the electrical connection 40
Required tools 40
Wall mounting and data cabling 41
Digital output 43
Fitting the charging plug holder 44
Installing the grid connection 45
Closing the device 49
Commissioning 52
Commissioning with app 52
Download 52
Launching the app 52
Adding a Wattpilot 52
Data communication with inverter 53
Backup power mode 53
Internet connection 53
Starting the charging process 53
Stopping charging 54

Fronius Solar.wattpilot app 55

Home 57
Start page and navigation elements 57
History 58
Settings 59
Different charging modes 60
Standard Mode 60
Eco Mode 60
Next Trip Mode 60
Charging from the battery 61
Charging 62
Current level 62
Scheduler 62
Vehicle 62
PV surplus 63
Tariff 64
Application examples 64
Display 67
Name 67
Brightness 67
LED colors 67
Timezone 67
Access 68
Wattpilot password 68
Authentication 68
RFID chips 68
Connection 69
Connection 69
OCPP 69
Services 70
Software version 70
Restart device 70
Factory settings 70
Safety and grid 71
Technician password 71
Dynamic Load Balancing 71
Grid settings 71
Grounding test 72
Digital input 72
Legal information 74
Linked information 74

Appendix 75

Technical data 77
Wattpilot Flex Home 11 C6 77
Wattpilot Flex Home 22 C6/Wattpilot Flex Home 22 CP6 79
Wattpilot Flex Pro 11 C6E 81
Wattpilot Flex Pro 22 C6E/Wattpilot Flex Pro 22 CP6E 83
Service, maintenance and disposal 86
Cleaning 86
Maintenance 86
Disposal 86
Status codes and remedy 87
Status codes 87
Terms and conditions of warranty and disposal 89
Warranty 89

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.

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.

Protection of people and equipment

Electromagnetic fields

During operation, due to the high electrical voltages and currents, local electromagnetic fields (EMF) are generated. These occur in the immediate vicinity of the inverter and the Fronius system components. Electromagnetic fields are also present in the area of the PV modules and their supply lines.

As long as the intended use and a minimum distance of 20 cm are observed, all limit values for human exposure are observed.

If the limit values are complied with, according to current scientific knowledge, no negative health effects from EMF exposure are to be expected. For persons with prostheses[1)] or active physical aids[2)], there is a possible health risk in the vicinity of photovoltaic system components. To avoid possible health risks, consult with the responsible doctor.

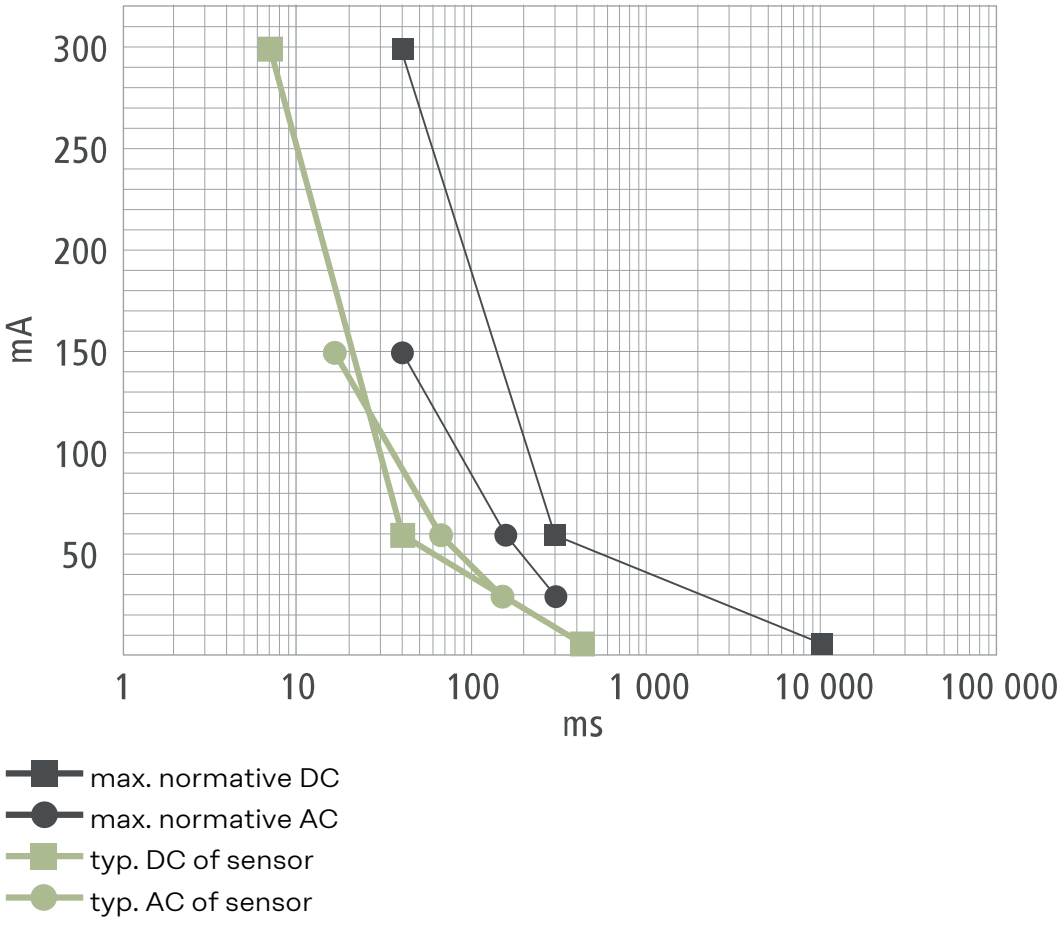
[1)] e.g., implants or metal parts

[2)] e.g., pacemaker, insulin pump, hearing aid, etc.

Residual current-detection

The device has a built-in residual current protection module with residual current detection (IΔn = 20 mA AC and 6 mA DC).

The residual current detection tripping characteristic is as follows.



NOTE

Residual currents
Residual currents can damage the device. For this reason, the Wattpilot Flex has a built-in residual current protection module with residual current detection.

- ▶ Connect a separate residual current circuit breaker (type A, IΔn = 30 mA AC or type B if required) upstream of the installation.
- ▶ Comply with all national regulations and standards.

Surge protection device

The device has an integrated surge protection device (SPD). This can negatively affect the insulation measurement. According to normative specifications, carry out the insulation measurement with a reduced voltage of 250 V DC and a resistance of >=1 MΩ. During the measurement, the Wattpilot displays the status code **Ground fault detected** (see Status codes).

Alternatively, disconnect the Wattpilot from the power supply. Carry out the insulation measurement directly on the grid lead with a measurement voltage of 500 V DC.

Safety functions

- RFID access control (ID chip, reset card)
- Residual current device with DC detection, 20 mA_{AC}, 6 mA_{DC}
- Phase and voltage test of all phases of the grid lead
- Auxiliary contact on the relays for checking the switching function
- Earthing detection (can be switched off, Norway mode)
- Temperature monitoring

General

Information on the device

Technical data, warning notices, labels, and safety symbols are located on the Fronius Wattpilot Flex. Do not remove or paint over the information. The notices and symbols warn against incorrect operation that may result in serious injury and damage.

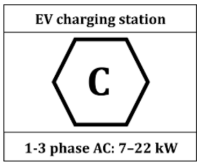
Symbols on the device:

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.

This product contains a built-in type CR2477 lithium-ion battery. The battery may only be removed or replaced by a qualified technician. Have the battery removed before disposing of the device. Do not dispose of the battery with household waste. It can be disposed of at a designated collection point or returned to the distributor free of charge.

RCM marking – tested according to the requirements of Australia and New Zealand.



Charging port marking – charging station identifier for electric vehicle charging. Category C corresponds to the type 2 plug and a maximum charging voltage of 480 V.

Information on MID-compliant measuring device (Fronius Wattpilot Flex Pro)
- Technical data
- Public key of the measuring device (QR code)

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.*

Accessories and spare parts

Accessories	Item number
Fronius Wattpilot Flex Pedestal	4,240,196
Fronius Wattpilot Flex Connection Plate	4,240,191
Fronius Wattpilot Flex Gasket Set	4,240,192
10 RFID tags	4,240,181
Type 2 plug holder	4,240,188

The use of other accessory components such as charging cable adapters or cable extensions is prohibited.

Declaration of Conformity

The full text of the EU Declaration of Conformity is available on the following website:www.fronius.com

Suitable inverters

Compatibility with the connected devices (see list below) and a Fronius Smart Meter at the feed-in point are prerequisites for using certain functions (e.g., PV surplus).

Suitable Fronius inverters
- Fronius GEN24
- Fronius Tauro
- Fronius Verto
- Fronius Symo Hybrid
- Fronius SnapINverter (except light versions)
- Fronius IG*
- Fronius IG Plus*
- Fronius IG TL**
- Fronius CL*

*Requirement:
- Fronius Datamanager 2.0 (item number 4,240,036,Z), or
- Fronius Datamanager Box 2.0 (item number 4,240,125)

**Requirement:
- Fronius Datamanager Box 2.0 (item number 4,240,125)

Suitable generators from third-party manufacturers

Suitable generators can be PV inverters from third-party manufacturers, for example. A prerequisite for compatibility with external generators is that no other self-consumption controllers (e.g., battery, Power-to-Heat) are operated in parallel. This can negatively affect PV optimization. The proportion of energy consumed by other loads is not taken into account in the Fronius Solar.wattpilot app.

Requirement:
- Fronius Smart Meter (at the feed-in point)*

* For connection via Modbus RTU, the generator requires a Fronius Datamanager Box 2.0 (item number 4,240,125).

For more information, see Data communication with inverter.

Webinars and how-to videos

The following link provides current webinars and how-to videos for the Fronius Wattpilot.

Fronius Wattpilot YouTube playlist

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.

Updates

Regular updates keep the device up to date to ensure the best possible performance and security. It is recommended to activate automatic updates in the Fronius Solar.wattpilot app (see Software version).

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 Wattpilot Flex

Intended use

Fronius Wattpilot Flex is a permanently mounted charging station for charging electric vehicles for fixed connection to an AC/three-phase network.

The Wattpilot may only be used for the purpose of charging battery-powered electric vehicles and plug-in hybrid vehicles. The device complies with the criteria for electric vehicle charging stations (AEVCS) in accordance with DIN EN IEC 61439-7.

The Wattpilot Flex Home 22 CP6/Pro 22 CP6E device variants have an integrated shutter on the live contacts of the charging plug.

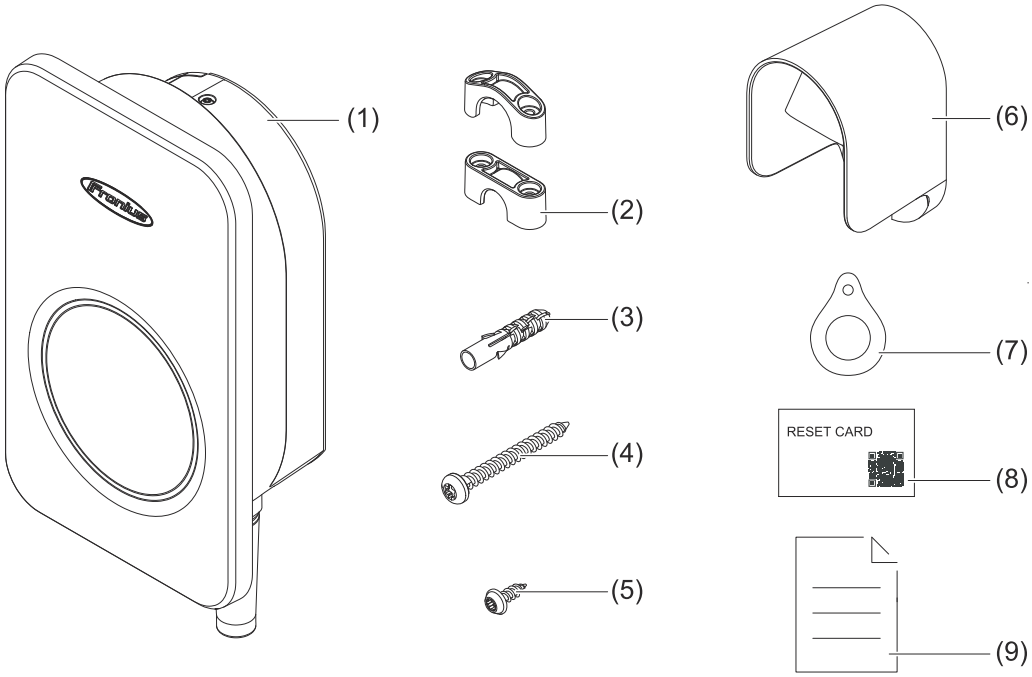
The Wattpilot Flex Pro 11 C6E, Wattpilot Flex Pro 22 C6E, and Wattpilot Flex Pro 22 CP6E devices meet the requirements for conformity with calibration law, which means that all measurements and billing of the charged energy are carried out precisely and in accordance with the law.

Foreseeable misuse

The following circumstances are considered to be reasonably foreseeable misuse:

- Any use that is not the intended use or goes beyond the intended use.
- Making any modifications to the Wattpilot that have not been expressly approved by Fronius.
- Installation of components that are not expressly recommended or offered by Fronius.

Scope of supply



(1) Device including mounting bracket
(2) 2 pcs strain-relief devices for the mains cable
(3) 6 pcs wall plugs for mounting bracket and charging plug holder
(4) 6 pcs TX20 4.5 x 50 mm screws for mounting bracket and charging plug holder
(5) 4 pcs TX20 3.0 x 10 mm screws for mounting the device on the mounting bracket (1 screw as a spare)
(6) Charging plug holder
(7) 2 pcs ID chips
(8) Reset card
(9) Enclosed documents:
- Quick Start Guide
- Document on the use of charging equipment and measurement data

Data communication

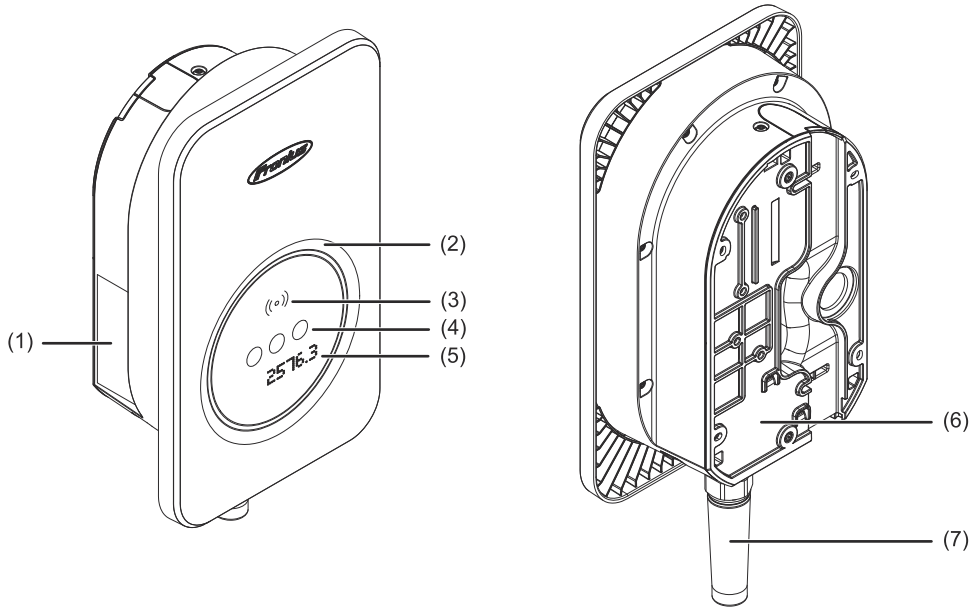
The Wattpilot is equipped with the following wired data communication interfaces:
- RJ45
- LSA

The connection options are described in the chapter Wall mounting and data cabling.

Data communication via WiFi is also possible.

Keys and symbols

Product overview



(1) Rating plate position
(2) LED status indicator
(3) Card reader
(4) Operating mode buttons
(5) kWh display: Session kWh, Total kWh, Power kW
(6) Mounting bracket
(7) Type 2 charging cable

Card reader

Behind the symbol ((•)) is the card reader for reading ID chips and the reset card.

The card reader uses RFID (radio-frequency identification). RFID is the transmitter-receiver technology for automatic and contactless identification with radio waves.

Operating mode buttons

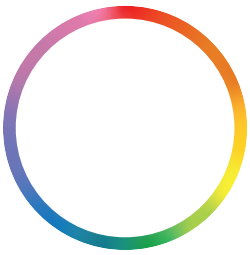
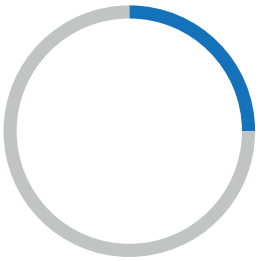
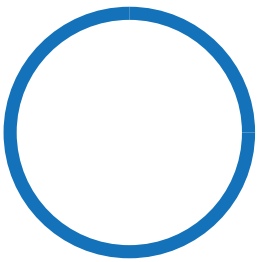
The buttons are actuated by touch. Touching them while wearing gloves can lead to limited results due to the capacitive touch detection.

