ENG

futurehome

Charge

V1.1 - 01.12.24

SEB101E (black) and SEA101E (white)

User guide

Estimated installation time: 10 minutes

www.futurehome.io

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INTRODUCTION

Important information

This manual provides essential guidance for the safe installation and operation of the Futurehome Charge.

Throughout this manual, the terms “Product” and “Electric Vehicle Supply Equipment (EVSE)” will be used when referring to the Futurehome Charge.

It's important to familiarise yourself with the safety instructions before installing and operating this product.

Electricians responsible for the installation should ensure that this manual is accessible to users and that its guidelines for safe operation are clearly understood.

Important symbols

Symbol	Signal words	Description
	Danger	Failure to obey these warnings will lead to death or severe injury.
	Danger	Failure to obey these warnings will lead to death or severe injury.
	Warning	Failure to obey these warnings can lead to death or severe injury.
	Caution	Failure to obey these warnings can lead to minor injury or product damage.
	Notice	Failure to obey these warnings can lead to product damage.

Abbreviations

Abbreviations	Definition
AC	Alternating current
DC	Direct current
EMC	Electromagnetic compatibility
EV	Electric vehicle
OCPP	Open charge point protocol
PE	Protective earth
NFC	Near field communication
EVSE	Electric vehicle supply equipment
RCD	Residual current device

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SAFETY

Intended use of the product

The Futurehome Charge is designed for AC charging of electric vehicles with non-gassing batteries. The product can be installed both outdoors and indoors. To charge a vehicle, an approved Type 2 cable following the standard IEC 62196 or IEC 62893 must be used.

General safety instructions

- The product must not be used in any other way than described in this document.
- Follow the safety instructions in this manual.
- Wear the recommended appropriate personal protective equipment and adhere to safe electrical work practices.
- Follow the applicable local, regional and national regulations for electrical installations.

Special safety instructions

 **Danger**	• This device contains live electrical components. Direct contact with internal parts may result in an electric shock or serious injury. • Do not touch the charger’s end terminals with fingers or sharp metallic objects, such as a wire, tools, or similar. • Check the capacity of the electrical infrastructure before installing this product.
 **Warning**	• Only electricians may install, commission, de-commission or service this product. • Do not install this product closer than 20 cm from where people normally reside due to exposure of electromagnetic fields. • Do not modify or perform any changes to the product or its equipment. • This device should not be operated by children.

Warning	• Ensure connection with protective earth before powering up and commissioning the device. • Do not install or use the charger near flammable, explosive, harsh, or combustible materials, chemicals, or vapours. • Turn off input power at the circuit breaker before installing or cleaning the charger. • Never use high pressure water or running water directly at the charger or socket. Whenever the charging cable is not attached ensure that the cover of the charging socket is properly closed to prevent unnecessary exposure to contamination or moisture. • Stop using the charger if it is defective, appears cracked, fractured, broken, or otherwise damaged, or fails to operate. Contact after-sales service to verify the integrity of the product. • In the event of a fire, only use carbon dioxide (CO_2) extinguishers. If water, foam or other conductive extinguishers are being used then the power supply must be isolated to de-energize the product first. • Use of the charger may affect or impair the operation of any medical or implantable electronic devices, such as an implantable cardiac pacemaker or an implantable cardioverter defibrillator. Check with your electronic device designer concerning the effects that charging may have on such electronic devices before using the charger. • Do not bend, twist, stretch, or crush the charging cable. Avoid running over the cable with any vehicle. Inspect cable regularly for damage. If damaged, stop use immediately. Follow manufacturer guidelines for use and storage.

Cautions	• Do not use private power generators as a power source for this product. • Conversion adapter, adapter and extension cords are not allowed. • Incorrect installation and testing of the product could potentially damage either the vehicle’s onboard charger, battery and/or this product itself.

Notice	• Avoid placing the charger in direct sunlight if possible as this may result in reduced charging speed.
	• Do not block, paint, glue or seal the backplate towards the wall as this may block the heat dissipation areas and will result in reduced charging speed.

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PRODUCT OVERVIEW

Symbols on the charger

Symbol	Risk type
	General risk
	Hazardous voltage that gives risk of electrocution
	Protective earth (PE)
	Waste from electrical and electronic equipment
CE	CE mark
RoHS	RoHS certification
	TÜV certification
	Charging terminal symbol

Applied standards

The Futurehome Charge has been designed & tested towards the following relevant standards.

Simplified declaration:
Hereby, Futurehome declares that the radio equipment in SEB101E (black) and SEA101E (white) is in compliance with Directive 2014/53/EU and 2011/65/EU.

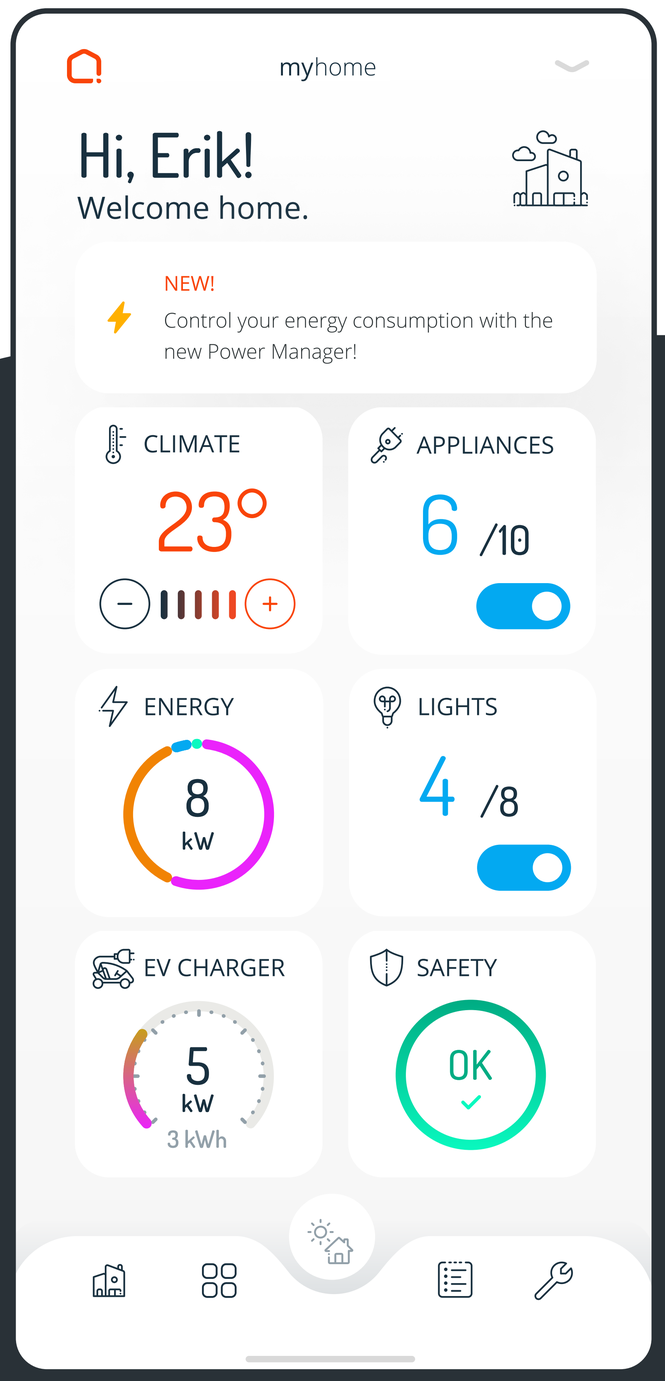
The full declaration of conformity can be found on www.futurehome.io

Directives	
Radio Equipment Directive (RED) 2014/53/EU Restriction of Hazardous Substances Directive (RoHS 2) 2011/65/EU	
Health and Safety (RED Article 3.1a)	EN IEC 63211:2020 EN IEC 61851-1: 2019 IEC 62955:2018
Electromagnetic Compatibility (RED Article 3.1b)	EN IEC 61851-21-2:2021 EN 61000-6-1:2019 EN 61000-6-3:2021 EN 301 489-1 V2.2.3:2019 EN 301 489-3 V2.1.1:2019 EN 301 489-17 V3.2.4:2020
Radio Spectrum (RED Article 3.2)	EN 300 328 V2.2.2:2019 EN 300 330 V2.1.1:2017
RoHS	EN IEC 63000:2018

App access

To download the app, search for "Futurehome" on the Google Play Store or the Apple App Store. Once you've installed it, you can configure the charger, monitor the charging process, and adjust the charger settings.

Note: For this, the charger needs to be connected to the Futurehome platform via Wi-Fi or Zigbee.



First steps

futurehome.io/en/start

For a quick start, scan the QR code to download the app.

GET IT ON Google Play

Download on the App Store

Futurehome energy management

You can buy the Futurehome Smarthub to connect with the Futurehome Charge using Zigbee, which helps balance the energy in your home.

Our system provides smart charging, which means it adapts the charging process according to energy costs, grid rates, and the power available in your home.

Here is an overview of what hardware and connectivity you need to unlock those features:

Feature	Standalone	Wi-Fi	With Futurehome Smarthub & Wi-Fi /Zigbee	With Futurehome Smarthub and HAN sensor
App control	✗	✓	✓	✓
Auto updates	✗	✓	✓	✓
Spot price optimisation	✗	✓	✓	✓
Grid tariff optimisation	✗	✗	✗	✓
Dynamic load balancing	✗	✗	✗	✓

Dimensions

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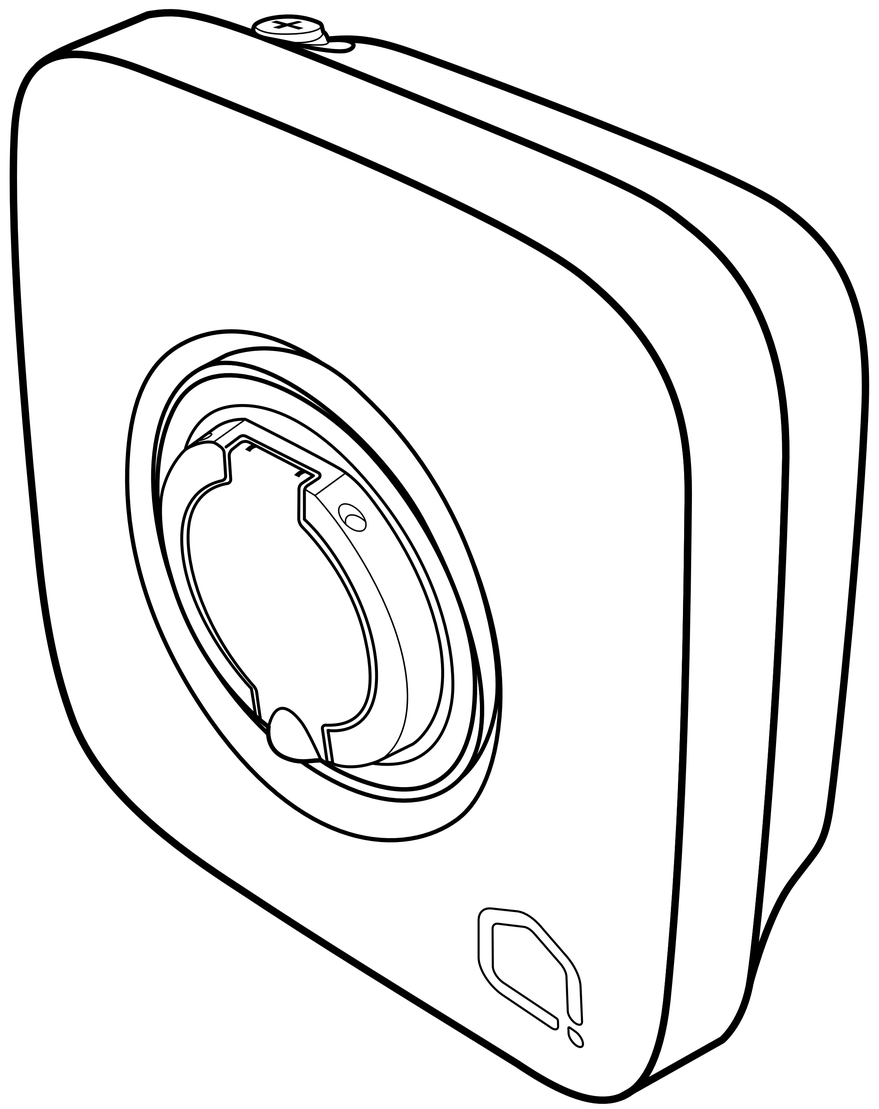
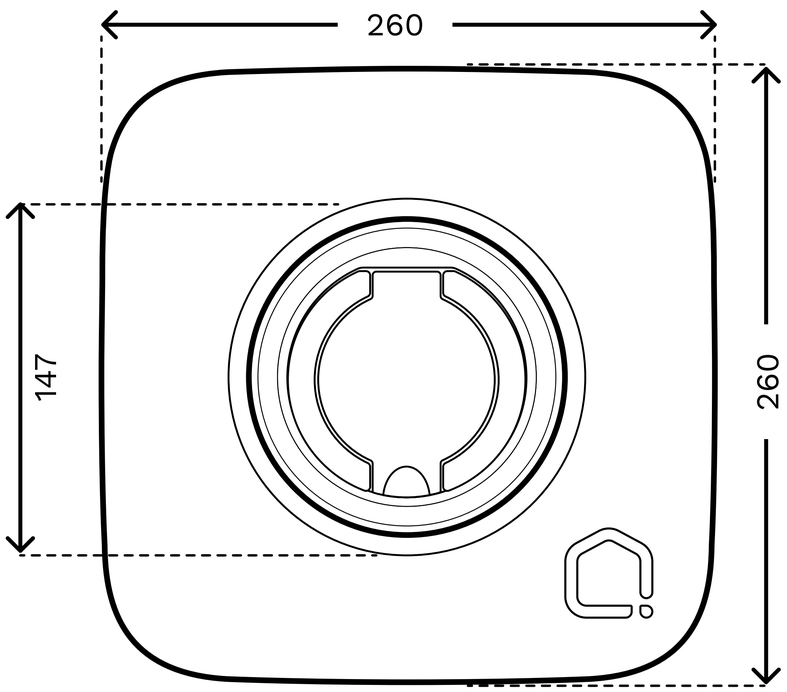
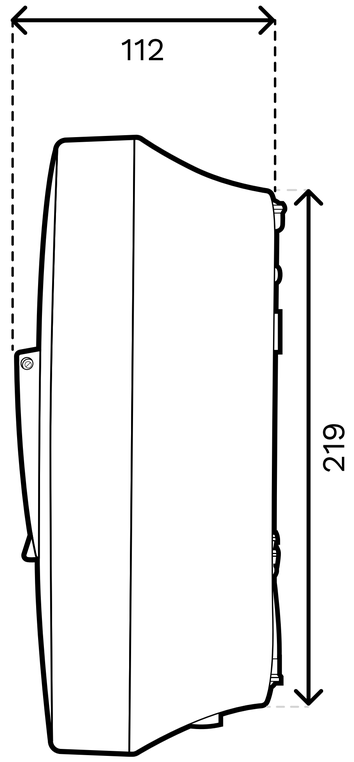
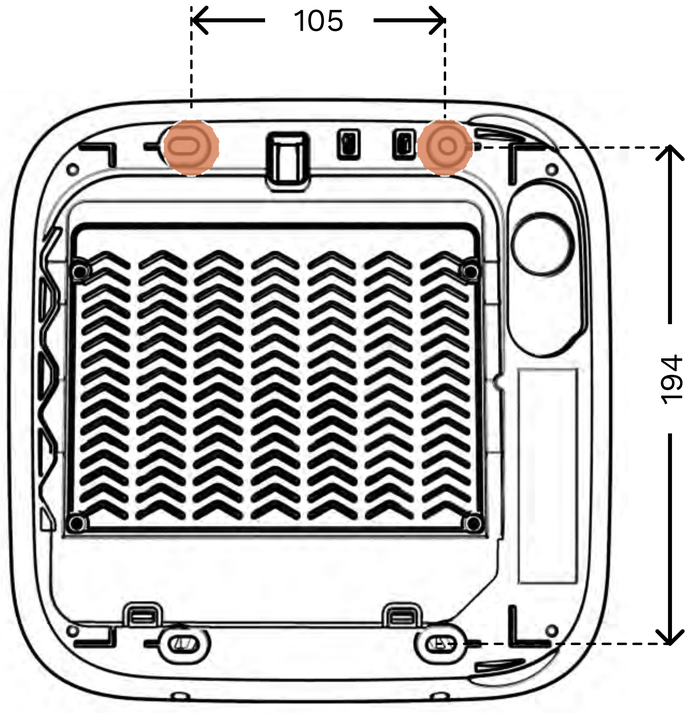