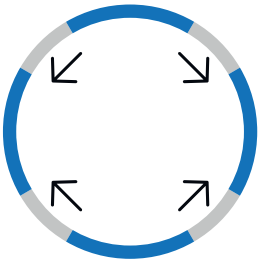
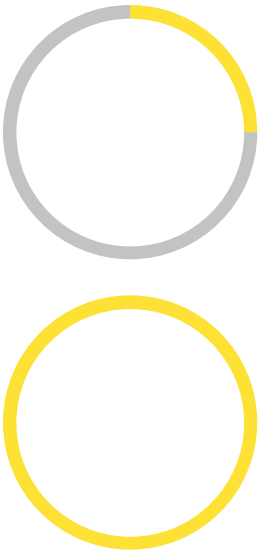
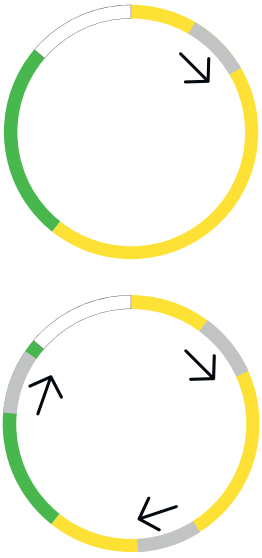
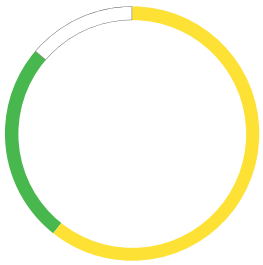
Switch the operating mode by touching the buttons. The following charging modes are available:

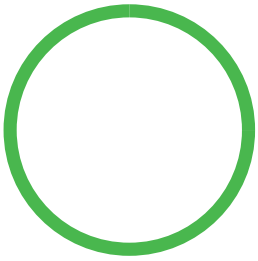
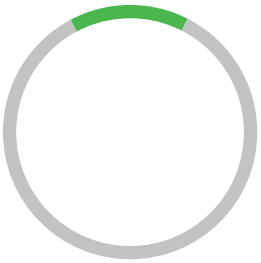
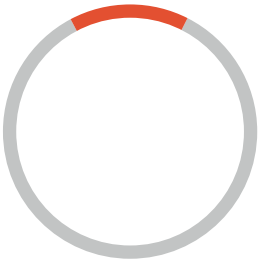
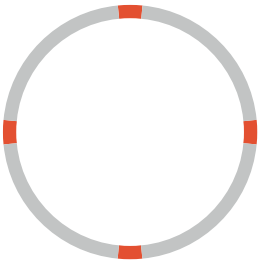
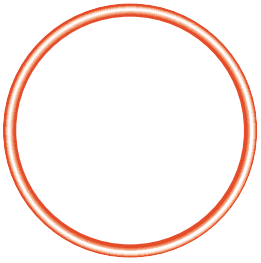
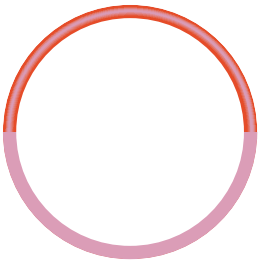
Indicator	Operating mode
	**Standard Mode** The Wattpilot is in Standard Mode. - The indicator above the operating mode button lights up white.
	**Eco Mode** The Wattpilot is in Eco Mode. - The indicator above the operating mode button lights up white. - The indicator flashes white (see chapter Status codes).
	**Next Trip Mode** The Wattpilot is in Next Trip Mode. - The indicator above the operating mode button lights up white. - The indicator flashes white (see chapter Status codes).

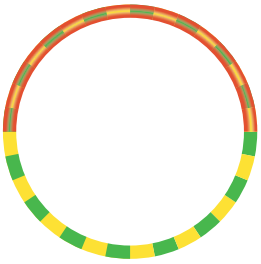
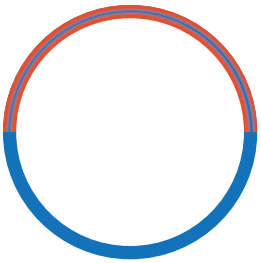
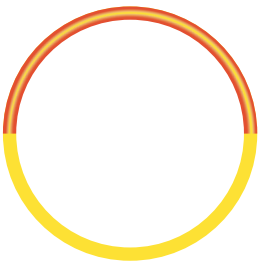
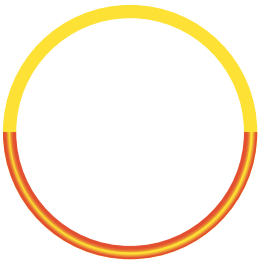
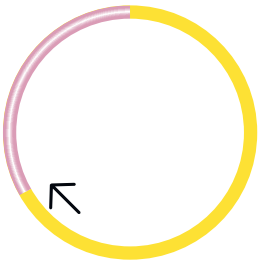
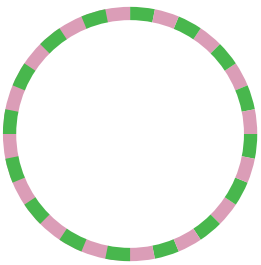
LED status indicator

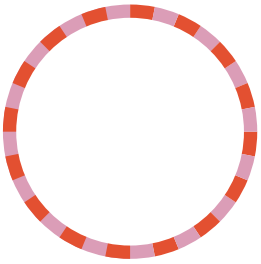
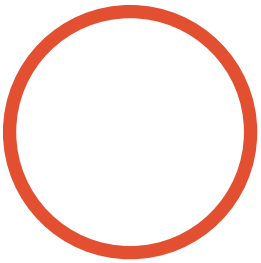
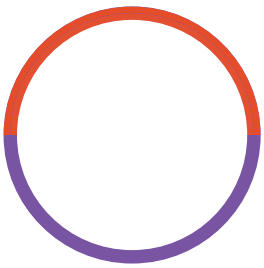
The LED status indicator on the Wattpilot indicates whether the system is switched on and shows the current status of the Wattpilot.

LED	Meaning
	**Starting** The Wattpilot is starting up or restarting. - The indicator lights up in rainbow colors.
	**Ready** The Wattpilot is ready for operation. The more LEDs that light up, the higher the set charging current. - A few blue LEDs light up = low charging current (e.g., 6 A). - Several/all blue LEDs light up = high charging current (e.g., 32 A).
	

LED	Meaning
	**Authentication** The Wattpilot must be authenticated via the app or an ID chip. - The LEDs light up blue, white LEDs run in a quarter circle from the top and bottom towards each other.
	**Wait for vehicle** The Wattpilot recognizes the connected vehicle and the set charging parameters. Charging has been enabled by the charging station but not yet started by the vehicle. - A few yellow LEDs light up when the charging current is low. - Several/all yellow LEDs light up when the charging current is high.
	**Charging** The LEDs indicate the energy sources. Non-illuminated LEDs run in a circle and indicate the assigned phases. Either 1-phase, 2-phase, or 3-phase. - Yellow LEDs = energy from PV surplus - Green LEDs = energy from the battery - White LEDs = energy from the grid
	**Charging plug not plugged in** The LEDs indicate the energy source of the last charging process. The indicator will turn off after 30 seconds. - Yellow LEDs = energy from PV surplus - Green LEDs = energy from the battery - White LEDs = energy from the grid

LED	Meaning
	**Charging finished** The charging process is complete. - All LEDs light up green.
	**ID chip detected** The Wattpilot has detected an authorized ID chip. - Top LEDs light up green.
	**Invalid value** The Wattpilot displays an invalid input. The operating mode selection was not permitted or an ID chip was detected but not authorized. - Top LEDs light up red.
	**Grounding test deactivated** The grounding test is deactivated. - LEDs light up at the top, bottom, left, and right.
	**Internal communication error** The Wattpilot displays an internal communication error. The error code is displayed in the app. For more information, see Status codes. - All LEDs flash red.
	**Residual current detected** The Wattpilot has detected a residual current (≥ 6 mA_{DC} or ≥ 20 mA_{AC}). Restart the Wattpilot. For more information, see Status codes. - The LEDs light up pink, the LEDs at the top flash red.

LED	Meaning
	**Ground fault detected** The grounding of the supply line to the Wattpilot is faulty. Check the grounding of the supply line. For more information, see Status codes. - The LEDs light up green and yellow, the LEDs at the top flash red.
	**At least one phase of the power supply is missing** The phase(s) of the supply line to the Wattpilot has/have failed. Check the phase(s) of the supply line. For more information, see Status codes. - The LEDs light up blue, the LEDs at the top flash red.
	**Temperature too high** The temperature of the Wattpilot is too high. The charging current is reduced. For more information, see Status codes. - The LEDs light up yellow, the LEDs at the top flash red.
	**Charge controller error** The charge controller is not working properly. For more information, see Status codes. - The LEDs light up red at the bottom and yellow at the top for 1 second.
	**Update** The Wattpilot firmware is being updated. The update can take several minutes. Do not unplug the charging station. - All LEDs flash pink, the progress of the update is indicated by yellow LEDs.
	**Update successful** - The LEDs light up alternately pink and green.

LED	Meaning
	**Update failed** - The LEDs light up alternately pink and red.
	**Reset card detected** The Wattpilot has detected the reset card and the settings are being reset. - All LEDs light up red for 2 seconds.
	**Tamper detection** The Wattpilot has detected the device opening. The Wattpilot has not been correctly attached. - The LEDs light up red at the top and purple at the bottom.

Energy/power display

The display is located below the operating mode buttons and alternately displays the following values.

Session kWh
Displays the charged energy of the current charging process.

Total kWh
Displays the total charged energy of all charging processes.

Power kW
Displays the current charging power.

ID chip

An ID chip enables personalized access to the Fronius Wattpilot. The ID chip is used for authentication and recording user-dependent charging amounts.

To set this up, activate authentication in the **Access** > **Authentication** menu in the app (see Authentication). Charging with authentication activated is possible after scanning the supplied ID chip or by confirming in the app. To do this, hold the ID chip just in front of the card reader on the Wattpilot.

A name can be assigned to each ID chip. The stored charging amount per ID chip can be seen in this menu (see RFID chips).

No authentication is required to assign the charging amount to the ID chips.

Reset card

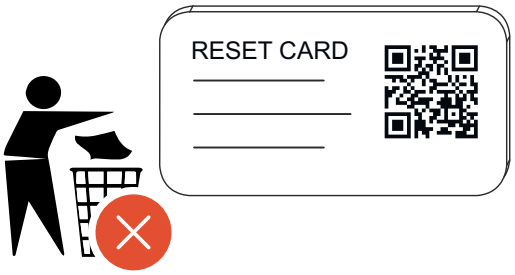
The reset card resets all settings (e.g., access management, WiFi, and LED settings) to the factory settings. The device can also be reset using the Fronius Solar.wattpilot app. The paired ID chips, the associated charging amounts, and the settings in the **Safety and grid** menu are still stored.

The following information is printed on the reset card.
- "Serial number" – serial number of the Wattpilot
- "Hot spot SSID" – WiFi network name of the Wattpilot
- "Hot spot key" – WiFi password of the Wattpilot
- "QR code" – key to connect the app to the Wattpilot WiFi hot spot

Resetting the Wattpilot

1 Hold the reset card in front of the card reader.

2 All LEDs briefly light up red.



NOTE

Keep the reset card safe!
The reset card contains all access data.

▶ **TIP:** Place the reset card in the supplied self-adhesive transparent bag and keep it in a safe place.

Functions

Overview

The Wattpilot works in Standard Mode regardless of the available PV surplus or electricity tariffs. In combination with a Fronius Smart Meter IP, it is also possible to use PV surplus from suitable third-party devices. Switch between the different charging modes (see Different charging modes) by pressing an operating mode button (see Operating mode buttons).

Phase changeover

The Fronius Wattpilot automatically or manually switches between 1-phase and 3-phase charging (see PV surplus).

The automatic phase changeover enables charging with a low start-up power (1-phase with 1.4 kW) in the case of PV surplus.

1-phase charging has the advantage that the charging power can be regulated in smaller increments (0.23 kW) and a small PV surplus is used more efficiently.

For higher PV surplus, 3-phase charging is preferred. Higher maximum charging power levels are achieved in this way.

To further optimize the charging process, define time intervals for falling below the phase changeover limit value as well as for the pause between the phase changeover.

Phase unbalanced load

Unbalanced load management limits the total charging current. The unbalanced load remains below the desired value, which is specified, for example, by the utility. The maximum phase unbalanced load can be set by a qualified technician in accordance with the applicable regulations (see Grid settings).

NOTE

Exceeding the phase unbalanced load
Select the three-phase power level in such a way that the maximum permissible phase unbalanced load is not exceeded. To do this, amend the settings in the Fronius Solar.wattpilot app under **Settings** > **Grid requirements**.

PV surplus

Charging with PV surplus can be activated and adjusted in the Fronius Solar.wattpilot app (see Tariff).

NOTE

Minimum charging time
Permanent switching of the relays can have a negative effect on the service life of the device.
▶ A minimum charging time of 5 minutes per charging process is stored.

The **PV surplus** function uses excess energy from a photovoltaic system and, if available, a battery. Details on compatibility with the PV system can be found under Tariff and Suitable generators from third-party manufacturers.

Setting limit values ensures the distribution of the PV surplus power to the loads. A battery is charged to the desired state of charge, hot water is heated to the target temperature with the Fronius Ohmpilot, and a vehicle is charged.

NOTE

PV surplus regulation
The PV surplus regulation works with only one Wattpilot per photovoltaic system at a time.

- ▶ If several devices are installed in the system, activate **Use PV surplus** for all devices.
- ▶ Configure the devices so that 1 Wattpilot is charging with **Eco Mode** while the other devices are charging in Standard Mode.

Set a **Start value** in kW for the charging of the vehicle. If the PV surplus is above this value, the Wattpilot starts charging the vehicle with minimum current.

Enter a **Phase switch level** (specified in kW), at which the Wattpilot switches from 1-phase to 3-phase charging.

Configure the **Start value** and **Phase switch level** in the Tariff menu.

The power level is regulated in 1-ampere increments. At nominal voltages of 230 and 400 V, this corresponds to 0.23 kW for 1-phase and 0.69 kW for 3-phase charging. The table shows an overview of charging current and charging power.

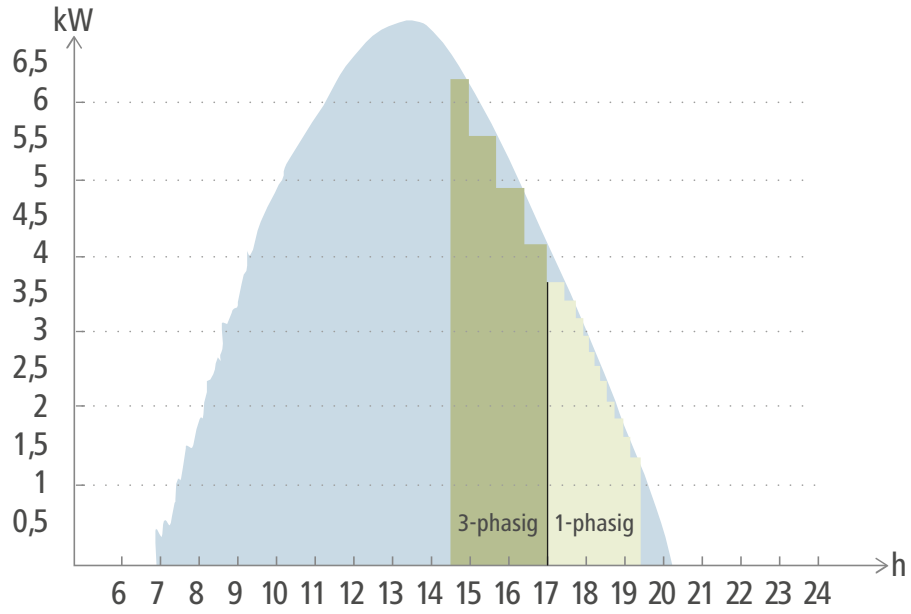
Charging current [A]	6	8	10	12	14	16	20	24	32
1-phase [kW]	1.4	1.8	2.3	2.8	3.2	3.7	4.6	5.5	7.4
3-phase [kW]	4.2	5.5	6.9	8.3	9.7	11	13.8	16.6	22

NOTE

Minimum charging power of electric vehicles
Many electric vehicles require a minimum charging power of 1.4 kW. In smaller photovoltaic systems the electricity that is not covered by the photovoltaic system is drawn from the grid. This results in a power mix of self-consumption and grid consumption.

- ▶ For smaller PV systems, set the start-up power level below 1.4 kW so that sufficient power is available for charging.

Example



Photovoltaic generation

Electric vehicle

The figure illustrates the behavior with a set start-up power level of 1.4 kW and a 3-phase power level of 4.14 kW. If the PV surplus is less than 1.4 kW, the vehicle does not charge.

If the PV surplus is between 1.4 and 4.2 kW, the Wattpilot regulates the charging power in **0.23 kW**increments.
If the PV surplus is above 4.14 kW, the Wattpilot switches from 1-phase charging to 3-phase charging and regulates the charging power in **0.69 kW**increments.

Prioritization of Fronius Ohmpilot and battery storage

The **Ohmpilot** and **PV battery SOC** menu tiles in the Fronius Solar.wattpilot app (see chapter Start page and navigation elements) influence the priority of the Wattpilot. The level of the selected limit values defines under which conditions the charging of the electric vehicle starts. The load management settings on the user interface of the inverter must also be taken into account.

IMPORTANT!
The I/O power management of the inverter is not suitable for load management of the Wattpilot. The priorities of the loads are not clearly assigned.

Ohmpilot

Set a temperature limit value on the start page of the Fronius Solar.wattpilot app. When the hot water has reached this temperature, the charging process starts with PV surplus.

NOTE

Fronius Ohmpilot temperature sensor
If no temperature sensor is connected to the Fronius Ohmpilot, a temperature of 0 °C is assumed. In the event of a defect in the temperature sensor, the Ohmpilot is automatically prioritized over the Wattpilot.

- ▶ Use a temperature sensor.
- ▶ Set a target temperature to prioritize the use of PV surplus for the Ohmpilot.
- ▶ Set a temperature of 0 °C if the Wattpilot has a higher priority than the Ohmpilot.

PV battery SOC

The SOC or State of Charge is the state of charge of the stationary battery. Set the following limit values for the use of the energy from the battery for charging on the start page of the Fronius Solar.wattpilot app:

- **Charge above**: Charging starts with **PV surplus** from this SOC value.
- **Discharge until**: Charging from the battery stops from this SOC value.
- **Limit discharging time**: Activate the slider to restrict discharges for a period of time.

Example
Charging the electric vehicle takes priority over the battery and the Ohmpilot. The **Charge above** parameter is set to 0%. The limit value of the Ohmpilot is set to 0 °C. The electric vehicle is charged with PV surplus. The state of charge of the battery and the temperature of the Ohmpilot are not relevant.