Front

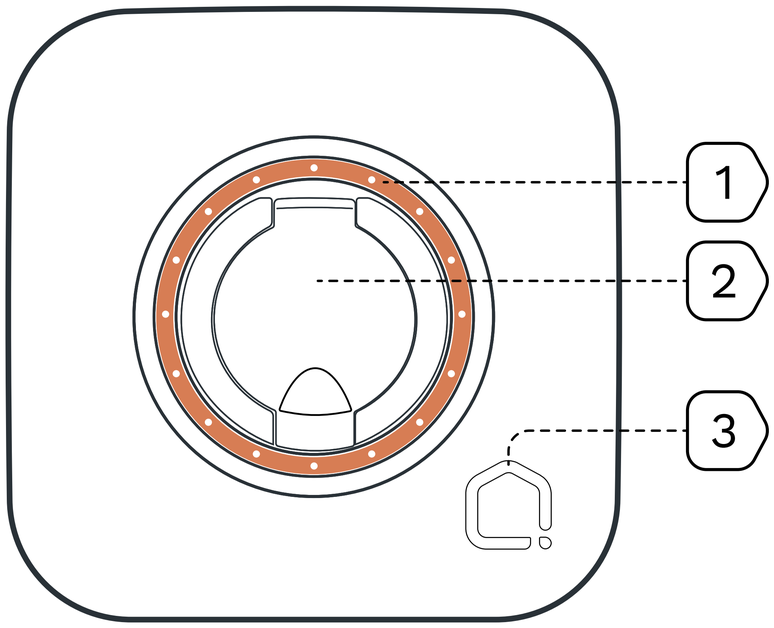


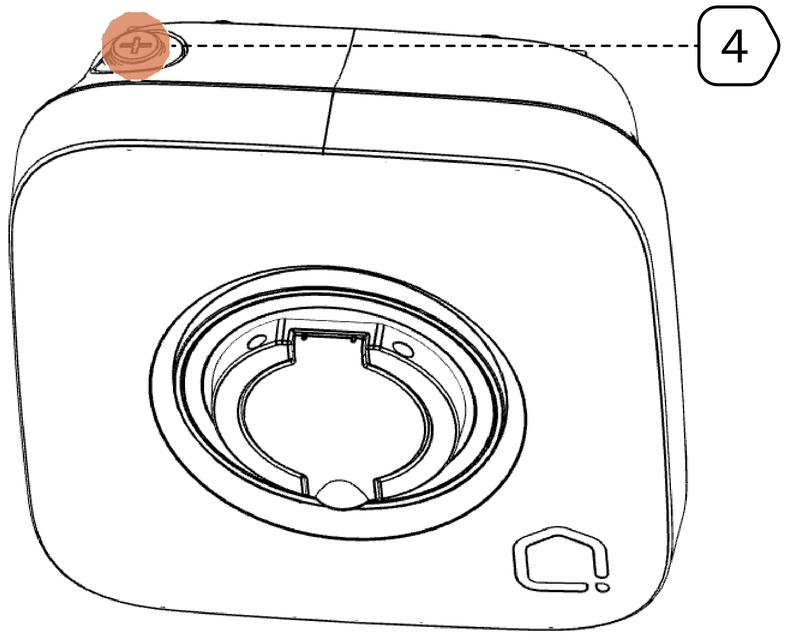
Side

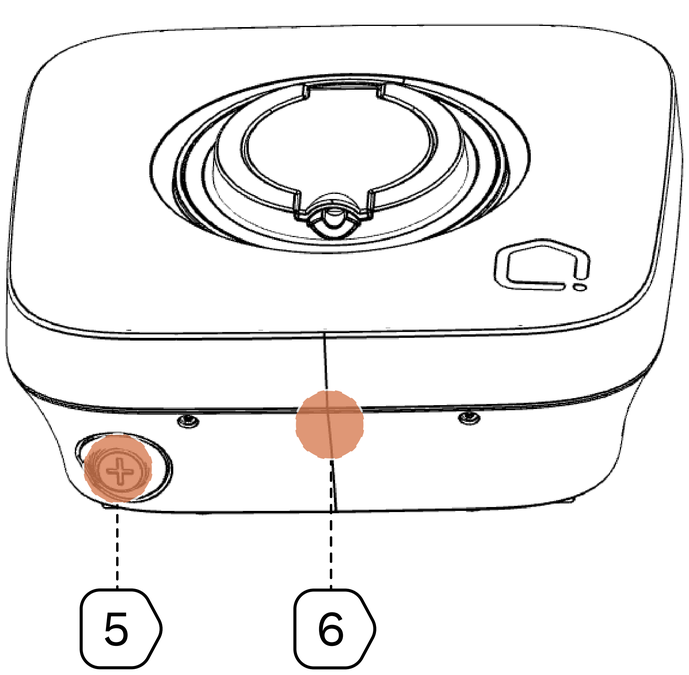


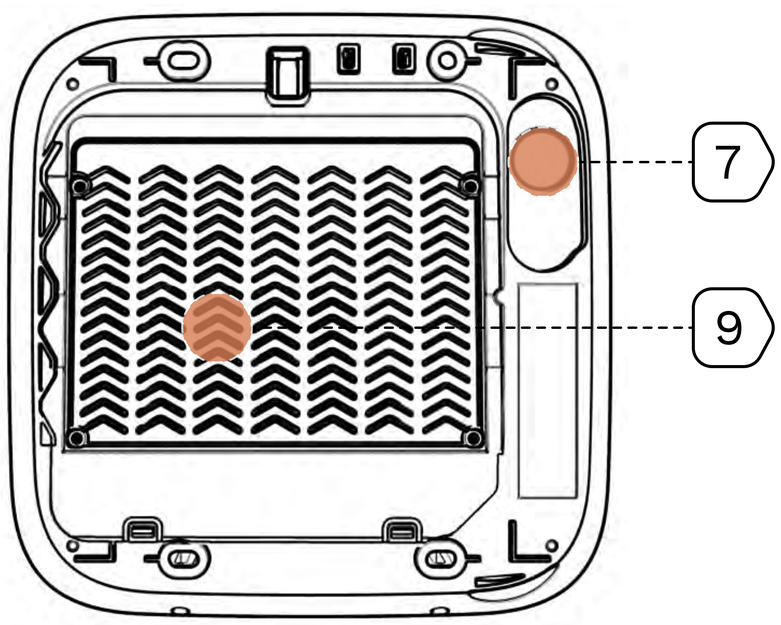
Back

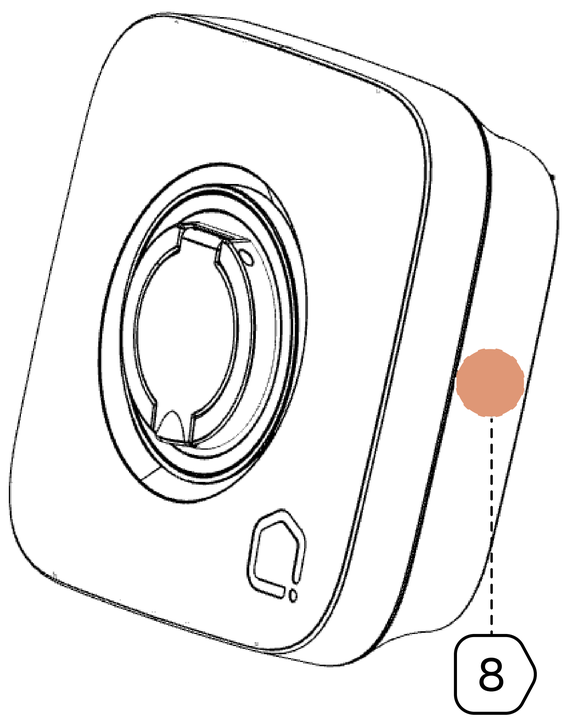
Overview of the outside





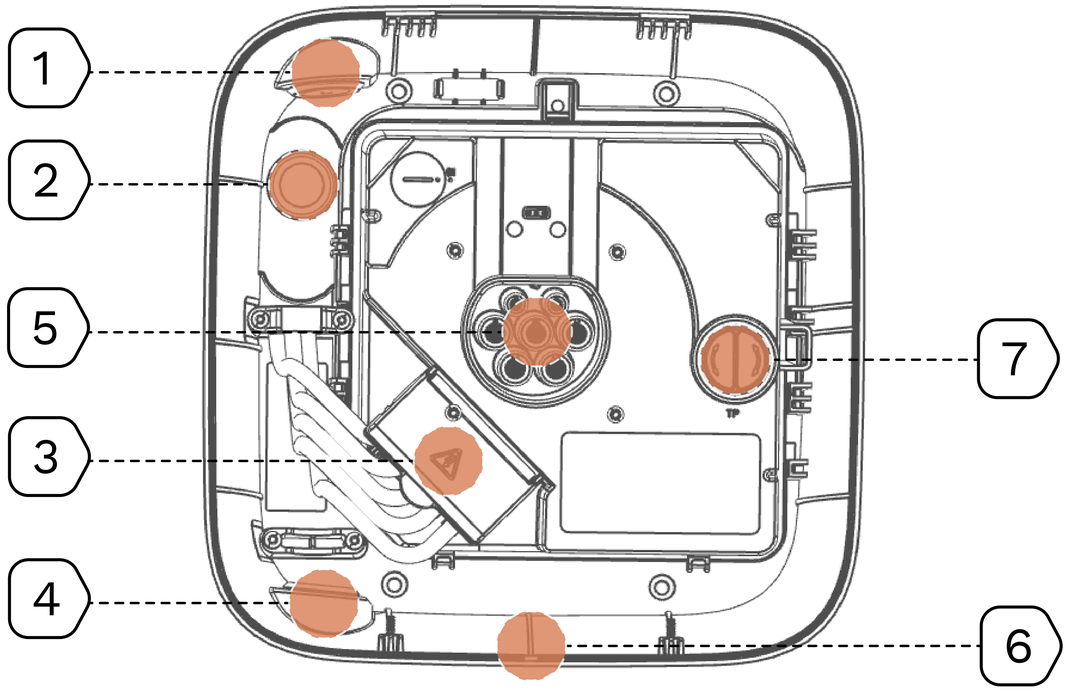






1. LED indicator
2. Socket
3. NFC reader
4. Top cable feed
5. Bottom cable feed
6. Water drainage
7. Rear Cable Feed
8. Product label
9. Heatsink

Overview of the inside



1. Top cable feed
2. Rear cable feed
3. Wiring terminal
4. Bottom cable feed
5. Socket
6. Charging cable outlet
7. Service openings (for Futurehome technicians only)

Note: You can choose any of the three input inlets for the electric cable.

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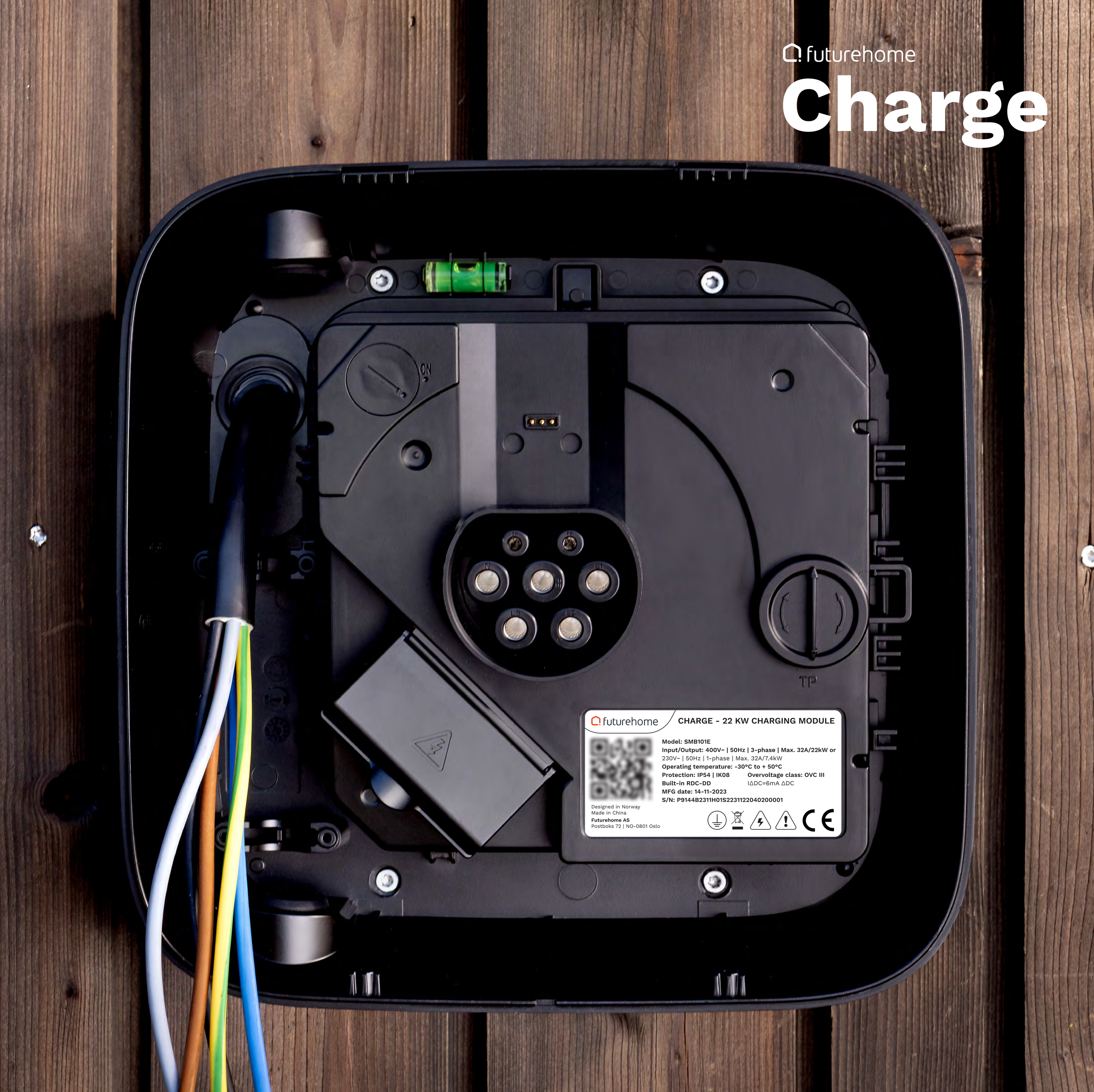

Specifications

Model	SEB101E (black) and SEA101E (white)
Rated output current	6-32 A (adjustable)
Rated Output Power	1,4 - 22 kW
Rated Input Voltage	230 V / 400 V
Grounding System Support	TT ,TN & IT*
Charging Mode	(1/3-phase, 50-60Hz) Mode 3
Charging Connector	Type 2 socket according to IEC 62196
Static Power Consumption	＜5 W
Measurement Accuracy	±2%
App control & Commissioning	Yes
Signalling	Dynamic LED ring for charging status
Cloud Connection	Wi-Fi
Authentication	Via app and NFC* *NFC functionality will be added to the Futurehome application in a future update.
Local Connection	Zigbee for daily use & Bluetooth for configuration
OCPP	OCPP 1.6 JSON
Remote Update	Supported when connected via Wi-Fi or Zigbee
Remote Diagnosis	Supported when connected via Wi-Fi or Zigbee
Residual Current Protection*	AC 30 mA and DC 6 mA

Notice: The Charger has an integrated AC & DC residual current device. However, an additional Type-A RCD needs to be installed upstream from the charger. The embedded AC RCD functionality provides additional safety and automatic testing to enhance the experience.

Please consult local installation regulations to select applicable protection for the supply of the charger.

Additional specifications

Over Undervoltage Protection	Supported
Short Circuit Protection	Supported
Overload Protection	Supported
Surge Protection	Supported
Ground Fault Protection	Supported
CP Abnormal Signal Protection	Supported
Temperature Monitoring	Supported
Over Voltage Category	III
Fire Classification	UL 94
Insulation Class	I
IP Rating	IP 54
Impact Resistance	IK 10
Weight	3 kg
Dimensions (mm)	L260 x W260 x D112
Material	Plastic and aluminium alloy
Mounting	Wall-mounted/Pedestal
Storage Temperature	-40°C to +85°C
Operating Temperature	-30°C to +50°C
Operating Altitude	＜2000 m
Humidity Tolerance	5% ~ 95%
Operating Noise	＜50 dB

Radio power statement

Transmission type	Frequency	Maximum output power
Bluetooth	BLE 4.2 (2400-2483.5 MHz)	＜10 dBm
Zigbee	2400-2483.5 MHz	＜20 dBm
Wi-Fi	802.11 b/g/n (2.4 GHz)	＜20 dBm
NFC	ISO/IEC 14443 A (Type A, 13.56 MHz)	＜2.72 dBuA/m @ 3 m

RF exposure information

This device meets the EU requirements (2014/53/EU Article 3.1a) on the limitation of exposure of the general public to electromagnetic fields by way of health protection.

The device complies with RF specifications when the device is installed in a location at least 20 cm from where people normally reside.

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INSTALLATION

Pre-installation instructions

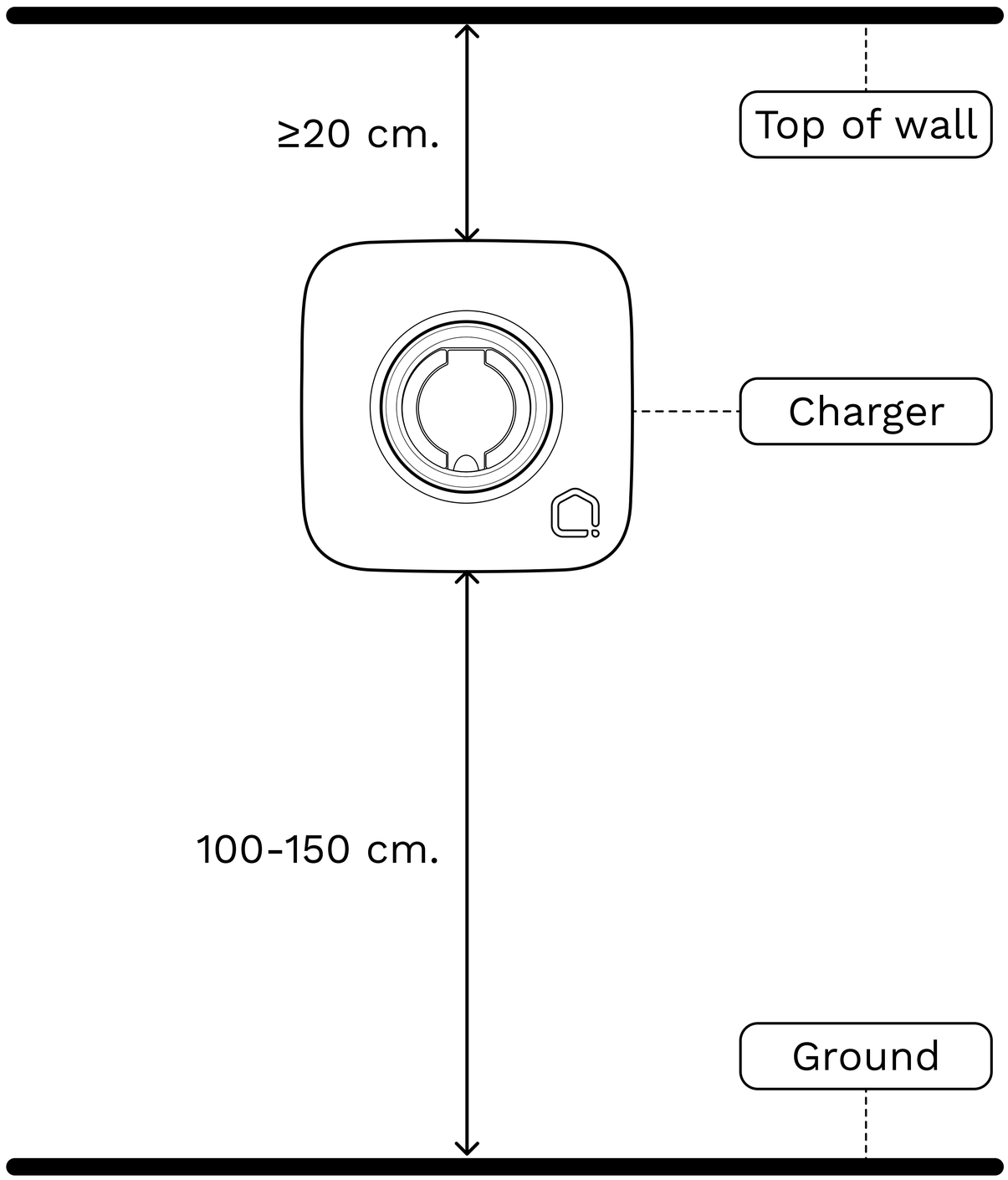
Warning	Read the following safety instructions, turn off the power before you start the installation and follow local regulation.
	The product must always be installed in the upright position. See illustrations in the Overview of the outside

Note: The installation of this device requires you to have a mobile phone with Bluetooth support, a working internet connection & the Futurehome app.

Installation site specification

Specification	Description
Wall material	The surface of the mounting position must be flat and stable. Metal, wood, brick or concrete walls are preferred.
Wall weight holding	Minimum 3,5 kg.

Installation height



Note: Install the charger at a suitable height between 100 and 150 cm.

For easier access for people with disabilities we suggest mounting height between 90-120 cm above the ground.

Wireless connectivity

Ensure that the place of installation has Wi-Fi coverage and that the customer provides the name of network (SSID) and password. You can extend the range with an access point.

Ensure the Futurehome Smarthub is close to the Futurehome Charge.

You can extend the range of the ZigBee network by setting up a Zigbee device that is connected to power.

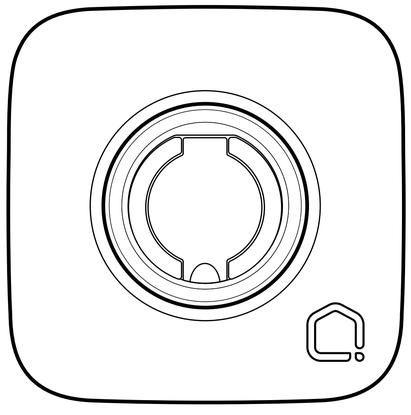
Supply circuit & cable

Specification	Description
Cable Outer Diameter	10-20 mm.
Conductor Cross Section	2,5–10 mm^2.*
Supply Circuit breaker	RCD Type A, Max 40 A. Local regulations must be followed.

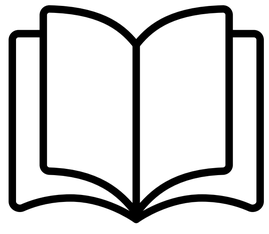
* Please consult local installation regulations to select an applicable cable for the supply of the charger.

Checking the box

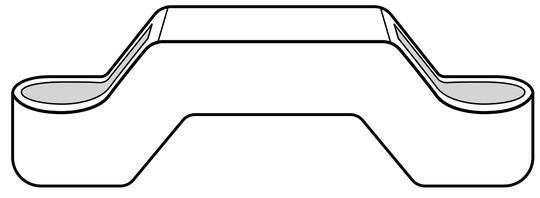
Before installing, make sure to open the packaging and verify that all accessories are included. If anything is missing, get in touch with Futurehome.



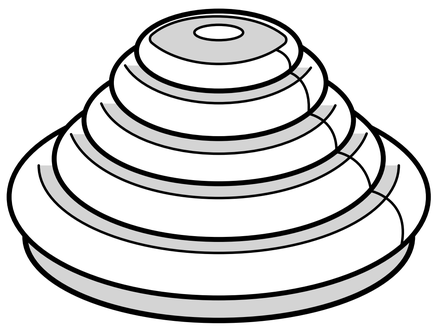
Charger x1



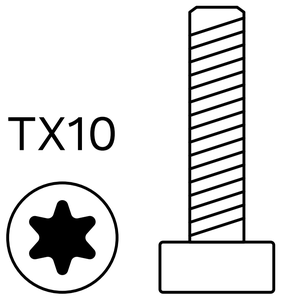
Manual x1



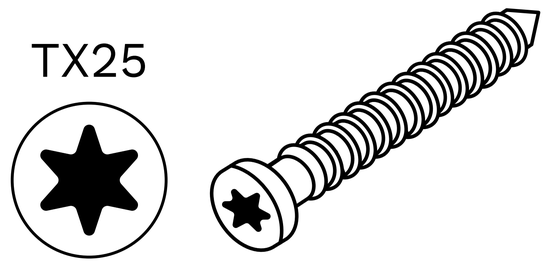
Strain relief x2



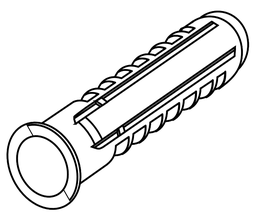
Sealing plug x2



6x T10 screws pre-mounted ST 2.9*12 mm



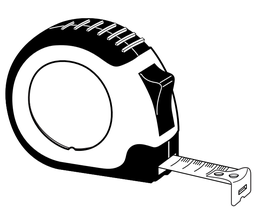
4x T25 (Torx 25) wall screws ST 5.0x40 mm



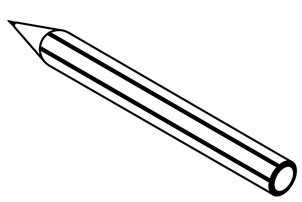
Wall anchor x4 Φ8*Φ6*40 mm.