- **System with inverter, Wattpilot, battery, and Ohmpilot**

Priority in the inverter	Wattpilot	Battery**	Ohmpilot
Battery* > Ohmpilot	Priority 3 until SOC and temperature limit value reached, then priority 1	Priority 1 until SOC, then priority 2	Priority 2 until temperature limit value reached, then priority 3
Ohmpilot > Battery*	Priority 3 until SOC and temperature limit value reached, then priority 1	Priority 2 until SOC, then priority 3	Priority 1 until temperature limit value reached, then priority 2

- **System with inverter, Wattpilot, and Ohmpilot**

Priority in the inverter	Wattpilot	Ohmpilot
Ohmpilot	Priority 2 until temperature limit value reached, then priority 1	Priority 1 until temperature limit value reached, then priority 2

- **System with inverter, Wattpilot, and battery**

Priority in the inverter	Wattpilot	Battery**
Battery*	Priority 2 until SOC, then priority 1	Priority 1 until SOC, then priority 2

*Please see the operating instructions for the inverter for a list of compatible batteries.

Flexible electricity price

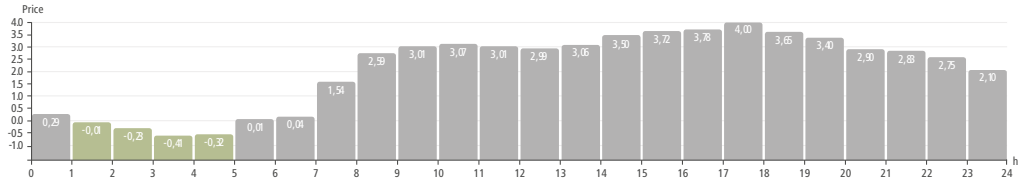
Tariff zones
If the energy supplier offers a flexible electricity tariff, this function can be used. This is taken into account when using Eco Mode and Next Trip Mode.

Provider
A prerequisite is an electricity retailer that bills flexible electricity tariffs hourly via the electricity exchange, e.g.:
- Lumina Strom hourly
- aWattar hourly
- Tibber

The Wattpilot obtains the tariffs of the electricity exchange directly from the Internet. It is possible to specify a price limit. As soon as the price is below this limit, charging starts in Eco Mode. In Next Trip Mode the Wattpilot charges with the cheapest electricity tariff that is available in the defined charging period.

All displayed prices correspond to the current tariffs of the electricity exchange. Additional costs may apply depending on the provider.

Example



The figure shows the development of the electricity price (cents per kWh) of an electricity retailer within 24 hours. The hourly tariffs are retrieved from the electricity exchange at a specific time for the next day.

Adhering to measurement regulations

The Wattpilot Flex Pro meets all the requirements of a MID-compliant measuring device. In addition, the following aspects must be taken into account with regard to compliance with measurement and calibration law:
- To comply with German measurement and calibration law, the OBIS code for the total energy meter is **1.8.1.**
- Signed measurement data are transmitted in OCMF format.
- The parameter relevant for the calibration law is the total energy displayed by the meter. This parameter is shown on the display (see Energy/power display).

NOTE

Error on the device display
If the device display shows an error, all charging operations that take place up to the acknowledgment of the error are not billable according to the calibration law.
▶ To ensure compliant billing of the charging processes, correct errors immediately.

Dynamic load balancing

General

When the Wattpilot is connected to the Internet, the device supports the Dynamic Load Balancing function (dynamic load management). The function is available with the following system components:

- Inverters with Fronius Smart Meters
- Fronius Datamanager with Fronius Smart Meter
- Fronius Smart Meter IP 5kA-3

Activation

1. Activate Dynamic Load Balancing in the Fronius Solar.wattpilot app.
2. Protect the settings made with a Technician password (see Wattpilot password).

Operating principle

Dynamic Load Balancing manages the charging current at the grid connection point and limits the charging current if there is a risk of overloading the grid connection. The function takes into account the electricity generated by the photovoltaic system and other generators in the system as well as the consumption. Prioritization can be set up for several Wattpilots. The dynamic control uses the maximum possible charging current.

Dynamic Load Balancing monitors the available current per phase (including PV surplus) at the grid connection point and dynamically distributes this to one or more Wattpilots. The Wattpilots are supplied with the maximum available current. The delivery current is not exceeded and can be limited for the Wattpilots.

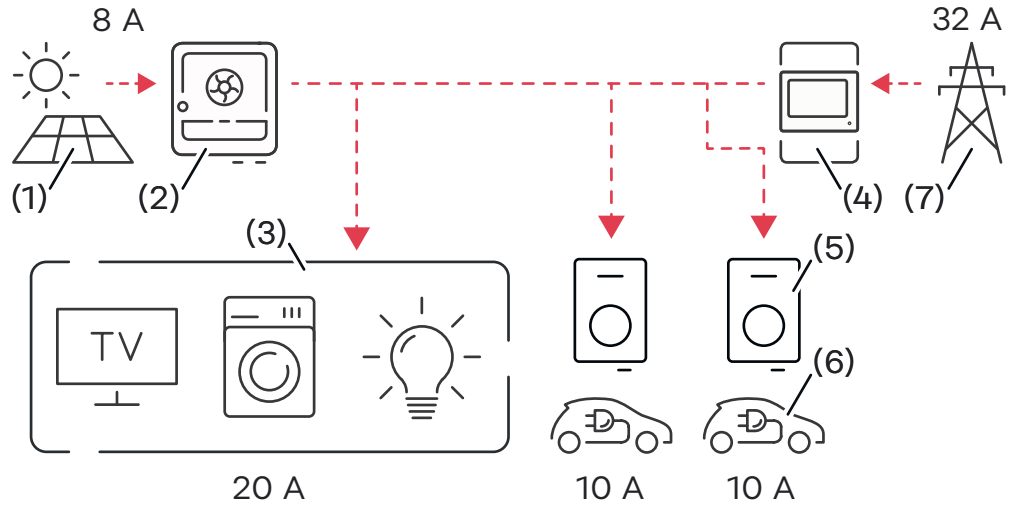
NOTE

Charging 1-phase electric vehicles evenly with multiple Wattpilots
If there are multiple 1-phase electric vehicles, an excessive unbalanced load can occur.

▶ If there are multiple Wattpilots, change the phase assignment at the terminals cyclically.

Set the maximum delivery current to match the post-meter fuse.

Control system example



(1) Photovoltaic system
(2) Inverter
(3) Loads
(4) Fronius Smart Meter
(5) Fronius Wattpilot
(6) Electric vehicle
(7) Grid connection point

In the **control system example**, the energy drawn from the public grid is limited to 32 A. 8 A are generated by the PV system. Of a total of 40 A, 20 A are accounted for by the loads in the household. The Dynamic Load Balancing distributes 20 A to the connected Wattpilots. This enables charging of, for example, two electric vehicles with 10 A each.

NOTE

Charging is interrupted or does not start.
If Dynamic Load Balancing is activated, charging interruptions may occur. Some electric vehicles encounter problems when starting charging again.

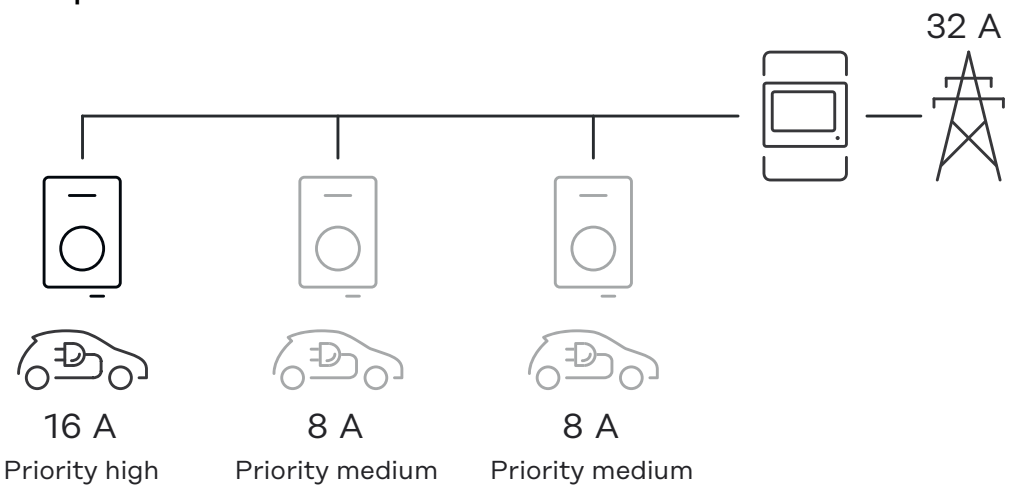
Priority

In the case of systems with multiple Wattpilots, charging priorities can be set. The charging stations (electric vehicles) with a higher priority are supplied with current first; charging stations with a lower priority have to wait. If there is current left over, it is shared among the lower-priority Wattpilots.

The vehicles that are to be charged first and with the maximum available current must be assigned a high priority. A low priority can be assigned to vehicles that should wait to charge until sufficient current is available.

In the case of Wattpilots with the same priority, the available current is shared equally.

Example 1



Distribution of the charging current with three Wattpilots with different priorities (one with high priority, two with medium priority).

Example 2

Distribution of the charging current with three Wattpilots (X, Y, Z) with the same priority. Each Wattpilot is assigned the minimum charging current (unless the minimum charging current is no longer available). If there is charging current left over, it is distributed wherever possible, starting with the first Wattpilot in the loop.

Wattpilot X has a minimum charging current of 6 A, Wattpilot Y 10 A and Wattpilot Z 6 A. There is 15 A of charging current to be distributed. The charging current is distributed as follows.

1. X receives 6 A, 9 A remains.
2. Y receives nothing as the minimum charging current of Y is 10 A. Y is set to 0.
3. Z receives 6 A, 3 A remains.
4. The loop starts all over again.
5. X receives 7 A, 2 A remains.
6. Y receives nothing as the charging current has already been set to 0 in the first loop.
7. Z receives 7 A, 1 A remains.
8. The loop starts all over again.
9. X receives 8 A, 0 A remains.

The 15 A charging current was distributed among the equally prioritized Wattpilots and charged. As soon as charging current is available again, the electric vehicle is charged at Wattpilot Y.

Installation and Startup

Installation location and position

Selecting a location

Install the Wattpilot indoors or outdoors, in a location with or without restricted access. The device does not support an optional ventilation function.

The following additional criteria must be taken into account when choosing a location:



The Fronius Wattpilot is suitable for operation outdoors, with and without direct sunlight. When in direct sunlight, output is reduced for the following charging currents:

- Reduction from 3x32 A to 3x27 A at a temperature of 45 °C over a period of 1 hour.



The Wattpilot is suitable for operation in a well-ventilated indoor area.



Do not operate the Wattpilot in areas where there is an increased risk from ammonia gases.

Environmental conditions, see Technical data.

NOTE

Failure to comply with the reporting obligation
Failure to comply with the reporting obligation may result in fines or sanctions.

- ▶ Check with the utility whether there is a reporting obligation for charging stations in the target country.
- ▶ If required, report the charging station to the responsible utility.

Installation position

NOTE

Warping of the mounting bracket on uneven surfaces.
An uneven surface can cause the mounting bracket to warp. It is no longer possible to attach the Wattpilot to the mounting bracket. Contacting does not work. This may result in damage to the device.

- ▶ Select a suitable location on an even surface.

NOTE

Installation height
If the device is mounted too close to the ground, damage may occur during charging.

- ▶ Install the Wattpilot at a height between 80 cm and 150 cm above the ground. This protects the device from damage and ensures ease of use.

	The Wattpilot is designed for wall-mounting on a vertical, level wall.
	- Do not install the Wattpilot horizontally. - Do not install the Wattpilot on a sloping surface.

Support foot

Mount the Wattpilot on the optionally available support foot (item number 4,240,196) to allow for flexible positioning. Up to two devices can be attached to the support foot. Observe the criteria for Selecting a location.

Installation

Safety

⚠ 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 operating company may result.
- ▶ Observe the requirements for the qualification of the qualified technicians.
- ▶ Observe the 5 safety rules for working on electrical systems.

⚠ WARNING

Open or damaged housing
This can result in severe personal injury and damage to property due to high voltage or fire.
- ▶ Do not use the device if the housing is damaged or open.
- ▶ Send in the device for repair.

⚠ WARNING

Loose parts in the housing
This can result in severe personal injury and damage to property due to high voltage or fire.
- ▶ Do not use the device if there are loose parts in the housing.
- ▶ Send in the device for repair.

⚠ WARNING

Loose or damaged cables
Damaged or exposed cables can result in severe personal injury and damage to property.
- ▶ Do not use the device if the cables attached to or plugged into the device are damaged.
- ▶ Adequately support the weight of the device and the charging cable.
- ▶ Provide mechanical relief for the cables.
- ▶ Lay the charging cable securely to avoid the risk of tripping over the charging cable.

⚠ WARNING

Wet or dirty plugs
Charring caused by prolonged usage can result in severe personal injury and damage to property.
- ▶ Only mount the device vertically.
- ▶ Dry wet plugs in a de-energized state.
- ▶ Clean soiled plugs in a de-energized state.

⚠ WARNING

Gassing vehicle batteries
This can result in serious personal injury and damage to property.
▶ Only use in well-ventilated areas.

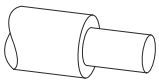
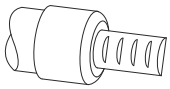
⚠ WARNING

Driving away with the charging cable connected
This can result in serious personal injury and damage to property.
▶ Disconnect the charging cable from the electric vehicle before driving away.
▶ Do not bypass the safety devices of the electric vehicle.

Never pull the plug out of the plug connection by the cable!

Observe the specifications of the utility regarding 1-phase charging and the asymmetrical network load that may result (see Grid settings).

Permitted cables for the electrical connection

Single-core	Multi-stranded/fine-stranded with ferrule
	

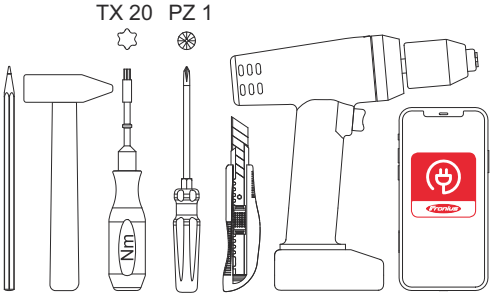
Connect round copper conductors to the terminals of the Wattpilot Flex as described in chapter Installing the grid connection . Pay attention to the cable temperature when selecting a cable:

Grid lead charging current	Minimum cable temperature requirement
0-16 A	70 °C
>16 A-32 A	90 °C

NOTE

Single conductor contact
If single conductors bend in the housing, the contactability within the terminal may be impaired. This can cause heat to develop in the housing and the device to switch off.
▶ Bend all single conductors according to the installation variant.

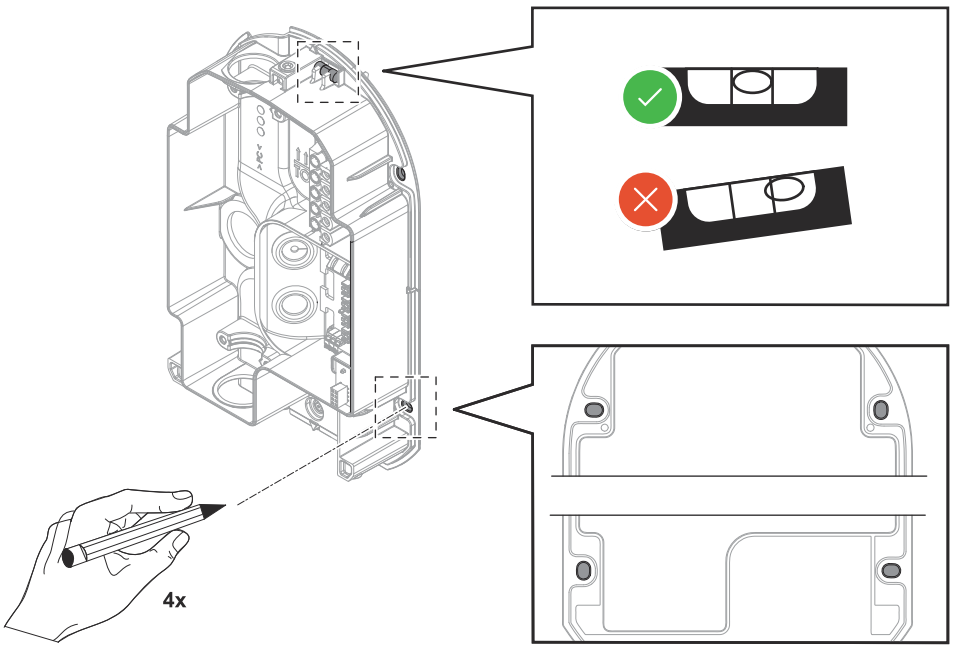
Required tools



Wall mounting and data cabling

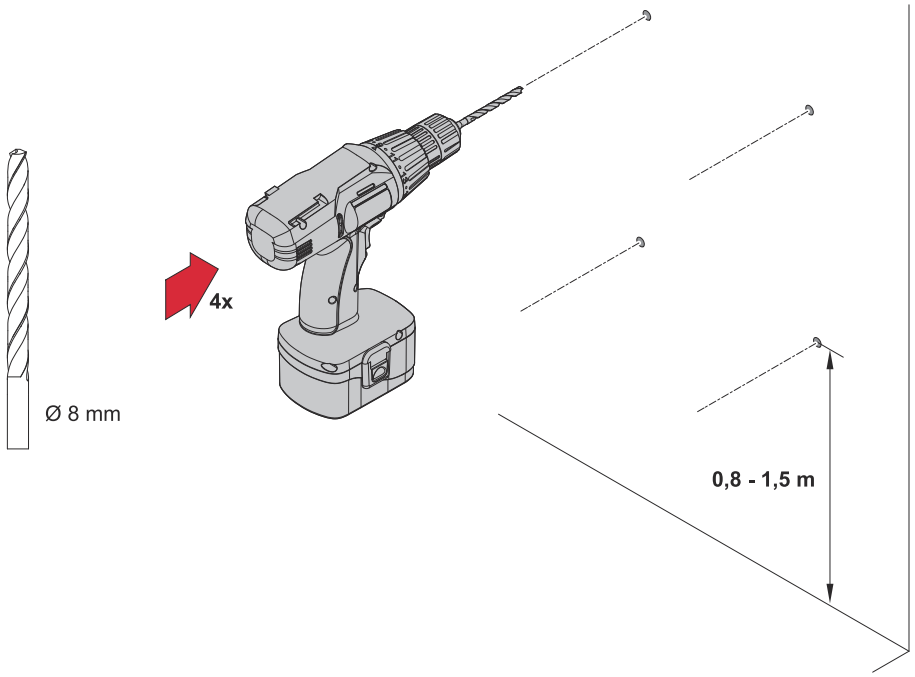
Make sure that the mounting bracket is not warped or deformed.