Preparing installation tools

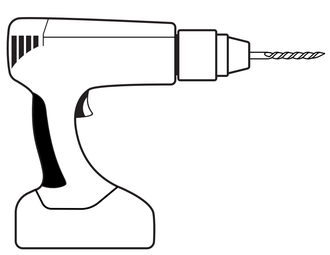
In addition to the accessories included in the package vou will need the following equipment:



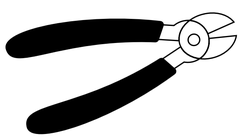
Tape measure



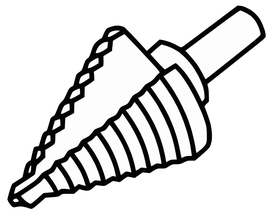
Marker



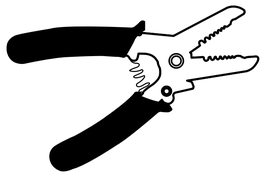
Power drill



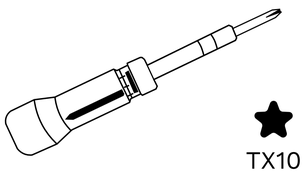
Wire cutter



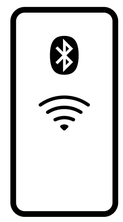
Step drill



Wire stripper



Torque screwdriver



Smartphone with bluetooth and internet connectivity

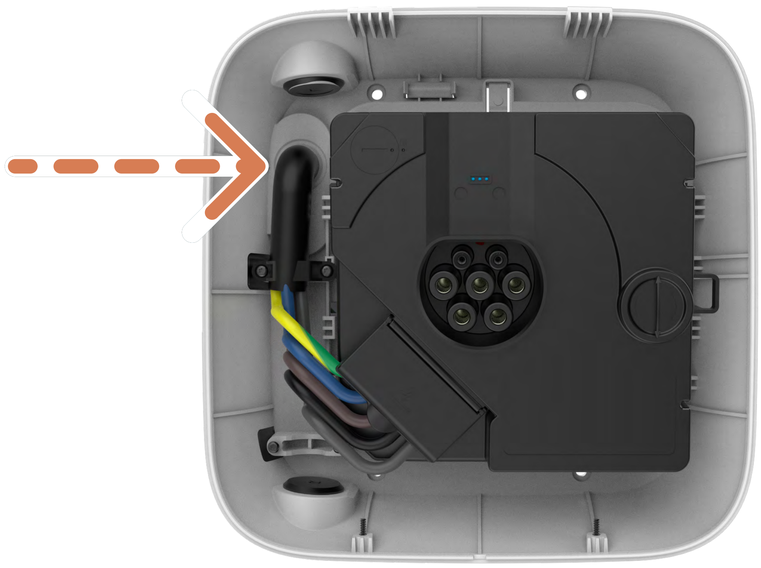
Three different cable feed options

1 Cable feed from the bottom

Note: This option is recommended when the charger is installed at a location that is not sheltered from the weather.

2 Cable feed from the top

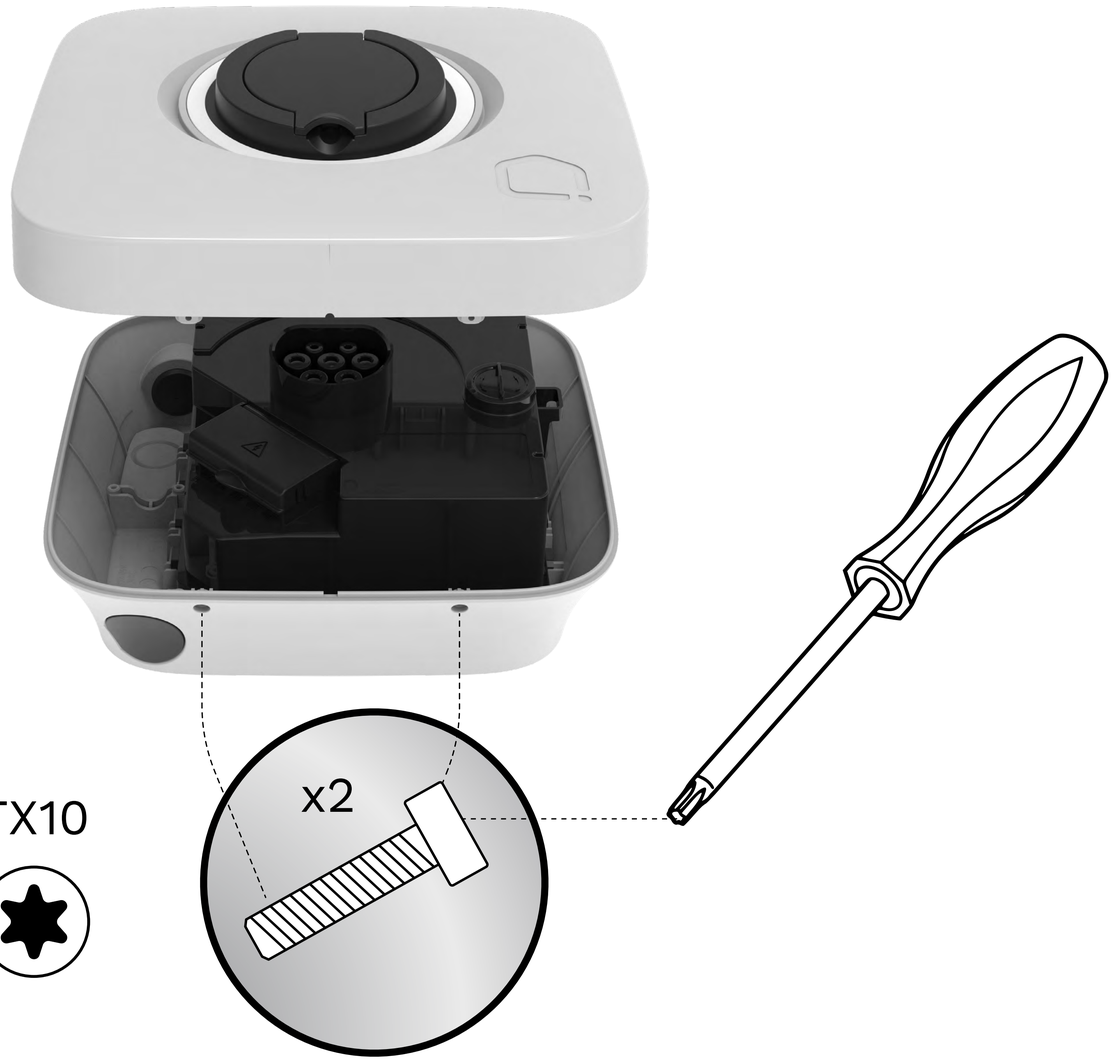
3 Cable feed from the rear



Installation

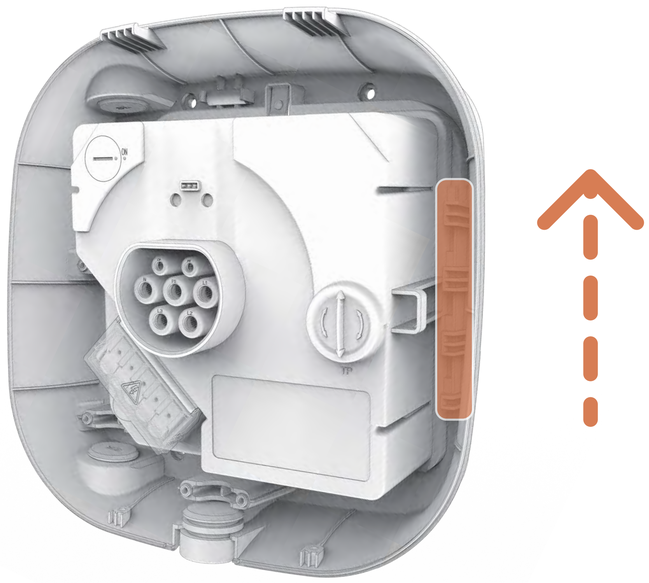
1 Open the front panel

Remove the screws from the bottom of the charger and lift the front panel.



ST2.9*12 mm.
Torx screws

TX10



2 Remove electronic module

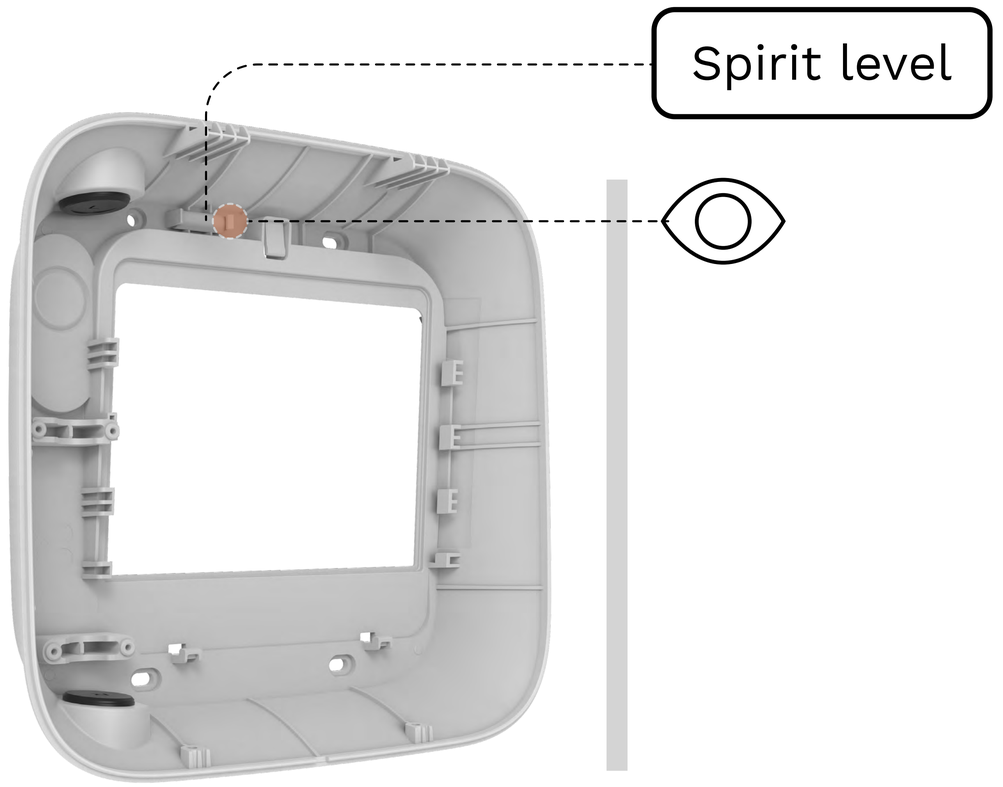
Push the electronic module forcefully upwards to undock.