1



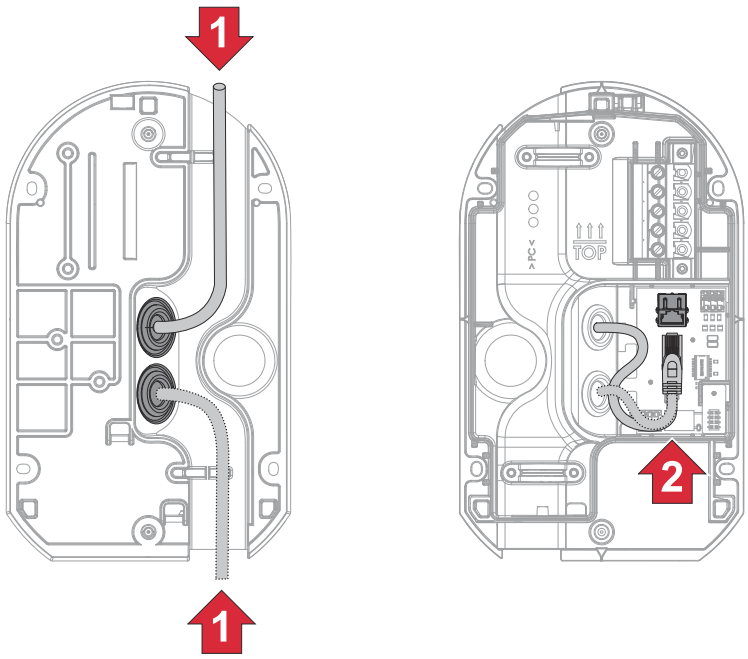
Align the wall bracket at the top horizontally with the spirit level and draw four drill holes.

2



Drill four holes. Maintain a distance of 0.8-1.5 m between the mounting bracket and the ground. For installations in Sweden, the minimum distance to the ground is 1.4 meters.

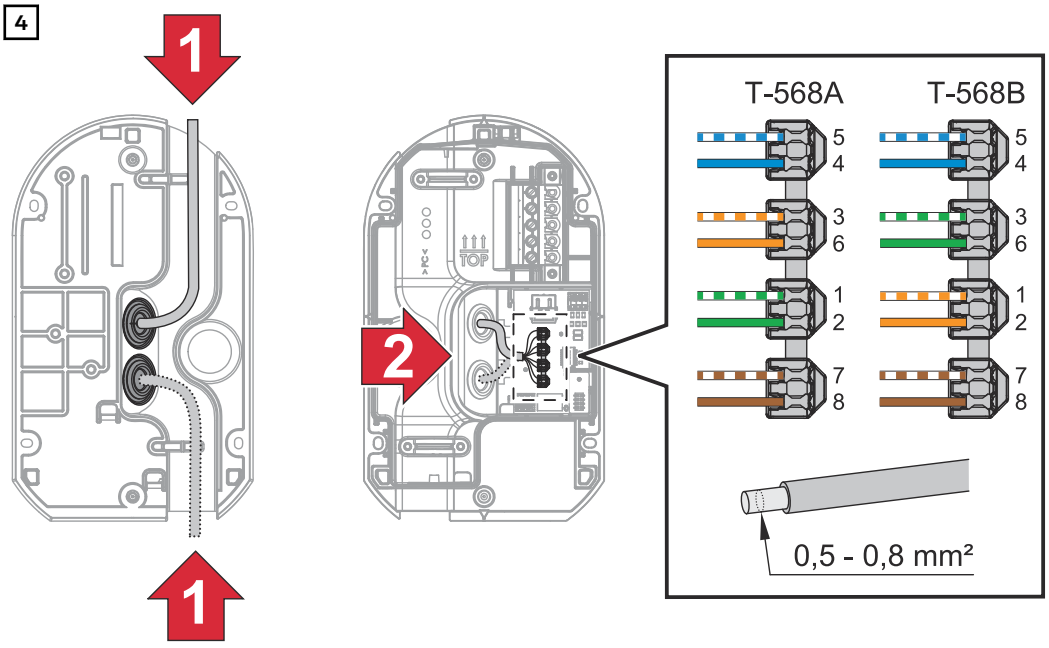
3



Data communication via cable (RJ45)

Insert the data communication cable into the housing from behind and connect it to the RJ45 connection. Alternatively, establish a connection via WiFi.

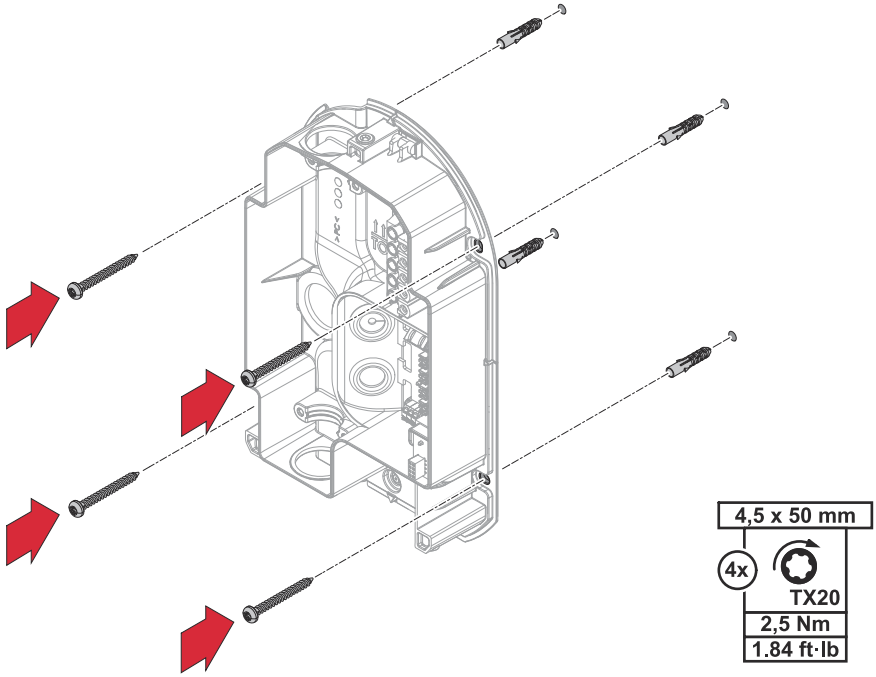
4



Data communication via cable (LSA)
Insert the data communication cable into the housing from behind. Connect it to the LSA terminals. Alternatively, establish a connection via WiFi.

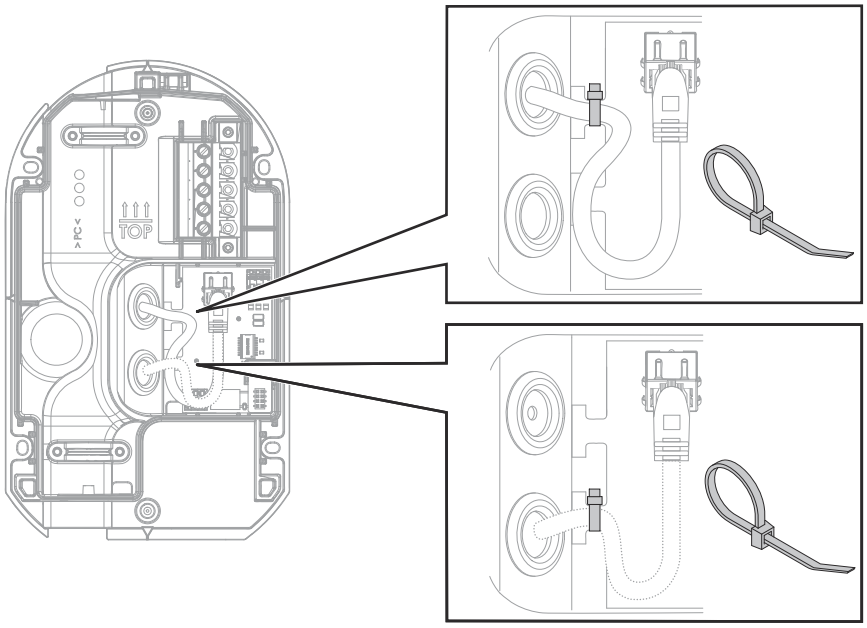
Before final installation of the device on the wall, feed in the mains cable if the cable is guided into the housing from the rear.

5



Insert the wall plugs into the drill holes and fasten the mounting bracket with the screws supplied (see Scope of supply).

6

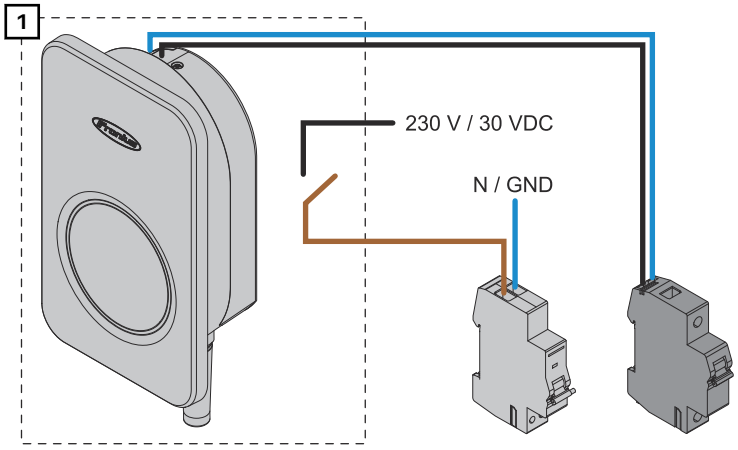


Using a cable tie, secure the data communication cable in one of the positions shown above.

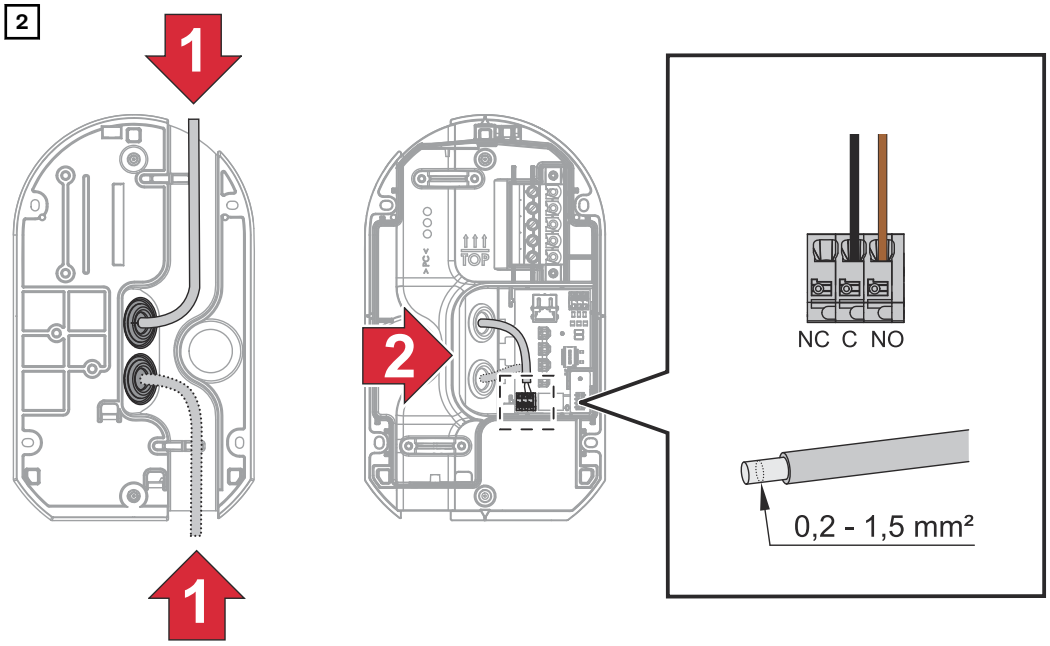
Digital output

The insulated switching contact of the digital output can be used, among other things, for the following regulatory requirements:

- PEN fault detection: In grids with a combined neutral conductor and ground conductor (PEN conductor), the utility may prescribe the installation of a shunt trip. Fault detection is active when the country setup is selected as UK on the Wattpilot Flex.
- Relay monitoring as per IEC 61851-1 (Italy, Netherlands). Relay monitoring is enabled by default.



Connect a 2-pin cable to the shunt trip.

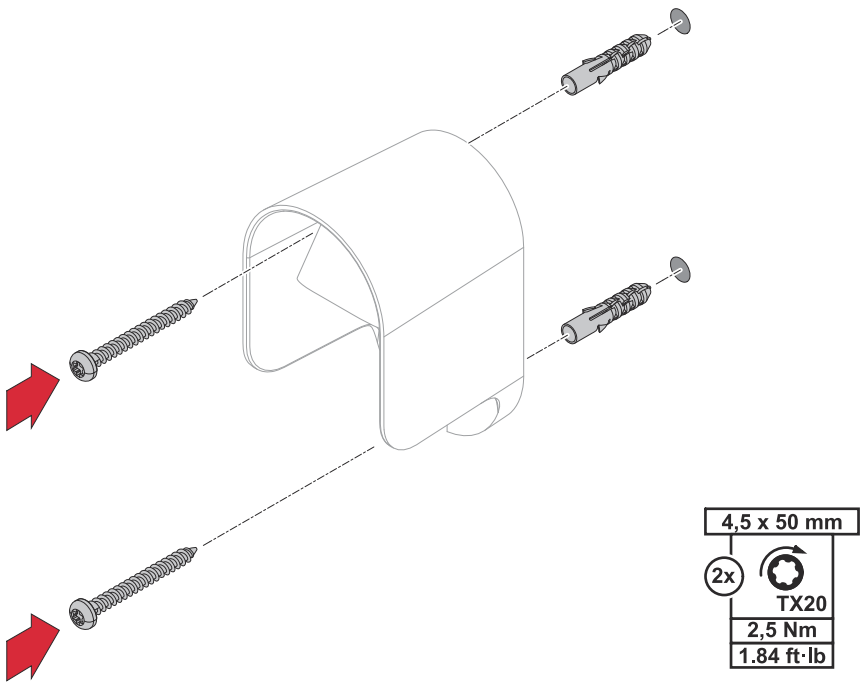


Insert the cable into the housing and connect it to the digital output.

Fitting the charging plug holder

Fit the charging plug holder as follows.

1



Mark the drill holes and drill the holes. Insert the wall plugs into the drill holes and secure the cable bracket.

Installing the grid connection

⚠ WARNING

Short circuit or overload
Serious personal injuries and damage to the device may result.
- ▶ Connect an automatic circuit breaker with the following specifications to the grid lead:
- ▶ Characteristic B or C
- ▶ 16 A (11 kW charging power) or 32 A (22 kW charging power)
- ▶ Use 1 or 2-pin (single-phase grid connection) or 3 or 4-pin (three-phase grid connection) switches
- ▶ The short circuit current (Icc) available at the installation site must not exceed 10 kA

⚠ WARNING

Mains voltage
An electric shock can be fatal.
- ▶ During installation, the mains cable must be installed by a technical specialist in accordance with national standards.
- ▶ Always make sure the grid lead is disconnected and de-energized before carrying out any connection work.

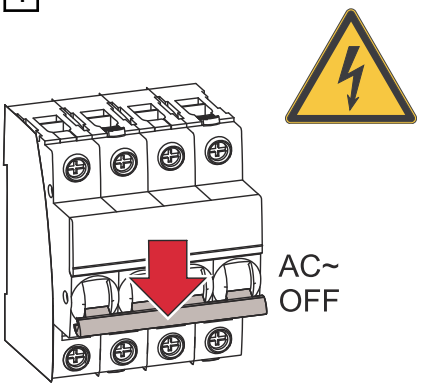
⚠ WARNING

Incorrect or insufficient connection of the phases
This can result in electric shocks, short circuits, damage to the device, or fire hazards.
- ▶ Connect a phase to L1 to supply power to the Wattpilot.
- ▶ Insulate unused phases (contact protection).

NOTE

Residual current detection
Faulty or insufficient protection may result in damage to the device.
- ▶ Connect a separate residual current circuit breaker type A, IΔn = 30 mA AC or type B if required upstream of the installation.
- ▶ Comply with all national regulations and standards during installation.

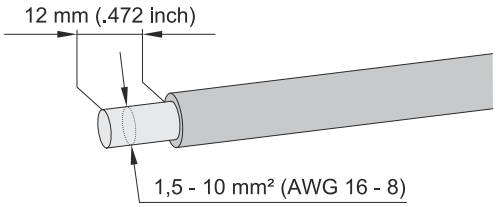
1



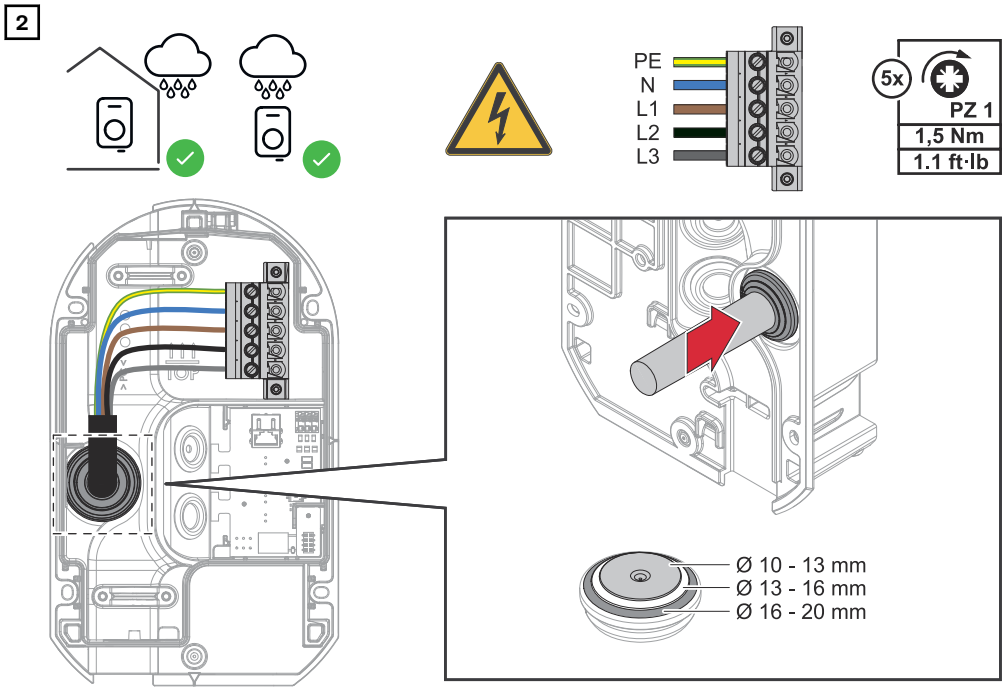
Turn off the automatic circuit breaker.

Charging current	CU-Wire min.
0 -16 A	70 °C / 158 °F
>16 - 32 A	90 °C / 194 °F

Prepare the cables
Depending on the connection version, strip the insulation of the single conductors according to the template on the packaging of the Wattpilot Flex. Strip the conductors by 12 mm.

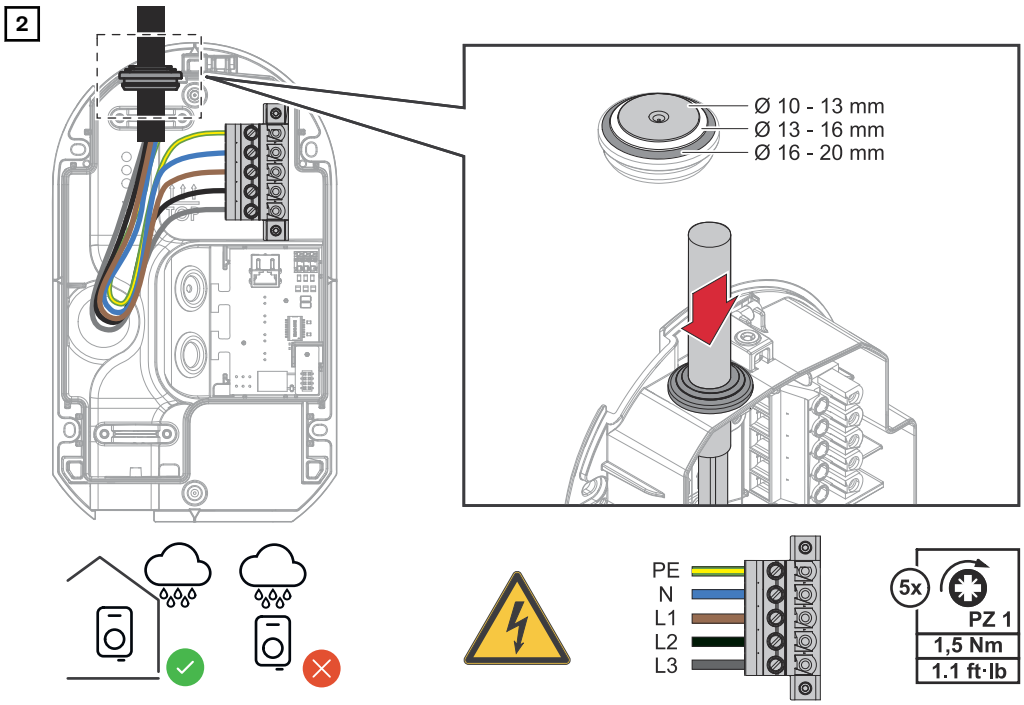


Installation of the mains cable from the rear



Insert the 5-pin mains cable into the device from the rear through the opening. Connect the single conductors according to the illustration. Adjust the rubber grommet to the cable cross-section. The rubber grommet protects the device from water ingress.

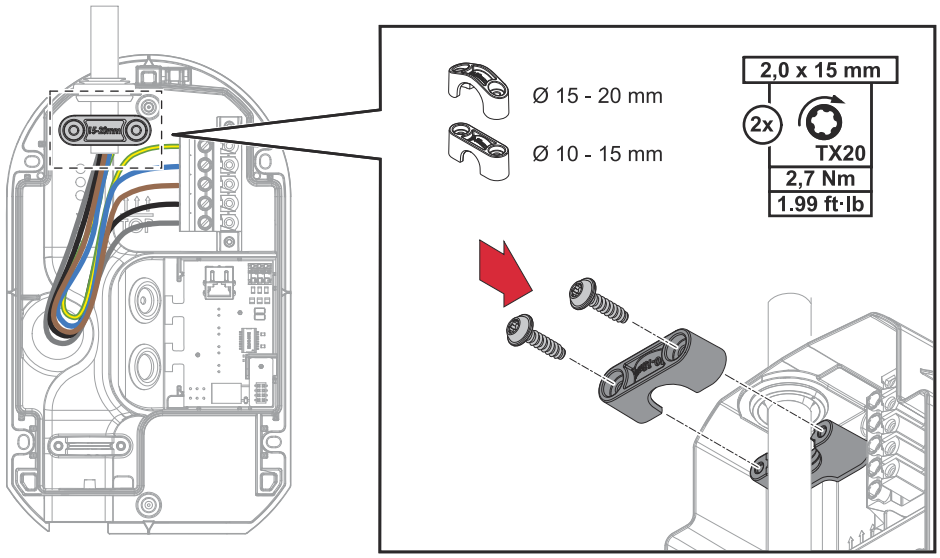
Installation of the mains cable from above



Grid connection from above is only permitted indoors.

Insert the 5-pin mains cable into the device from above through the opening. Adjust the rubber grommet to the cable cross-section and put it over the mains cable to seal it.

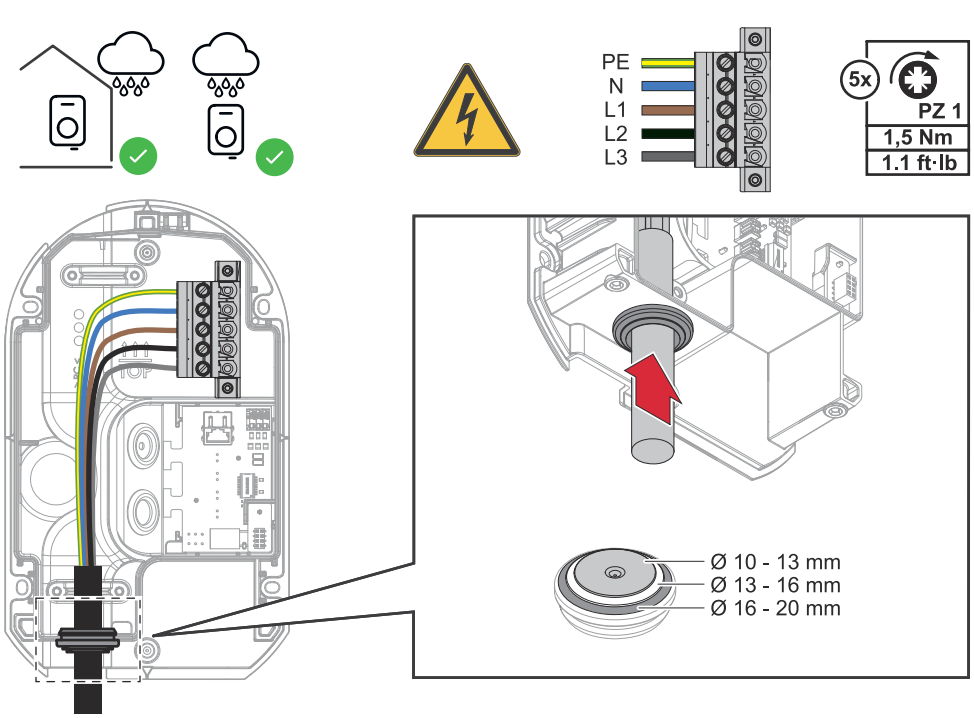
3



Connect the single conductors of the mains cable as shown in the illustration. Fit the appropriate strain-relief device (10-15 mm or 15-20 mm).

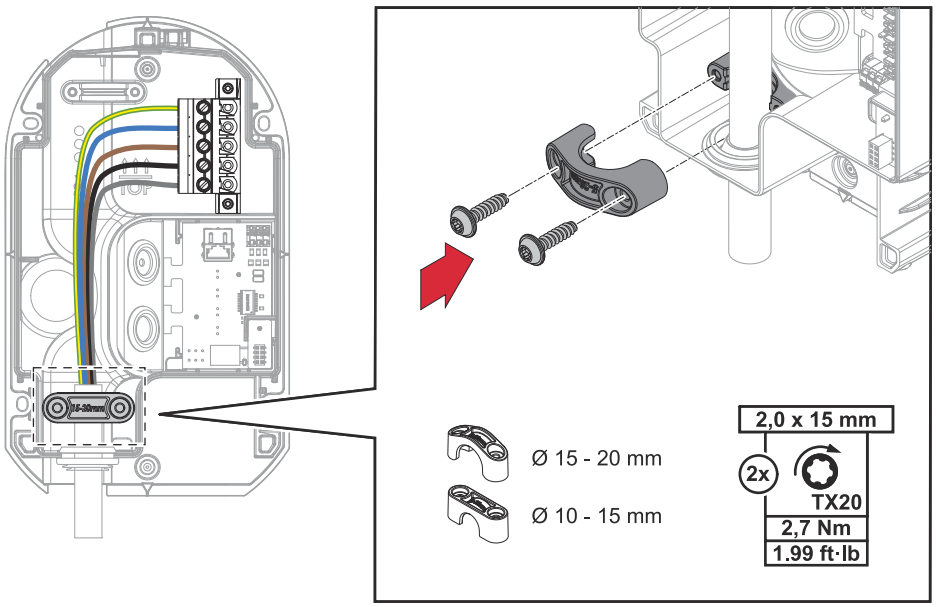
Installation of the mains cable from below

2



Insert the 5-pin mains cable into the device from below through the opening.

3

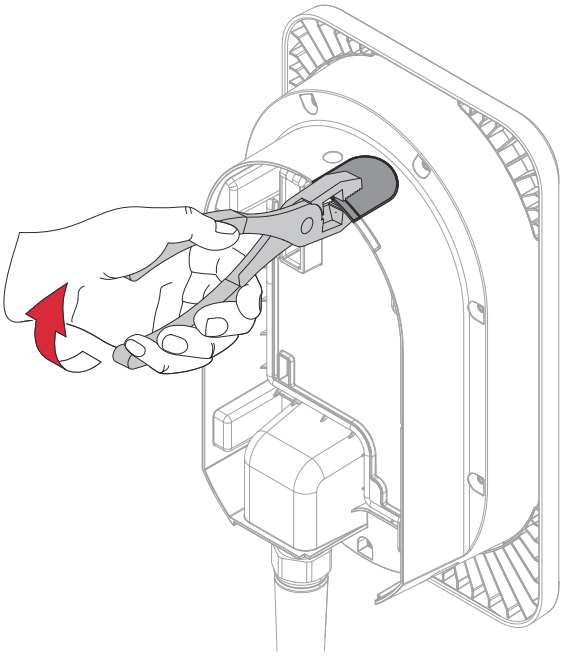


Connect the single conductors of the mains cable as shown in the illustration. Fit the appropriate strain-relief device (10-15 mm or 15-20 mm).

Closing the device

Mains cable from above

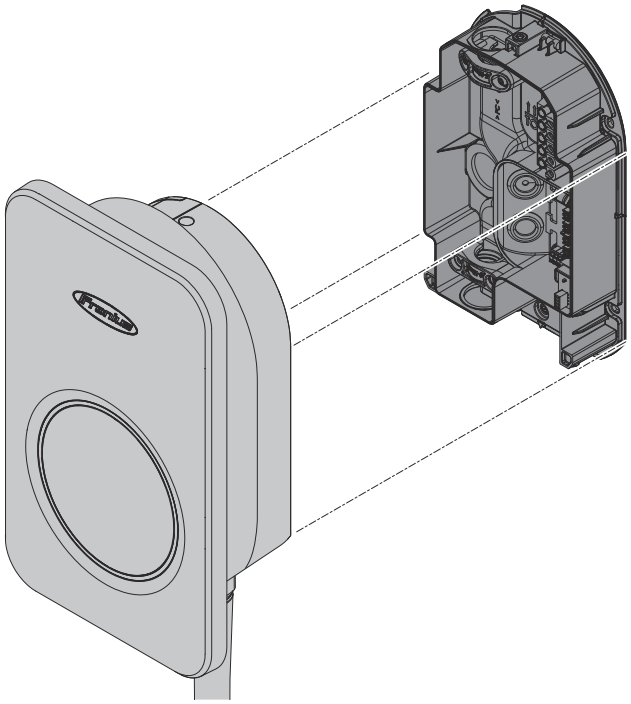
1



If the mains cable is being inserted into the device from above, break out the marked area on the housing using a suitable tool.

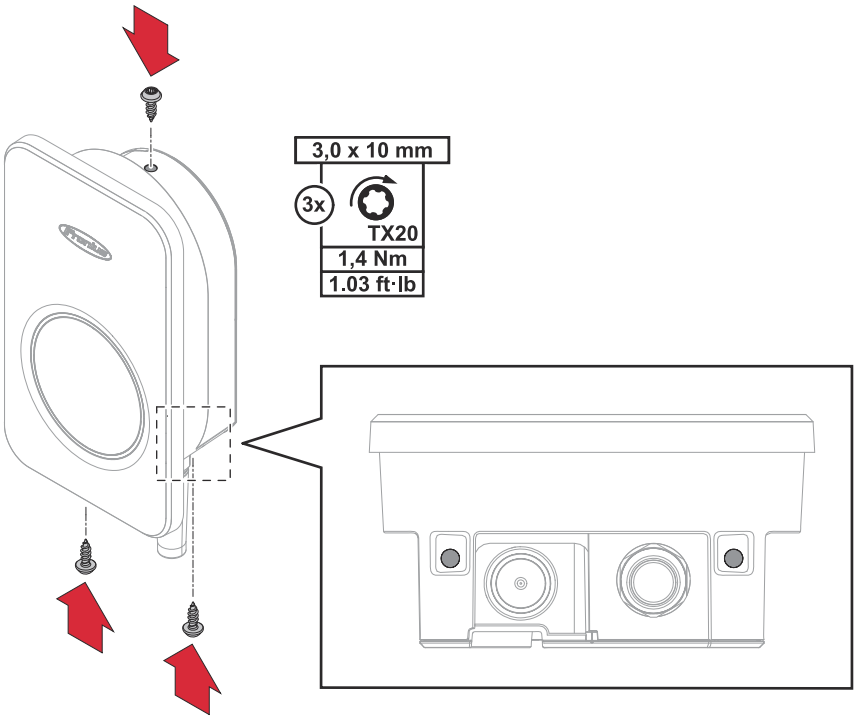
Mounting the device

1



Place the device onto the mounting bracket as shown.

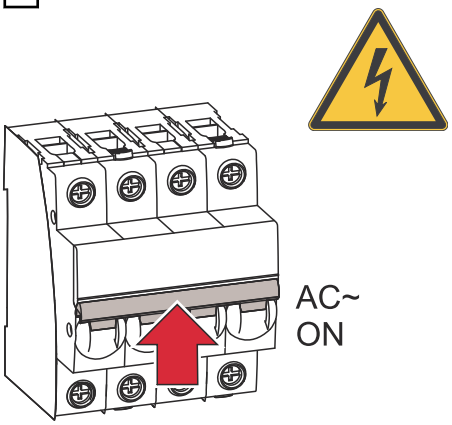
2



Secure the device with 3 pcs TX20 3.0 x 10 mm screws.

3

Turn on the automatic circuit breaker.



Commissioning

Commissioning with app

The Fronius Solar.wattpilot app can be used to commission, configure, operate, and update the Wattpilot. The app visualizes charging processes and saves the records (e.g., for billing purposes). The app is available for Android™ and iOS®.

NOTE

Software updates
Outdated versions of the app and device firmware can negatively affect the functionality and safety of the device.

- ▶ Activate the notification for available updates of the app and the device firmware in the **Services** > **Software version** menu.
- ▶ When notified, update to the new version of the device firmware or app.

Download

The Fronius Solar.wattpilot app is available on the following platforms.

GET IT ON Google Play

Download on the App Store

Launching the app

1. Open the Fronius Solar.wattpilot app on the end device.
2. Click **Setup**.
   - ✓ *The Setup wizard starts.*
3. Read and accept the terms and conditions of use.
4. Click **Connect**.

On end devices with an iOS operating system, enable access for the Fronius Solar.wattpilot app:

1. Open the **iOS settings > Privacy > Local Network > Fronius Solar.wattpilot** menu.
2. Allow access to the local network.

Adding a Wattpilot

To add new or already connected devices in the Fronius Solar.wattpilot app:

1. On the start page, click on the name of the device (e.g., Wattpilot_serial_number).
   - ✓ *The overview of the devices is displayed.*
2. Click **Add Device**.
3. Follow the further instructions in the app.