3 Level the charger

Place the charger at a suitable height and level the charger with the spirit level.

Recommended height: Between 100 and 150 cm from the ground.

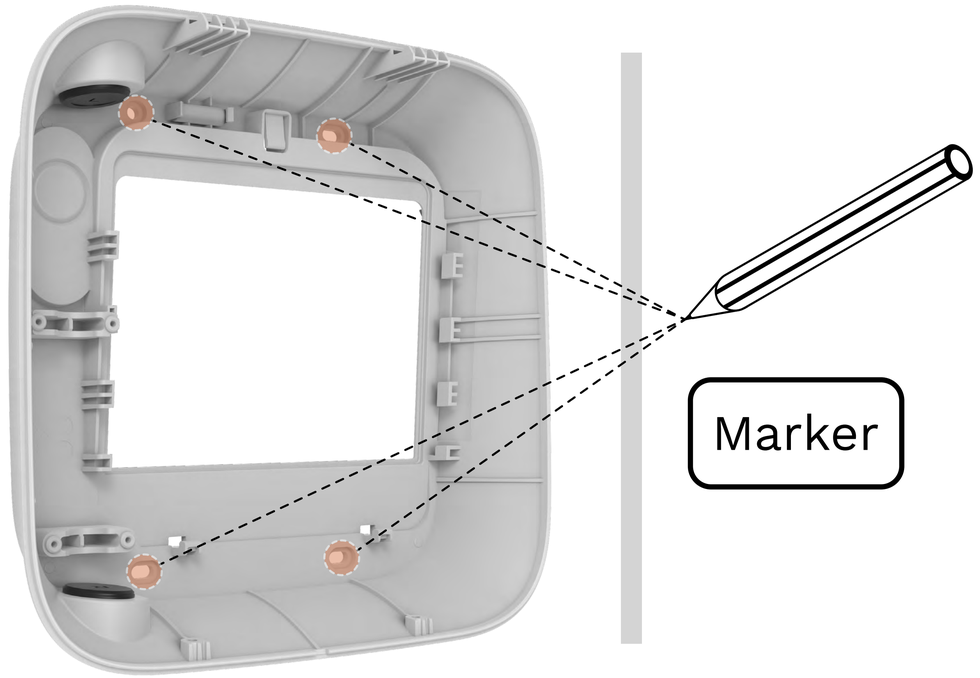
For easier access for people with disabilities we suggest mounting height between 90-120 cm above the ground.



4 Mark the mounting holes

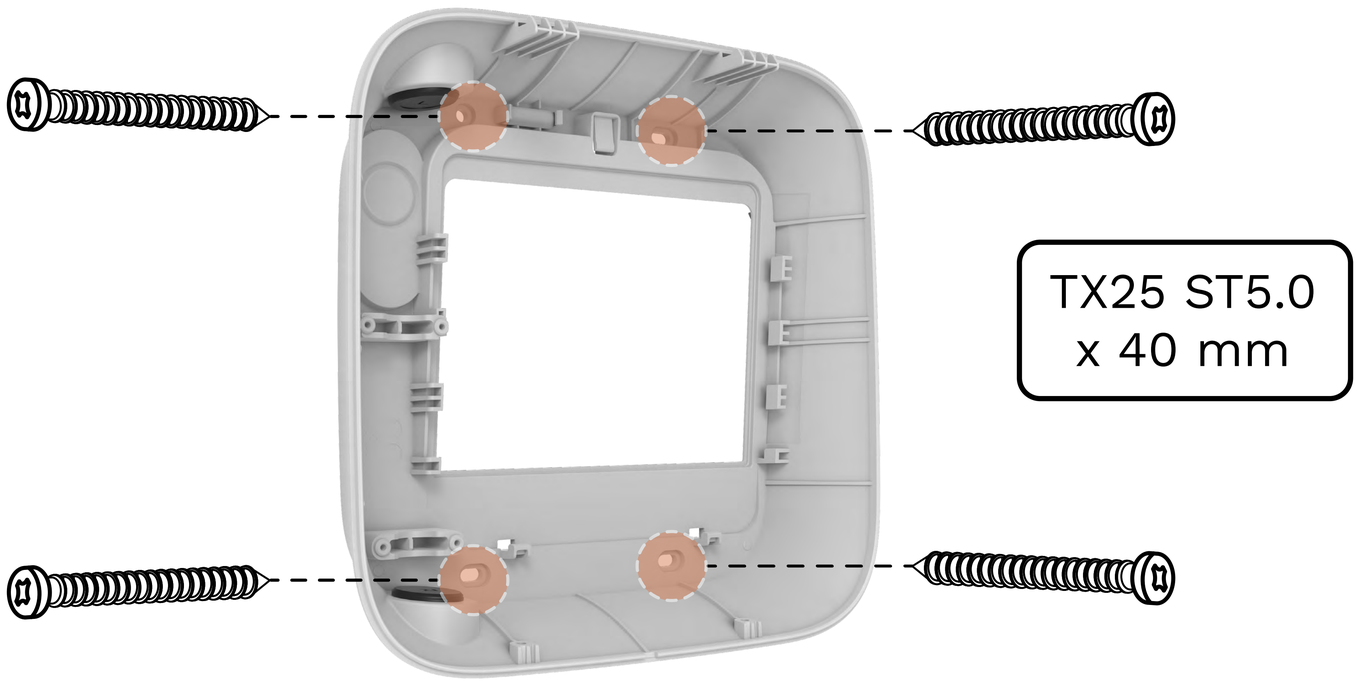
Mark the four mounting holes.

Use a drill and supplied wall anchors when mounting on a concrete wall.



5 Screw the backplate to the wall

Use the screws included in the package to secure the charger to the wall.

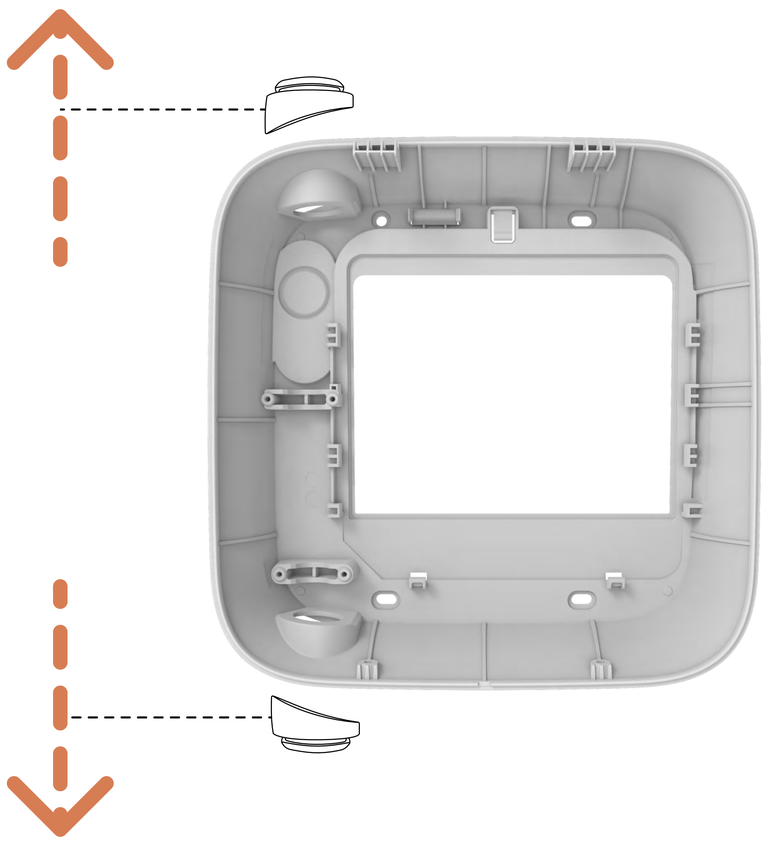


6 Prepare the cable inlet

Carry out the next step accordingly to which cable feed option you have chosen.

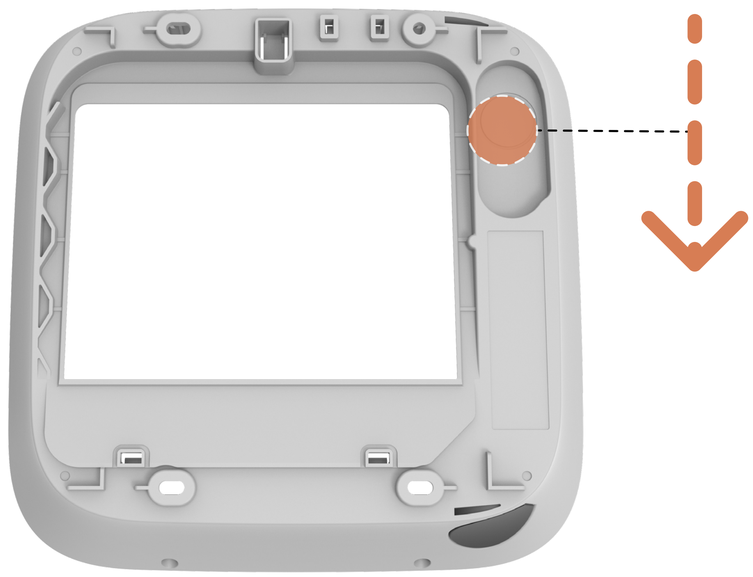
Top or bottom feed

Remove the waterproof plug.



Back feeding option

Drill the hole with a step drill on the marked location.