Data communication with inverter

Charging with PV surplus (see PV surplus) is possible in combination with a compatible Fronius inverter (see Suitable inverters). This function can be used with external inverters (see Suitable generators from third-party manufacturers) if a Fronius Smart Meter IP 5kA-3 is installed. As soon as an inverter is in the network, the Wattpilot automatically pairs with the first inverter found.

Open the Fronius Solar.wattpilot app to pair another inverter.

Requirements

- The inverter is supported and has a suitable data interface (see Suitable inverters).
- The Fronius Solar API is activated.
  To do so, on the user interface of the inverter in the **Communication** > **Solar API**menu area, activate the **Activate communication via Solar API**function.
- The Wattpilot and the inverter are in the same network.
- A primary Fronius Smart Meter is connected to the inverter at the feed-in point. If there are multiple inverters with a primary Fronius Smart Meter in the network, only one of them may be paired.

Backup power mode

In backup power mode, select the maximum charging current so that the maximum output power of the inverter is not exceeded.

IMPORTANT!
Check whether the electric vehicle allows charging at 53 Hz. If necessary, adjust the **Backup power frequency offset** parameter on the user interface of the inverter.

Internet connection

In Germany, to comply with the documentation obligation set out in Section 14a of the EnWG (law on the fuel and electricity industries) the Wattpilot must be permanently connected to the Internet in order to be able to verify implementation of the external control commands.

Starting the charging process

NOTE

Type 2 charging cable with integrated shutter
The Wattpilot Flex Home 22 CP6/Pro 22 CP6E device variants have an integrated shutter on the live contacts of the charging plug. The shutter protects the contacts when the cable is not connected. If the shutter is tampered with, this could result in damage to the charging cable and the Wattpilot Flex.

- ▶ Do not open or remove the shutter manually.
- ▶ The shutter opens automatically when inserted correctly into the vehicle socket.

Charging cable adapters and cable extensions can negatively affect the function of the device or the charging process and must not be used.

How a charging process is started depends on whether authentication with an ID chip is required or not. Manage authentication in the Fronius Solar.wattpilot app under **Settings** > **Authentication** (see Authentication).

To start a charging process:

1 Connect the type 2 charging plug to the vehicle.

2 If authentication is required:
Hold the ID chip in front of the card reader or authenticate the charging process in the Solar.wattpilot app.

✓ *The charging process starts.*

Stopping charging

When the vehicle battery is fully charged, the vehicle stops charging.

1 Unlock the vehicle charging socket.
2 Disconnect the charging plug from the vehicle.
3 Wind up the charging cable on the Wattpilot and hang the charging plug in the charging plug holder.

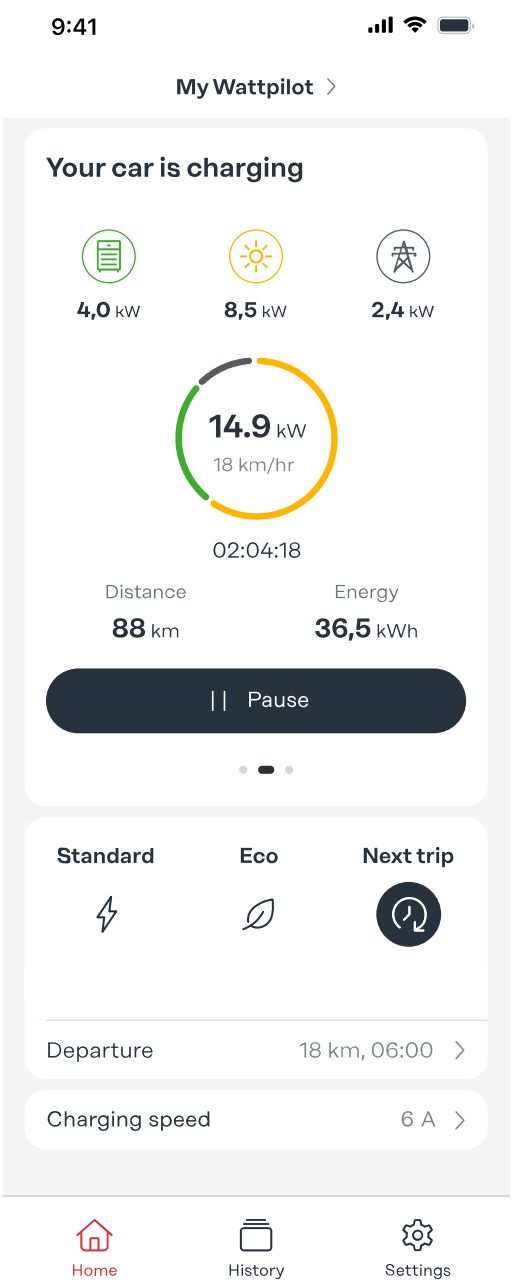
Aborting the charging process prematurely
- In the vehicle via the **Cable release** function
- In the app, click on **Stop** (see Start page and navigation elements).

Fronius Solar.wattpilot app

Home

Start page and navigation elements

The images show the start page of the Fronius Solar.wattpilot app.



Tap on the device name to manage and add devices.

Charging process view:

- State of charge
- Distribution of the charging power to the battery, the PV system surplus, and the grid consumption.
- Shows the current charging power, the charging time, and the charged energy.
- Tap **Start**/**Pause** to start or pause the charging process.

Charging mode:

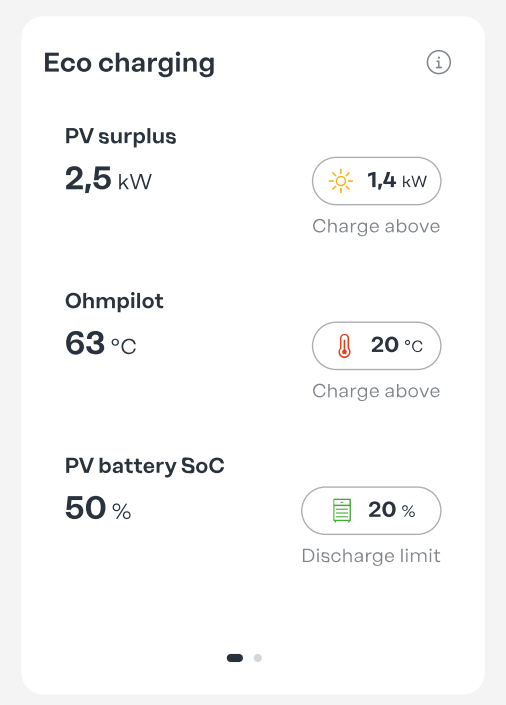
Select a charging mode (see Different charging modes).

In **Next Trip Mode**, under **Departure**, specify the desired amount of energy in a kilometer range and the time.

Set the charging speed (see Current level).

Navigate from the **Home** start page to the following menu areas:

- **History** (see History)
- **Settings** (see Settings)



Swipe left in the charging process view.

- Shows the set parameters for the use of PV surplus and energy from the battery (see PV surplus).
- Threshold settings for the use of PV surplus.
- If a Fronius Ohmpilot is installed in the system, the defined temperature limit value is displayed.

History

The records of charging processes and charged energy can be found in the **History** menu.

- **Charging processes**: Charging processes for a defined period of time.
- **Total charged energy**: Charged energy and predicted range.
- **Download portal**: Link to detailed records in the form of a csv file with the following information:

Value	Description
Session Number	Unique identification number
Session Identifier	Unique charging process number
ID chip	Information on the logged-in ID chip. If charging is carried out without an ID chip, this line is empty.
Operating mode Eco[%]	Proportion of charged energy from Eco Mode as a percentage.
Operating mode Next Trip [%]	Proportion of charged energy from Next Trip Mode as a percentage.
Start	Date and time the charging cable was plugged in.
End	Date and time when the charging cable was disconnected.
Total duration	Charging period
Duration of active current flow	Period of time the vehicle was charged with energy.

Value	Description
Maximum output [kW]	Maximum power achieved in kilowatts
Maximum current [A]	Maximum current in amperes
Energy [kWh]	Charged energy in kilowatt-hours
Meter reading at the start [kWh]	Meter reading in kilowatt-hours at the start of charging.
Meter reading at the end [kWh]	Meter reading in kilowatt-hours at the charge end.

Settings

All configuration options for charging the electric vehicle, data communication, permissions, and handling of the Fronius Solar.wattpilot app can be found in the **Settings** menu.

Different charging modes

Standard Mode

In Standard Mode, the Wattpilot charges at the preset amperage (e.g., 16 A). A PV surplus and the electricity tariff are not taken into account. Current levels with associated charging current can be defined in the Current level menu. Charging takes place with grid current if necessary.

Eco Mode

In Eco Mode a vehicle is only charged if there is surplus energy available from the photovoltaic system and/or the electricity price is below a defined limit value.

Prerequisite for charging in Eco Mode:

1. In the Fronius Solar.wattpilot app, select the **Charging** menu.
2. Activate Tariff.

NOTE

Change mode for guaranteed charging
If there is no PV surplus or cheap electricity available, charging is not carried out in Eco Mode.

- ▶ For guaranteed charging, change to Standard or Next Trip Mode.

NOTE

Battery discharge
If the system contains a battery, the battery is discharged to charge the electric vehicle before grid current is drawn.

- ▶ Define the limit values for the battery in the prioritization (see Prioritization of Fronius Ohmpilot and battery storage).
- ▶ Use the Energy cost assistant (=ECA) function in Solar.web to further optimize battery management in combination with flexible electricity tariffs.

Next Trip Mode

Next Trip Mode regulates the charging of the electric vehicle until the next planned trip, taking into account PV surplus and a flexible electricity tariff. The following parameters are relevant for charging:

- Time at which the charging process should be completed.
- Desired amount of energy in a kilometer range or charged energy in kWh.
- Settings for **PV surplus** and **Tariff** for a cost-optimized charging process.

Activating **Next Trip Mode**:

1. Set the mode under **Next Trip Mode** in the Fronius Solar.wattpilot app.
2. Activate the **Continue charging** function if charging is to be continued after reaching the target value with **PV surplus** or **Tariff**.

The Wattpilot calculates the set average consumption. The time charging starts is selected in such a way that the desired charging amount is charged at least one hour before the charge end. The actual state of charge of the electric vehicle battery is not read out. The set charging amount is charged in addition to the charging amount available in the electric vehicle.

After activating the mode, charging starts briefly to calculate the charging schedule taking into account the possible charging power. If no flexible electricity tariff is activated in the **Tariff** menu, charging is started at the latest possible time. Any **PV surplus** is used and the electric vehicle battery is protected. If no time is provided for the calculation of the charging schedule, charging starts immediately.

If the charging cable is disconnected and reconnected while Next Trip Mode is activated, the calculation is repeated. The set charging amount is charged in addition to the charging amount already available. Recalculation also takes place in the event of changes to the settings of the Fronius Solar.wattpilot app.

NOTE

Internet connection
If the **Tariff** function is activated (in Next Trip Mode) and there is no connection to the Internet, the data of the electricity provider is not retrieved. The Next Trip Mode LED on the Wattpilot flashes white.

▶ Charging starts at the latest possible time in order to reach the set charging amount.

NOTE

Next Trip Mode LED flashing white
If the set charging amount cannot be charged in the specified time or if the vehicle cannot store the set charging amount, the LEDs flash white.

▶ Reduce the charging amount or extend the charging time.

Charging from the battery

Prerequisite
The function is available when a battery is present in the photovoltaic system and **Eco Mode** is selected.

If the **Energy Cost Assistant** function is active on the inverter, the inverter can temporarily block the battery discharge, for example, to charge the battery from the public grid at a low electricity price.

Function
The energy for charging is used directly from the battery. As a result, low-cost energy can be obtained, even if no PV surplus is available. The settings can be used to define how much residual energy remains in the battery. In addition, you can set whether the charge from the battery should be used once, or whether it should continue until the vehicle is unplugged.

It can take up to 10 minutes for the battery to discharge at maximum power. The state of charge of the battery at the inverter must be greater than the **Discharge until** limit value.

Charging

Current level

NOTE

Charging infrastructure
Charging at a high charging speed can negatively affect the infrastructure.
▶ In the **Grid requirements** menu item, adjust the maximum charging current to the installation (supply line, post-meter fuse, etc.).

1 To set the charging speed (see Start page and navigation elements), define five levels with associated charging current.

2 Depending on the device variant, specify a value between 6 A and 32 A for each level.

Scheduler

The **Scheduler** limits charging to certain times for the following application examples:
- The vehicle should only be charged at night with cheap electricity and during the day only with PV surplus.
- Charging should only be possible when someone is at home.

NOTE

Activated Eco Mode or Next Trip Mode
If charging is restricted by the charging timer, Eco Mode and Next Trip Mode are blocked outside this period.
▶ Adjust the time intervals for the scheduler to the users' travel habits and the availability of PV surplus.

Vehicle

For optimum charging behavior, please note the information in the operating instructions for the vehicle.

In this menu, select **Standard** and set the following parameters under **Advanced settings**. For optimum charging behavior, please note the information in the operating instructions for the vehicle.

Vehicle- Advanced settings

- **Choose car:** Use this setting to enable the optimized standard settings of different vehicle models.
- **Min. current:** For some vehicles, a charging current of 6 A cannot be processed. To prevent a malfunction, the **Minimum charging current** can be set.
- **Forced charging interval:** In the case of cost-optimized charging, the Wattpilot interrupts the charging process if the electricity price is too high or there is no PV surplus. Some cars will not tolerate interruptions and will not continue charging after prolonged interruptions to the charging process. In this case, the charging process must be started regularly for a short time.
- **Allow charge pause:** Some vehicles will not resume charging after an interruption. Charging interruptions are prevented if this option is deactivated. Charging is continued with minimal power. This can result in electricity being drawn from the grid.
- **Simulate unplugging:** Some vehicles need to be disconnected for a while if there has been an interruption during cost-optimized charging. This function simulates a disconnection before charging continues.
- **Charging pause**: Some vehicles need a certain time after an interruption in charging before they can start charging again.
- **Min. charging time:** Set the minimum amount of time the vehicle must be charged after starting charging.
- **Phase switch delay**: The phase switch is carried out if the "3-phase power level" is permanently exceeded or fallen short of in this time period.
- **Phase switch interval**: Minimum time between the phase switches.

The Wattpilot can also individually adapt the charging process to the requirements of the vehicle. Under **Charging behavior**, select a vehicle from the list. The Wattpilot takes over all vehicle-specific parameters.

PV surplus

Activate the **Use PV surplus** slider to use the excess energy of the PV system for charging.

Inverter/Smart Meter IP
Select an available inverter or Smart Meter IP for connection to the Wattpilot. A connected device is displayed.

PV surplus start value
Define a limit value from which the available energy of the PV system is used for charging. In addition, specify a **phase switch level** for the switch from single-phase to three-phase charging. If "0" is set, the Wattpilot starts charging even if no PV surplus is available.

PV battery threshold
If a battery is integrated into the PV system, the following limit values can be set:
- **Charge above**: If the set state of charge of the battery is exceeded, the device uses all of the PV surplus energy for the charging process.
- **Discharge until**: The Wattpilot discharges the battery until the set state of charge is reached.
- **Limit discharging time**: The battery is only discharged during the set time period.

The set limit values are only active in Eco Mode and Next Trip Mode.

Ohmpilot threshold
If a Fronius Ohmpilot with a temperature sensor is installed in the PV system, set a limit value for the temperature here. When the set temperature is reached, the excess energy of the PV system is used for charging.

PV surplus- Advanced settings

- **Zero feed-in**: Activate this function if zero feed-in is also set for the inverter due to regulatory requirements.
- Adapt the **Control behaviors**:
  - **Prefer from grid**: The Wattpilot requires energy to reach the set current level, which is preferably drawn from the grid.
  - **Standard**: The Wattpilot allows for both grid consumption and grid feed-in.
  - **Prefer to grid**: The Wattpilot has enough energy to reach the set current level. The excess energy is fed into the grid.

The power is regulated in 1 ampere increments. Despite the control behavior, there is grid consumption or feed-in of the PV surplus between the increments.

If zero feed-in is activated, the **Prefer from grid** option is automatically activated to meet the regulatory requirements. PV optimization control may be restricted.

Tariff

In the charging modes Flexible electricity price and Next Trip Mode vehicles can be charged from the grid at favorable rates with the **Tariff** function. A contract with a provider of a flexible electricity tariff is required.

Configuring the electricity price

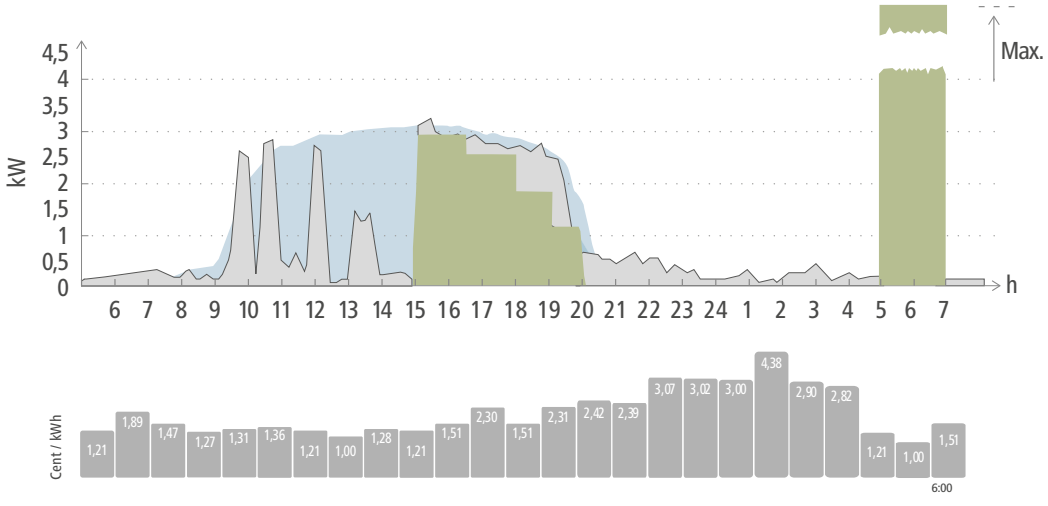
1. Enable the **Use flexible electricity tariff** slider.
2. Select **Eco mode price limit** based on the displayed overview of the daily price.
   ✓ *The charging process starts when the electricity price is below this value.*
3. Select the country and the electricity price zone/electricity provider.

✓ *The overview of the daily price is displayed on the start page of the Fronius Solar.wattpilot app.*

Next Trip Mode only takes into account the cheapest charging times in the available time span.

Application examples

Next Trip Mode



Photovoltaic generation

Electric vehicle

Household consumption

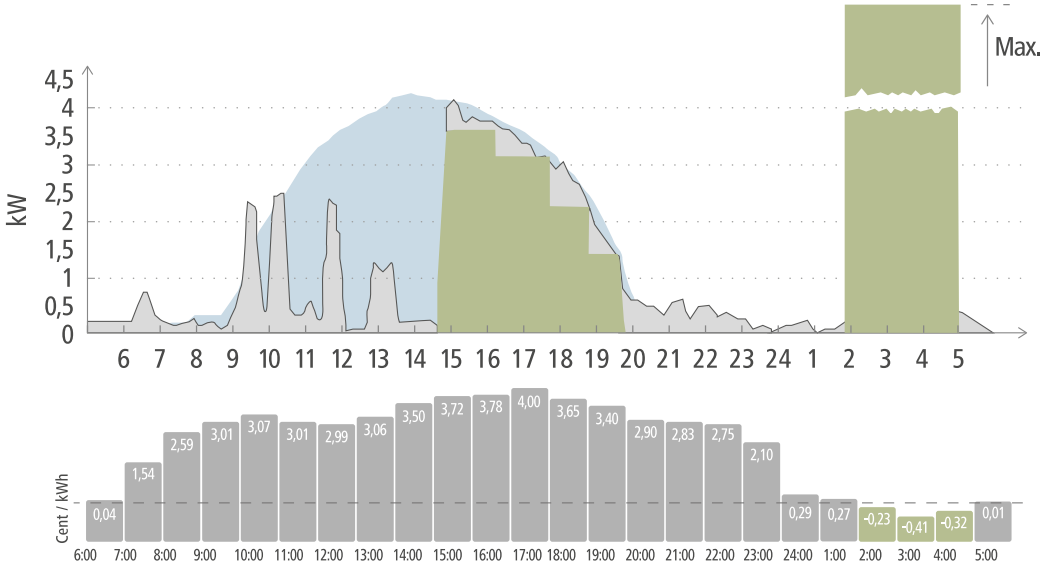
There is a PV system, but no flexible electricity tariff. The daily journey to work starts at 08:00 hrs. The distance is 50 km round trip. The kilometers and the departure time have been entered in the Fronius Solar.wattpilot app. Charging starts at 15:00 hrs with **PV surplus**. The remaining charging amount is charged using grid current at the latest possible time in the early hours of the morning. The charge is completed one hour before departure.

NOTE

State of charge
If the electric vehicle is sufficiently charged, the use of **Eco Mode** is recommended.

▶ Select **Eco Mode** on the start page of the Fronius Solar.wattpilot app.

Eco Mode



Photovoltaic generation

Electric vehicle

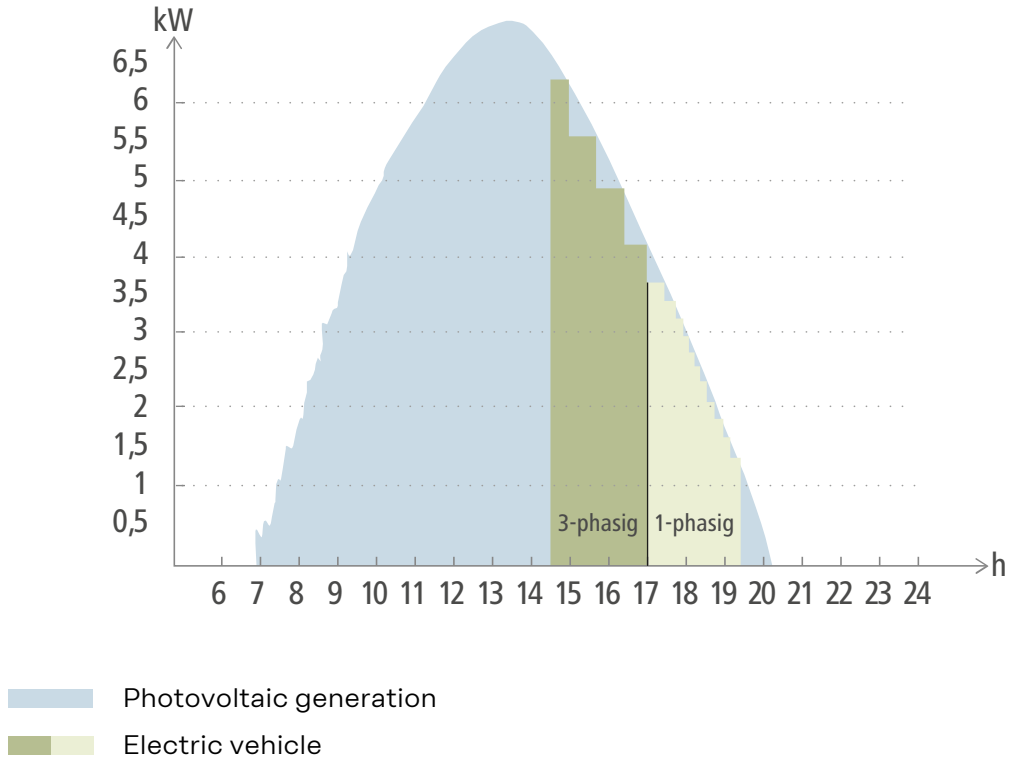
Household consumption

A PV system and a flexible electricity tariff are available. In Eco Mode, the electric vehicle is connected to the Wattpilot at around 15:00 hrs, as although a fixed additional range for the electric vehicle is not necessary, cheaper electricity is to be used for charging. In the Fronius Solar.wattpilot app, the PV surplus and/or flexible electricity tariff must be activated and set in the **Charging** menu. Household consumption is covered by photovoltaic generation and the electric vehicle is charged with the PV surplus. Charging takes place using the PV surplus until around 20:00 hrs. Between 02:00 and 05:00 hrs, the electricity price falls below the defined price limit. The electric vehicle is charged with cheap electricity during this period.

Charging in Eco Mode

PV surplus	Price limit	Wattpilot
No	No	No charging
No	Yes	Max. charging
Yes	No	Charging with PV surplus
Yes	Yes	Max. charging

PV surplus with phase switching



The figure illustrates the behavior of the Wattpilot with a set start-up power level of 1.4 kW and a 3-phase power level of 4.2 kW. If the PV surplus is less than 1.4 kW, the vehicle does not charge.

If the PV surplus is between 1.4 kW and 4.2 kW, the Wattpilot regulates the charging power in **0.23 kW**increments.
If the PV surplus is above 4.2 kW, the Wattpilot switches from 1-phase charging to 3-phase charging and regulates the charging power in **0.69 kW**increments.

Charging from the battery

The function is available when a battery is present in the photovoltaic system and Eco Mode or Next Trip Mode is selected.

In this example, the battery is 80% charged. Due to the current weather conditions, no additional energy is stored. The vehicle is charged up to the discharging limit (e.g., 20%). In addition, the settings stipulate that the discharge is continued until the vehicle is unplugged (see Charging from the battery). If the weather conditions change and PV surplus is fed into the battery again, the vehicle charges until it is unplugged.

Display

Name	Change the name of the Wattpilot.
Brightness	Set the LED brightness values. Activate **Switch off LEDs after 10 s in standby** (optional).
LED colors	An individual color scheme can be set for the different operating states of the Wattpilot. The color code of the selected color is displayed.
Timezone	Set the time zone. Activate **Automatically switch to daylight saving time** to automatically set summer and winter time.

Access

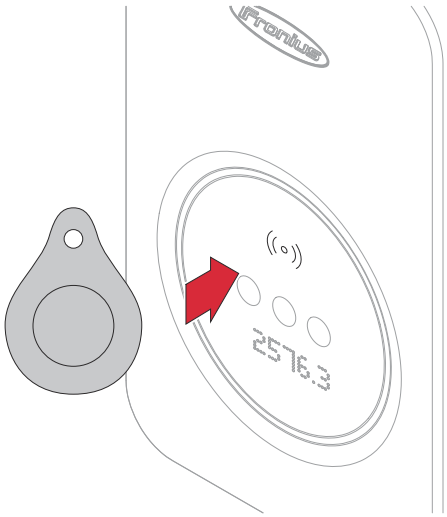
Wattpilot password

The password protects against unauthorized access.

Password policy
- At least 8 characters
- At least 3 of the following 4 characters: uppercase letter, lowercase letter, number, special character
- No umlauts (ä, ö, etc.)
- No paragraph sign (§)

Authentication

- **Open**: The charging process starts automatically after connecting the charging cable.
- **Authentication required**: Charging only starts after confirming in the app or scanning the paired RFID chip.



Scan the RFID chip

1. Hold the chip in front of the card reader on the Wattpilot.
2. Five LEDs light up green.

✓ *Charging starts.*

RFID chips

It is possible for up to 10 commercially available RFID chips to be used. The RFID chip is used for authentication and to record each user's charging processes. The chip can be paired with several devices. The chips and the charging amount remain stored when the device is reset to factory settings. The supplied chips have already been paired.

Pairing an RFID chip

1. Hold the **ID chip** in front of the card reader on the Wattpilot.
2. Click on **Pair the ID chip** in the app.

Renaming an RFID chip

1. Tap the corresponding entry.
2. Enter the desired name and tap "Save".

Connection

Connection

Configure the following connection options:

- **Ethernet**
  - Activates/deactivates Ethernet.
  - Select an automatic IP address or a static IP address and set the parameters.
- **WiFi**
  - Search for available networks, add networks, and connect.
- **Hotspot**
  - Set the hot spot password.
  - Select whether the hot spot is always active or only if the WiFi connection is interrupted.
- **Internet connection**
  - Activation or deactivation of the connection. If **Allow Internet connection** is deactivated, functions such as the flexible electricity tariff, time synchronization, or app connection to the Internet are not possible.
- **OCPP**
  - Configuration of the Open Charge Point Protocol.
  - For further information, see chapter OCPP.

OCPP

The charging point communication standard OCPP (Open Charge Point Protocol) enables communication between the Fronius Wattpilot and a management system. Setup is carried out via a remote server provider or locally.

Activate OCPP
Activation or deactivation of OCPP.

Address
Enter the address of the OCPP server made available by the provider in the OCPP menu of the app.

Status

- Not connected: OCPP is not activated and is not connected to a management system.
- Started: OCPP is activated, but not connected to the management system.
- Connected: OCPP is activated and there is a connection to the management system. The connection has not yet been accepted.
- Connected and accepted: OCPP is activated and connected to the management system. The connection has been accepted.

Alternative ID
An alternative ID can be stored in the History menu in case a charging process is started without authentication with an ID chip.

Phase assignment
Settings for the phase assignment of the Wattpilot in alignment with a Fronius Smart Meter. This is, for example, necessary for the load balancing to function correctly.

Services

Software version

The Wattpilot's current firmware is loaded via the Internet. The **Firmware version** menu displays which firmware version is installed and whether an update is available.

Updating the firmware

1. Click **Update available**.
2. Select the available version.
3. Click **Update firmware**.
4. After a firmware update, check whether the **App version** also needs to be updated.

Update the Fronius Solar.wattpilot app via the respective platform (Google Play Store, App Store).

Beta
New beta versions of the firmware can be pre-installed and tested. Test feedback on the beta versions is expressly welcomed.

Changing firmware
The old firmware remains stored on the Wattpilot after an update. In the event of an error, it is possible to switch between the old and the new firmware version even without an Internet connection.

Restart device

After pressing the button, the Wattpilot restarts.

Factory settings

Select this button to reset the Wattpilot to its factory settings. The following settings are not reset:

- Technician password
- Settings in the **Safety and grid** menu
- Records of the charging processes

Safety and grid

Technician password

The technician password protects the network and security-related settings against unauthorized access.

1 Create a technician password during commissioning.
2 Activate use of the password.
3 Set which menu areas are protected with the technician password.

Dynamic Load Balancing

1 Select the **Safety and grid** > **Dynamic Load Balancing** menu.
2 Enter the **technician password** if configured.
3 Confirm with **OK**.

Dynamic Load Balancing

For general information on Dynamic Load Balancing, see Dynamic load balancing. The Dynamic Load Balancing monitors the current at the reference point.

- **Max. current grid connection**
  Set the maximum delivery current for the power connection that must not be exceeded.
- **Max. current supply line**
  Limit the total current of all Wattpilots so that the grid lead is not overloaded.
- **Phase assignment**
  The Fronius Smart Meter monitors each phase. For **Dynamic Load Balancing** to work properly, set the phase assignment of the Wattpilot in relation to the Smart Meter. As a result, when the current of a phase is exceeded, the correct Wattpilot is regulated back.
- **Priority**
  For systems with multiple devices, set charging priorities (see Priority).
- **Fallback mode**
  If there is no connection to the server, the Wattpilot limits the charging current to the set value. This ensures that the infrastructure is not overloaded.
- **Overview**
  Displays all devices in **Dynamic Load Balancing**.

Grid settings

1 Open the **Safety and grid** menu.
2 Click on **Grid requirements**.
3 Enter the **technician password** if configured.
4 Confirm with **OK**.

Choose country
Different charging conditions are allowed depending on the country. In this selection, all known default settings for the respective country are stored and can be selected directly.

Max. charging current
This setting is used to adjust the maximum charging current of the Wattpilot. For optimal use of the PV surplus, set the charging current to the maximum value approved by the utility.

Random maximum delay
Random charging start delay means that the grid is not overloaded when several Wattpilots start charging at the same time. This is relevant when using flexible electricity tariffs or after a power outage.

Initial Connection and Reconnection
Set the parameters for voltage, frequency, and time.

Undervoltage Shutdown
Define a threshold value for voltage and time for shutdown of the Wattpilot.

Phase unbalanced load
Activate and set the maximum phase unbalanced load. Set the maximum asymmetry in accordance with the applicable regulations (see Phase unbalanced load).

Grounding test

Activation or deactivation of the grounding test. It is necessary to deactivate the grounding test in insulated grids in some countries (e.g., Norway).

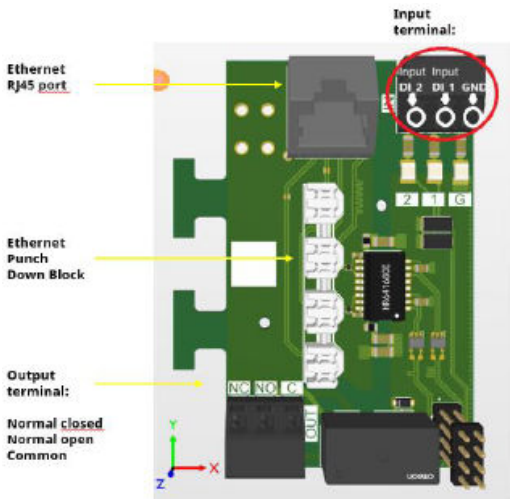
Digital input

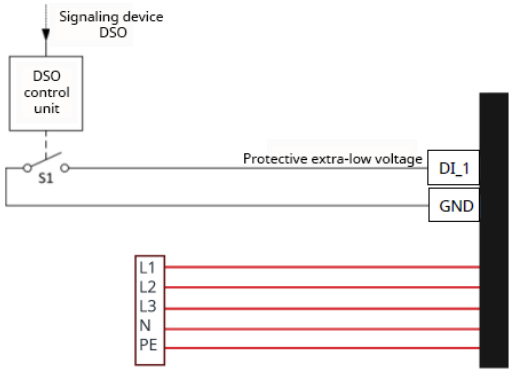
The Fronius Wattpilot Flex is equipped with a digital input (DI_1).

The digital input in the grid lead can limit the charging current. The following use cases are possible:
- Charging unlocking via a keylock switch.
- Connecting the Wattpilot Flex to a ripple control receiver (request from the utility).
- Using the Wattpilot Flex as a controllable load in accordance with Section 14a EnWG (Energy Industry Act).

NOTE

Insulation requirements
Failure to comply with the insulation requirements may result in damage to the Wattpilot and the connected components.
- ▶ Before installation, check that the components used satisfy the corresponding insulation requirements.
- ▶ Only use permanently installed switching devices of overvoltage category 3 (in accordance with EN IEC 60664-1).





Configuration is carried out in the Solar.wattpilot app and includes activation of the digital input and configuration of the switching contacts.

Legal information

Linked information

The **Imprint**, **Privacy statement**, and **Terms of Use** menus take you to further information from the manufacturer. All freely accessible software solutions that are used for the Solar.wattpilot app are listed under **Open Source**.

Appendix

Technical data

Wattpilot Flex Home 11 C6

General data	1-phase	3-phase
Dimensions (height x width x depth)	325 x 195 x 105 mm	
Weight	4.1 kg	
Charging cable	6 m cable, type 2 charging plug	
Charging cable conductor cross-section	5 x 2.5 mm² +1 x 0.5 mm²	
Mains connection	5-pin screw terminal	
Supply line conductor cross-section	Mains cable top (interior), bottom, rear: 3 x 2.5 mm^2 to 5 x 10 mm^2 Cable diameter: 10 - 20 mm	
Nominal current (configurable)	6 - 16 A 1-phase or 3-phase	
Mains frequency	50 Hz	
Nominal voltage	230/240 V	400/415 V
Maximum charging power	3.7 kW	11 kW
Mains supply types	TT/TN/IT	
Standby consumption	3.5 W-6.8 W (depending on settings)	
Rated impulse withstand voltage	4 kV	
Rated insulation voltage	415 VAC	
Simultaneity factor	1	
PV optimization[1]	Dynamic PV surplus charging from 1.38 - 11 kW (at 230 V/400 V, automatic 1-/3-phase switching)	
MID meter	Not integrated	
Measurement and calibration law compliance	No	
Charging mode	Mode 3 as per IEC 61851-1 AC charging	
Dynamic Load Balancing	Integrated (unlimited number of charging stations)[2]	
Standards	EN IEC 61851-1, EN 62196, ISO 15118 (prepared on the hardware side)	

Environmental conditions	
Use	Indoors and outdoors[3]

[1] Additional components are required for PV-optimized charging.