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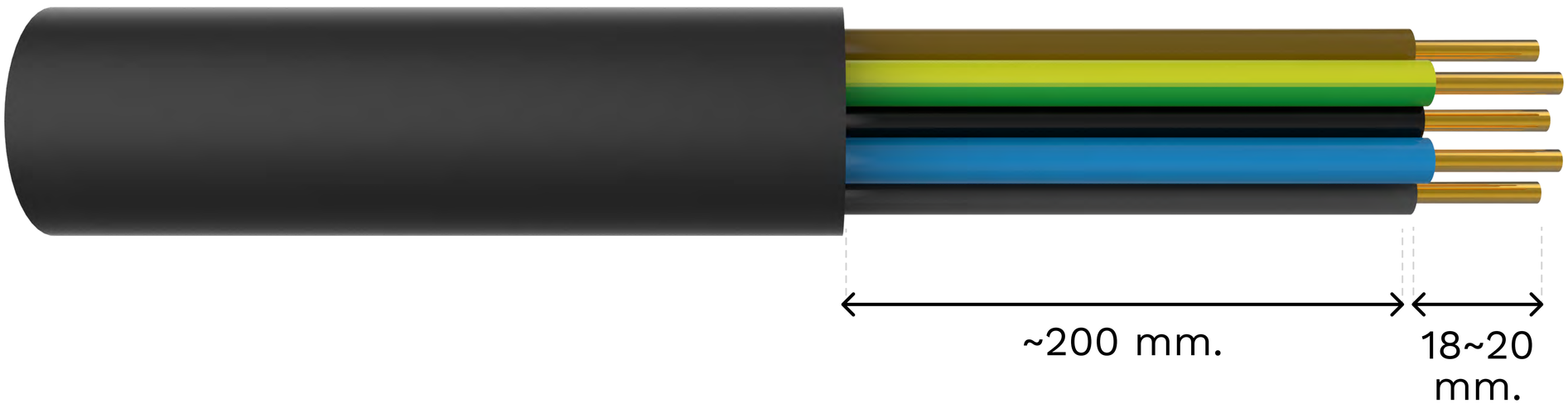
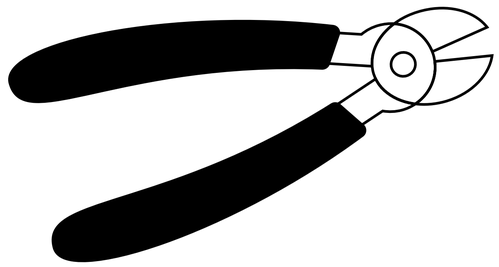
7 Dismantle the cable

Dismantle the cable as described below.



8 Fit the sealing plug

Trim the sealing plug to match the diameter of the cable.

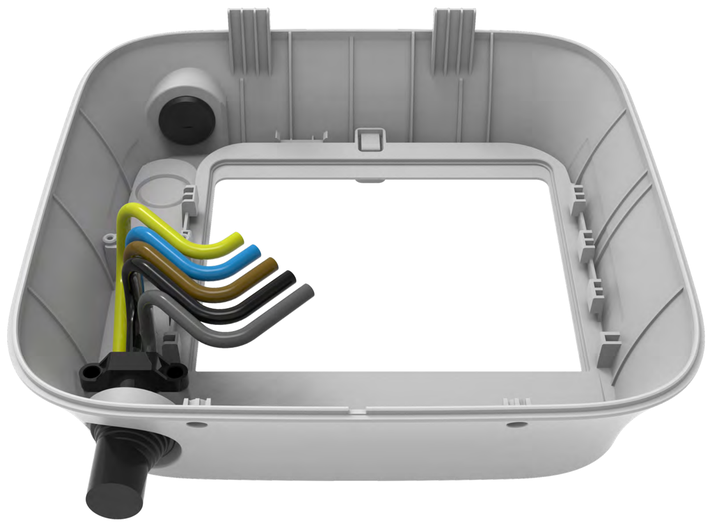


Wire cutter

9 Ensure a good seal

Push the sealing plug over the cable and push it into the cable inlet until it sits securely.

The picture shows the bottom feed option.

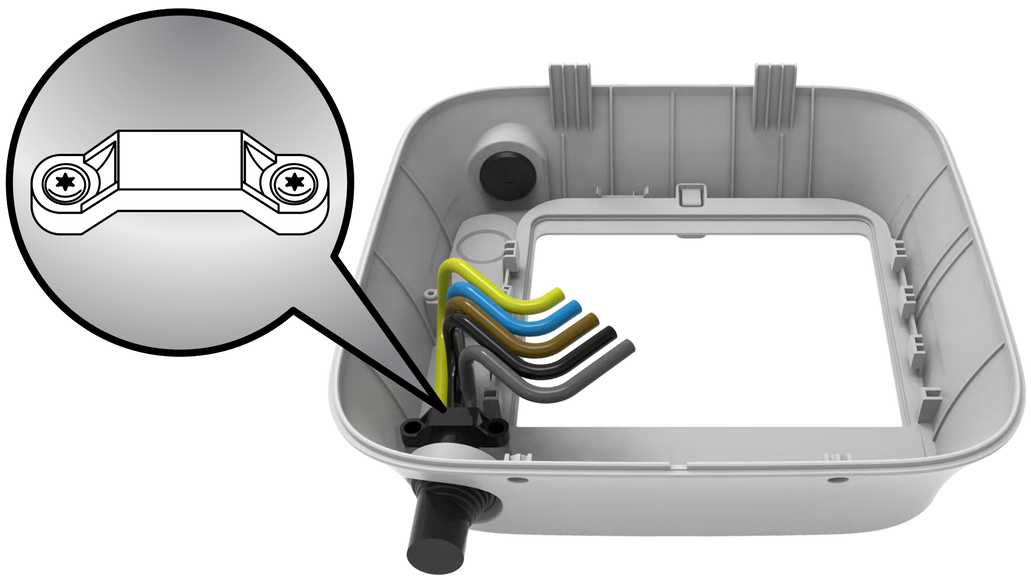


10 Secure the cable

Screw in both screws of the cable fixing (**0,8 Nm**). If the cable fixing is too big for the diameter, flip it around.

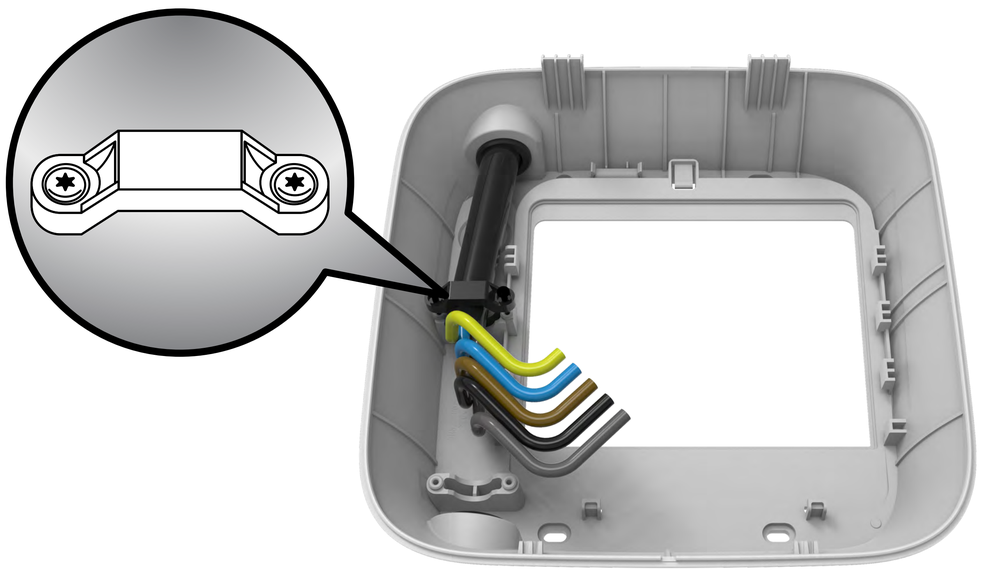
Bottom feed

Use the cable-fixing on the bottom.



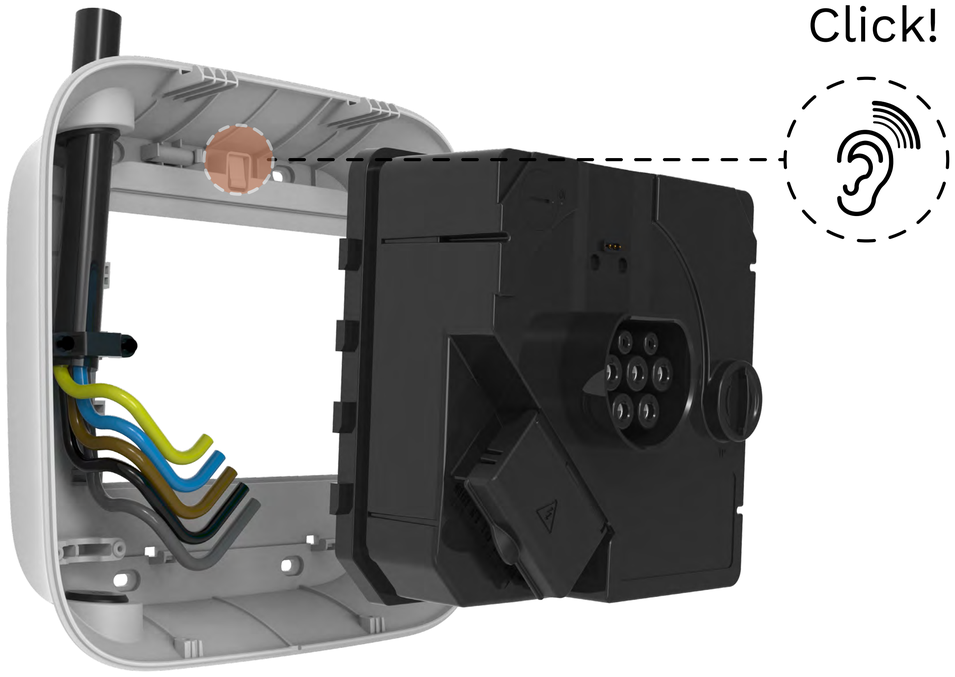
Top & back feeding option

Use the cable-fixing on the top.