[2] An Internet connection is required for Dynamic Load Balancing.

[3] When installed outdoors, the cable input must only be from below or from behind.

Environmental conditions	
Installation type	Suspended upright
Ambient temperature	-25 to +45 °C
Storage temperature	-40 to +85 °C
Altitude	0 - 2000 m
Humidity	< 95% (non-condensing)

Communication interfaces	
Interfaces	LAN (RJ45 or LSA) 10/100 Mbit/s WiFi 802.11 b/g/n 2 digital inputs 1 digital output prepared for ISO 15118
Communication protocol	OCPP 1.6 J
WiFi frequency bands and channels	2412 - 2472 MHz/1 - 13
WiFi transmission power	< 100 mW (< 20 dBm)
Authentication	RFID, Solar.wattpilot app
RFID frequency	13.56 MHz
RFID transmission power	max. 60 dBµA/m (10 m)
Bluetooth	prepared for BLE (2.4 GHz)
Digital input	2 non-insulated inputs that can be connected to various devices such as a ripple control receiver
Digital output	1 insulated switching contact to support fault isolation or other regulatory requirements. (230 V AC/30 V DC, 5 A)
Digital input/output conductor cross-section	0.2 - 1.5 mm²
Power Line Communication	Physical layer in accordance with ISO 15118-3

Safety and device protection	
Residual current protection device[4]	20 mA AC, 6 mA DC, integrated
Protective class	1
Overvoltage category	3
Pollution degree	3
EMC emission class (in accordance with IEC 61000-6-2, IEC 61000-6-3)	A+B
Ingress protection rating	IP 66

[4] An additional residual current circuit breaker and an automatic circuit breaker according to the applicable installation standards of the respective country must be connected upstream.

Safety and device protection	
Impact resistance	IK08

Wattpilot Flex Home 22 C6/Wattpilot Flex Home 22 CP6

General data	1-phase	3-phase
Dimensions (height x width x depth)	325 x 195 x 105 mm	
Weight	5.4 kg	
Charging cable	6 m cable, type 2 charging plug (variant CP6 with shutter)	
Charging cable conductor cross-section	5 x 6 mm² +1 x 0.5 mm²	
Mains connection	5-pin screw terminal	
Supply line conductor cross-section	Mains cable top (interior), bottom, rear: 3 x 2.5 mm^2 to 5 x 10 mm^2 Cable diameter: 10 - 20 mm	
Nominal current (configurable)	6 - 32 A 1-phase or 3-phase	
Mains frequency	50 Hz	
Nominal voltage	230/240 V	400/415 V
Maximum charging power	7.4 kW	22 kW
Mains supply types	TT/TN/IT	
Standby consumption	3.5 W-6.8 W (depending on settings)	
Rated impulse withstand voltage	4 kV	
Rated insulation voltage	415 VAC	
Simultaneity factor	1	
PV optimization[5]	Dynamic PV surplus charging from 1.38 - 22 kW (at 230 V/400 V, automatic 1-/3-phase switching)	
MID meter	Not integrated	
Measurement and calibration law compliance	No	
Charging mode	Mode 3 as per IEC 61851-1 AC charging	
Dynamic Load Balancing	Integrated (unlimited number of charging stations)[6]	
Standards	EN IEC 61851-1, EN 62196, ISO 15118 (prepared on the hardware side)	

Environmental conditions	
Use	Indoors and outdoors[7]

[5] Additional components are required for PV-optimized charging.

[6] An Internet connection is required for Dynamic Load Balancing.

Environmental conditions	
Installation type	Suspended upright
Ambient temperature[8]	-25 to +45 °C
Storage temperature	-40 to +85 °C
Altitude	0 - 2000 m
Humidity	< 95% (non-condensing)

Communication interfaces	
Interfaces	LAN (RJ45 or LSA) 10/100 Mbit/s WiFi 802.11 b/g/n 2 digital inputs 1 digital output prepared for ISO 15118
Communication protocol	OCPP 1.6 J
WiFi frequency bands and channels	2412-2472 MHz/1-13
WiFi transmission power	< 100 mW (< 20 dBm)
Authentication	RFID, Solar.wattpilot app
RFID frequency	13.56 MHz
RFID transmission power	max. 60 dBµA/m (10 m)
Bluetooth	prepared for BLE (2.4 GHz)
Digital input	2 non-insulated inputs that can be connected to various devices such as a ripple control receiver
Digital output	1 insulated switching contact to support fault isolation or other regulatory requirements. (230 V AC/30 V DC, 5 A)
Digital input/output conductor cross-section	0.2 - 1.5 mm²
Power Line Communication	Physical layer in accordance with ISO 15118-3

Safety and device protection	
Residual current protection device[9]	20 mA AC, 6 mA DC, integrated
Protective class	1
Overvoltage category	3

[7] When installed outdoors, the cable input must only be from below or from behind.

[8] 3x16 A continuous current without power derating; 1x32 A continuous current without power derating; 3x32 A max. power derating to 3x27 A at 45 °C after 1 hour. Avoid direct sunlight to prevent early derating.

[9] An additional residual current circuit breaker and an automatic circuit breaker according to the applicable installation standards of the respective country must be connected upstream.

Safety and device protection	
Pollution degree	3
EMC emission class (in accordance with IEC 61000-6-2, IEC 61000-6-3)	A+B
Ingress protection rating	IP 66
Impact resistance	IK08

Wattpilot Flex Pro 11 C6E

General data	1-phase	3-phase
Dimensions (height x width x depth)	325 x 195 x 105 mm	
Weight	4.1 kg	
Charging cable	6 m cable, type 2 charging plug	
Charging cable conductor cross-section	5 x 2.5 mm² +1 x 0.5 mm²	
Mains connection	5-pin screw terminal	
Supply line conductor cross-section	Mains cable top (interior), bottom, rear: 3 x 2.5 mm^2 to 5 x 10 mm^2 Cable diameter: 10 - 20 mm	
Nominal current (configurable)	6 - 16 A 1-phase or 3-phase	
Mains frequency	50 Hz	
Nominal voltage	230/240 V	400/415 V
Maximum charging power	3.7 kW	11 kW
Mains supply types	TT/TN/IT	
Standby consumption	3.5 W-6.8 W (depending on settings)	
Rated impulse withstand voltage	4 kV	
Rated insulation voltage	415 VAC	
Simultaneity factor	1	
PV optimization[10]	Dynamic PV surplus charging from 1.38 - 11 kW (at 230 V/400 V, automatic 1-/3-phase switching)	
Charging mode	Mode 3 as per IEC 61851-1 AC charging	
Dynamic Load Balancing	Integrated (unlimited number of charging stations)[11]	
Standards	EN IEC 61851-1, EN 62196, ISO 15118 (prepared on the hardware side)	

[10] Additional components are required for PV-optimized charging.

[11] An Internet connection is required for Dynamic Load Balancing.

Measurement	
MID meter	Integrated (accuracy class B)
Measurement and calibration law compliance	Yes
Pulse constant	100,000 imp/kWh
Nominal voltage	230 V
Nominal frequency	50/60 Hz
Maximum amperage	35 A
Nominal amperage	7 A
Starting current	0.028 A

Environmental conditions	
Use	Indoors and outdoors[12]
Installation type	Suspended upright
Ambient temperature	-25 to +40 °C
Storage temperature	-40 to +85 °C
Altitude	0 - 2000 m
Humidity	< 95% (non-condensing)

Communication interfaces	
Interfaces	LAN (RJ45 or LSA) 10/100 Mbit/s WiFi 802.11 b/g/n 2 digital inputs 1 digital output prepared for ISO 15118
Communication protocol	OCPP 1.6 J
WiFi frequency bands and channels	2412 - 2472 MHz/1 - 13
WiFi transmission power	< 100 mW (< 20 dBm)
Authentication	RFID, Solar.wattpilot app
RFID frequency	13.56 MHz
RFID transmission power	max. 60 dBµA/m (10 m)
Bluetooth	prepared for BLE (2.4 GHz)
Digital input	2 non-insulated inputs for connecting e.g., a ripple control receiver
Digital output	1 insulated switching contact to support fault isolation or other regulatory requirements. (230 V AC/30 V DC, 5 A)
Digital input/output conductor cross-section	0.2 - 1.5 mm²

[12] When installed outdoors, the cable input must only be from below or from behind.

Communication interfaces	
Power Line Communication	Physical layer in accordance with ISO 15118-3

Safety and device protection	
Residual current protection device[13]	20 mA AC, 6 mA DC, integrated
Protective class	1
Overvoltage category	3
Pollution degree	3
EMC emission class (in accordance with IEC 61000-6-2, IEC 61000-6-3)	A+B
Ingress protection rating	IP 66
Impact resistance	IK08

Wattpilot Flex Pro 22 C6E/ Wattpilot Flex Pro 22 CP6E

General data	1-phase	3-phase
Dimensions (height x width x depth)	325 x 195 x 105 mm	
Weight	5.4 kg	
Charging cable	6 m cable, type 2 charging plug (variant CP6E with shutter)	
Charging cable conductor cross-section	5 x 6 mm² +1 x 0.5 mm²	
Mains connection	5-pin screw terminal	
Supply line conductor cross-section	Mains cable top (interior), bottom, rear: 3 x 2.5 mm^2 to 5 x 10 mm^2 Cable diameter: 10 - 20 mm	
Nominal current (configurable)	6 - 32 A 1-phase or 3-phase	
Mains frequency	50 Hz	
Nominal voltage	230/240 V	400/415 V
Maximum charging power	7.4 kW	22 kW
Mains supply types	TT/TN/IT	
Standby consumption	3.5 W-6.8 W (depending on settings)	
Rated impulse withstand voltage	4 kV	
Rated insulation voltage	415 VAC	
Simultaneity factor	1	

[13] An additional residual current circuit breaker and an automatic circuit breaker according to the applicable installation standards of the respective country must be connected upstream.

General data	1-phase	3-phase
PV optimization[14]	Dynamic PV surplus charging from 1.38 - 22 kW (at 230 V/400 V, automatic 1-/3-phase switching)	
Charging mode	Mode 3 as per IEC 61851-1 AC charging	
Dynamic Load Balancing	Integrated (unlimited number of charging stations)[15]	
Standards	EN IEC 61851-1, EN 62196, ISO 15118 (prepared on the hardware side)	

Measurement	
MID meter	Integrated (accuracy class B)
Measurement and calibration law compliance	Yes
Pulse constant	100,000 imp/kWh
Nominal voltage	230 V
Nominal frequency	230 V 50/60 Hz
Maximum amperage	35 A
Nominal amperage	7 A
Starting current	0.028 A

Environmental conditions	
Use	Indoors and outdoors[16]
Installation type	Suspended upright
Ambient temperature[17]	-25 to +40 °C
Storage temperature	-40 to +85 °C
Altitude	0 - 2000 m
Humidity	< 95% (non-condensing)

Communication interfaces	
Interfaces	LAN (RJ45 or LSA) 10/100 Mbit/s WiFi 802.11 b/g/n 2 digital inputs 1 digital output prepared for ISO 15118
Communication protocol	OCPP 1.6 J

[14] Additional components are required for PV-optimized charging.

[15] An Internet connection is required for Dynamic Load Balancing.

[16] When installed outdoors, the cable input must only be from below or from behind.

[17] 3x16 A continuous current without power derating; 1x32 A continuous current without power derating; 3x32 A max. power derating to 3x27 A at 45 °C after 1 hour. Avoid direct sunlight to prevent early derating.

Communication interfaces	
WiFi frequency bands and channels	2412 - 2472 MHz/1 - 13
WiFi transmission power	< 100 mW (< 20 dBm)
Authentication	RFID, Solar.wattpilot app
RFID frequency	13.56 MHz
RFID transmission power	max. 60 dBµA/m (10 m)
Bluetooth	prepared for BLE (2.4 GHz)
Digital input	2 non-insulated inputs for connecting e.g., a ripple control receiver
Digital output	1 insulated switching contact to support fault isolation or other regulatory requirements. (230 V AC/30 V DC, 5 A)
Digital input/output conductor cross-section	0.2 - 1.5 mm²
Power Line Communication	Physical layer in accordance with ISO 15118-3

Safety and device protection	
Residual current protection device[18]	20 mA AC, 6 mA DC, integrated
Protective class	1
Overvoltage category	3
Pollution degree	3
EMC emission class (in accordance with IEC 61000-6-2, IEC 61000-6-3)	A+B
Ingress protection rating	IP 66
Impact resistance	IK08

[18] An additional residual current circuit breaker and an automatic circuit breaker according to the applicable installation standards of the respective country must be connected upstream.

Service, maintenance and disposal

Cleaning

Wipe down the device using a damp cloth as needed.
Do not use cleaning agents, abrasives, solvents, or similar substances for cleaning.

Maintenance

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

Disposal

In accordance with the EU Directive and national law, the following products must be disposed of separately and recycled:
- Waste electrical and electronic equipment
- Used batteries (portable batteries, industrial batteries)

Used equipment and batteries must be returned to the distributor or an authorized local collection system. Do not dispose of batteries with domestic waste. Protect batteries from high temperatures, direct sunlight, moisture and corrosive environments.

Arrange for the safe collection and proper disposal of damaged, leaking or used batteries by a battery recycling company or the Fronius Service Partner.

In addition, it should be noted that batteries contain substances that, if disposed of improperly, can have a significant negative impact on the environment as well as on human health and the safety of persons, in particular due to the leakage of hazardous substances such as heavy metals or electrolytes, which can contaminate soil, water and air.

This ensures environmental protection and the sustainable use of natural resources.

Packaging materials
- Collect separately
- Observe local regulations
- Compress the cardboard box to reduce volume

Status codes and remedy

Status codes

Due to the Fronius Wattpilot's phase, voltage, and switching function tests, a charge may be refused.

The status codes are displayed via the LED status indicator (see LED status indicator) directly on the Wattpilot and in the app under "Status".

1/2/14 - Residual current detected (the LEDs at the bottom light up pink, the LEDs at the top flash red)

Cause: The residual current device has detected an error.

Remedy: The charging device in the vehicle may be defective. Have the charging device checked by a qualified technician.

Remedy: Disconnect and reconnect the charging cable.

3 - At least one phase of the power supply missing (the LEDs at the bottom light up blue, the LEDs at the top flash red)

Cause: The device is only supplied with 2 phases.

Remedy: Ensure that phase 2 and phase 3 are correctly connected. Supply via only phase 1 is possible as an option.

8 - Ground fault detected (the LEDs at the bottom light up green and yellow, the LEDs at the top flash red)

Cause: Ground fault detected.

Remedy: Check that the connection is properly grounded.

10 - Relay fault detected

Cause: The relay has not switched.

Remedy: The device must be disconnected from the power supply for 5 s.

11—Backup power mode detected

Cause: 53 Hz mains current detected.

Remedy: Observe the instructions in the Operating Instructions.

100 - Internal communication error (all LEDs flash red)

Cause: Device is not sending data.

Remedy: Disconnect and reconnect the device.

Remedy: Perform firmware update.

Remedy: Have the device repaired.

101 - Temperature too high (the LEDs at the bottom light up yellow, the LEDs at the top flash red)

Cause: Continuous load, ambient temperature too high.

Remedy: Unplug the device and allow it to cool down.

Cause: Wrongly routed cables, direct sunlight, or high ambient temperature.

Remedy: Switch off the device and allow it to cool down.

105 - No data available on the flexible electricity tariff (Eco Mode or Next Trip Mode LED flashing white)

Cause: Unable to retrieve flexible electricity tariff.

Remedy: Check WiFi and Internet connection.

Remedy: Wait until the server is available again.

109 - No connection to the inverter (Eco Mode or Next Trip Mode LED flashing white)

Cause: It was not possible to establish a connection with the inverter.

Remedy: Check the network settings.

Remedy: Check the settings of the inverter.

Remedy: Make sure that the Fronius Solar API is activated on the inverter.

114 - PV surplus or flexible electricity tariff must be activated for Eco Mode (Eco Mode LED flashing white)

Cause: Eco Mode is selected, and the **Use PV surplus** and **Use flexible electricity tariff** settings are deactivated.

Remedy: Activate the Use PV surplus and/or Use flexible electricity tariff setting(s).

Remedy: Switch the mode.

Cause: Use flexible electricity tariff is activated and there is no data connection to the Internet. Cached price data are still available.

Remedy: Check the network settings.

115 - The set amount of energy cannot be achieved in the specified time (second Next Trip Mode LED flashing white).

Cause: The specified time is not sufficient for the desired amount of energy.

Remedy: Extend the specified time for charging.

Remedy: Reduce the desired amount of energy.

116 - Updating the flexible electricity tariffs failed (first or second Eco Mode or Next Trip Mode LED flashing white)

Cause: It was not possible to establish a connection.

Remedy: Check the network settings.

The charge cannot be started, but all LEDs are displayed in the standby color (blue by default).

Cause: The vehicle is not detected.

Remedy: Check the vehicle cable and the fit of the charging plugs.

No LEDs light up after plugging in.

Cause: No power supply.

Remedy: Check the automatic circuit breaker and, if present, the residual current circuit breaker.

Cause: The brightness of the LEDs has been set to 0.

Remedy: Increase the brightness of the LEDs in the Fronius Solar.wattpilot app.

Cause: **Switch off LEDs after 10 s in standby** has been activated.

Remedy: Deactivate **Switch off LEDs after 10 s in standby**.

Terms and conditions of warranty and disposal

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.



Fronius International GmbH
Froniusstraße 1
4643 Pettenbach
Austria
contact@fronius.com
www.fronius.com

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