11 Insert the electronic module

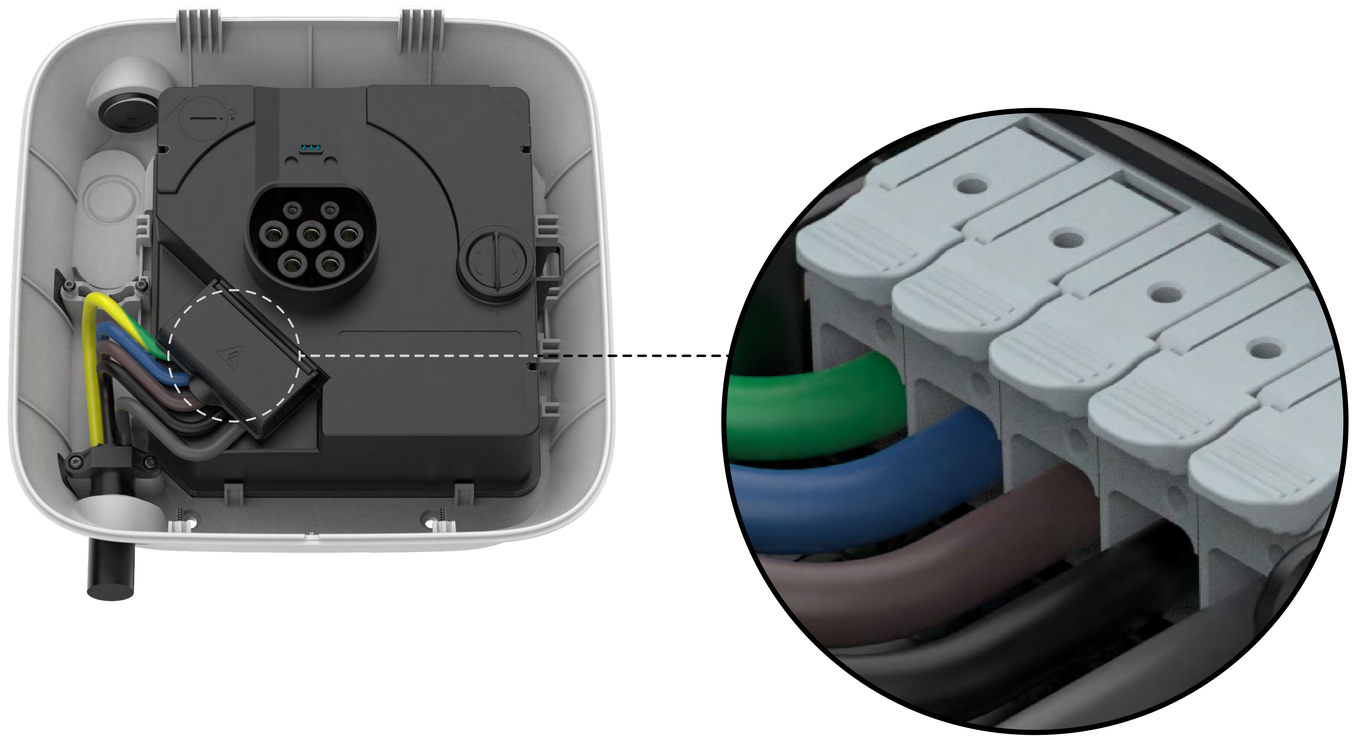
Insert the electronic module into the backplate and slide it forcefully downwards. Pay attention to the clicker at the top; when properly docked, a noticeable click should be heard.



Wire the cable

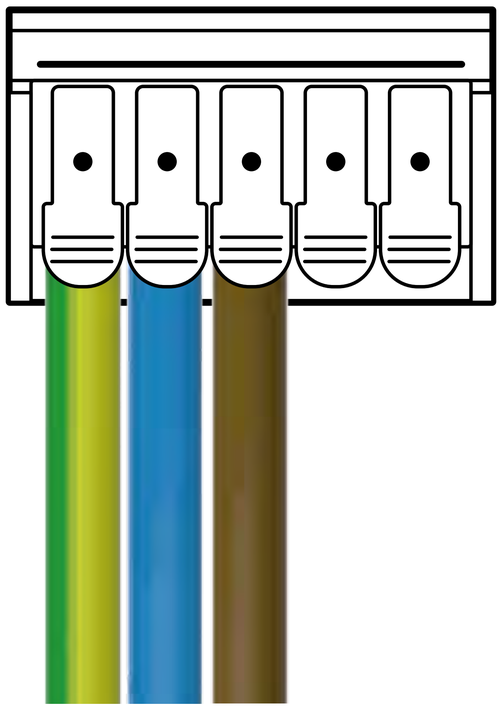
12 Wire the cable

Open the lid above the knife connectors and connect the power cables to the terminals according to the diagram below.

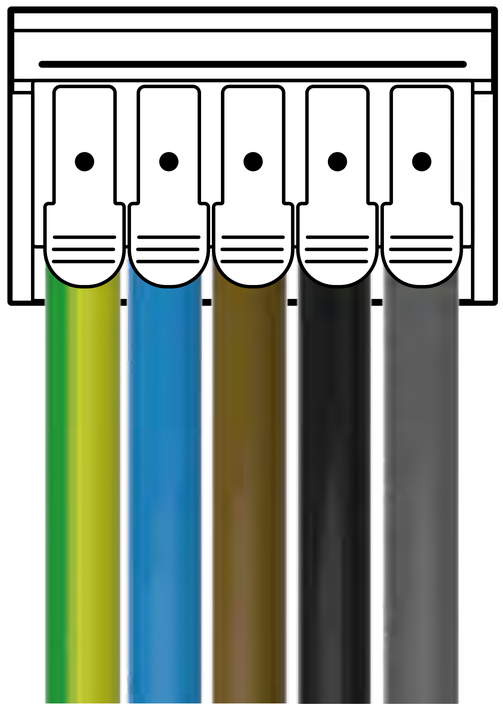


Wiring requirements

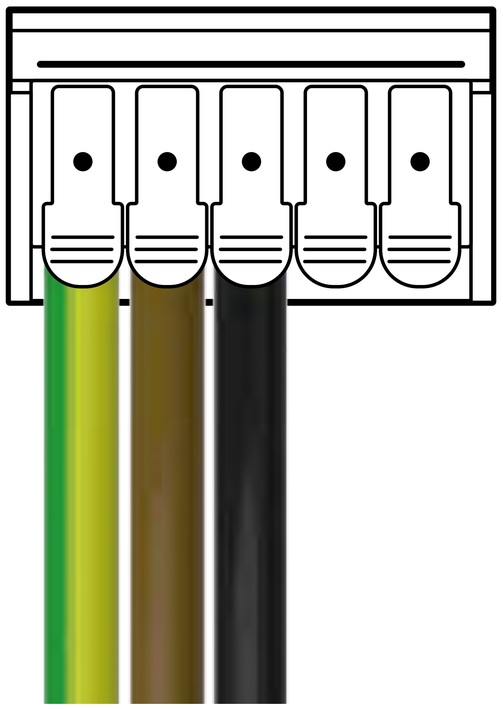
TN 1-phase
1x 230 V



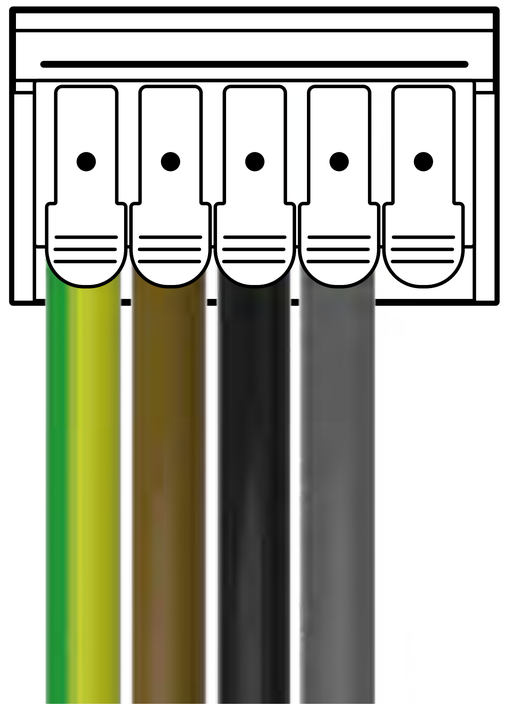
TN/TT 3-phase
3x 400 / 230 V



IT/TT 1-phase*
1x 230 V



IT/TT 3-phase*
3x 230 V



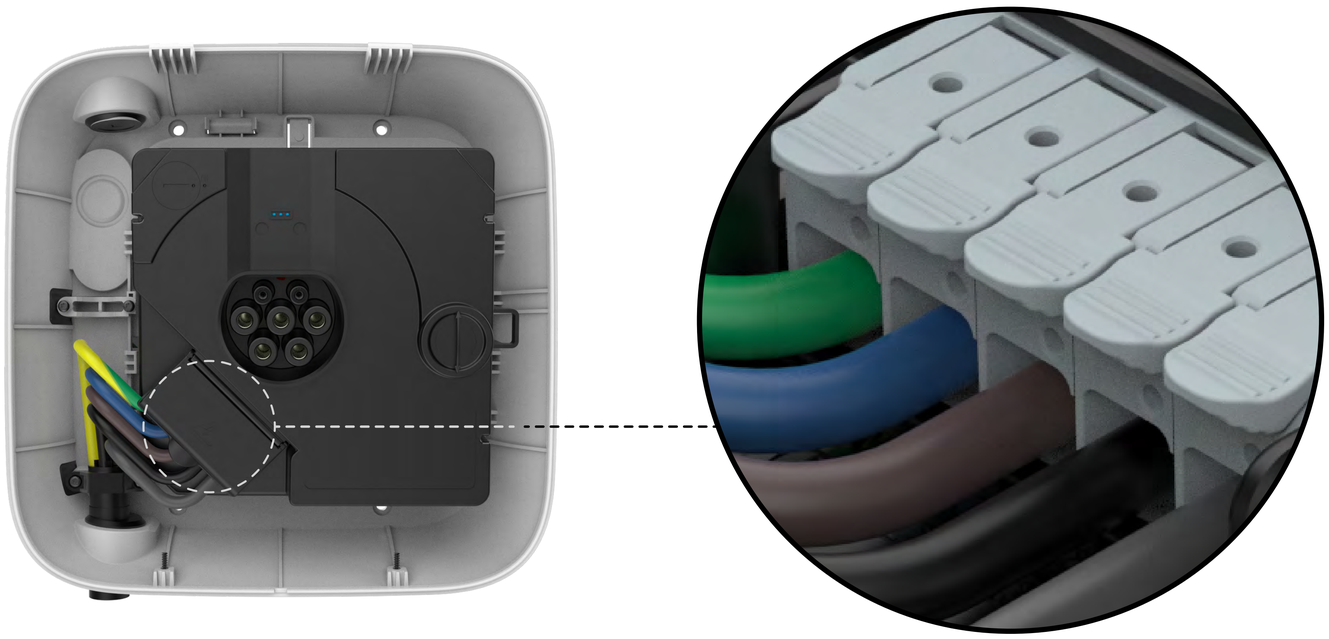
Danger

*Several cars on the market may be damaged when charging with 3-phases on IT/TT grid. 3-phase charging on IT/TT networks is therefore limited in software to only 1 phase out.

We recommend that 3-phase IT/TT systems are connected as 3-phase to enable phase load & phase balancing and to enable possible future functionality.

13 Secure the cables

Close all levers of the knife connectors and close the lid.



14 Close the front plate

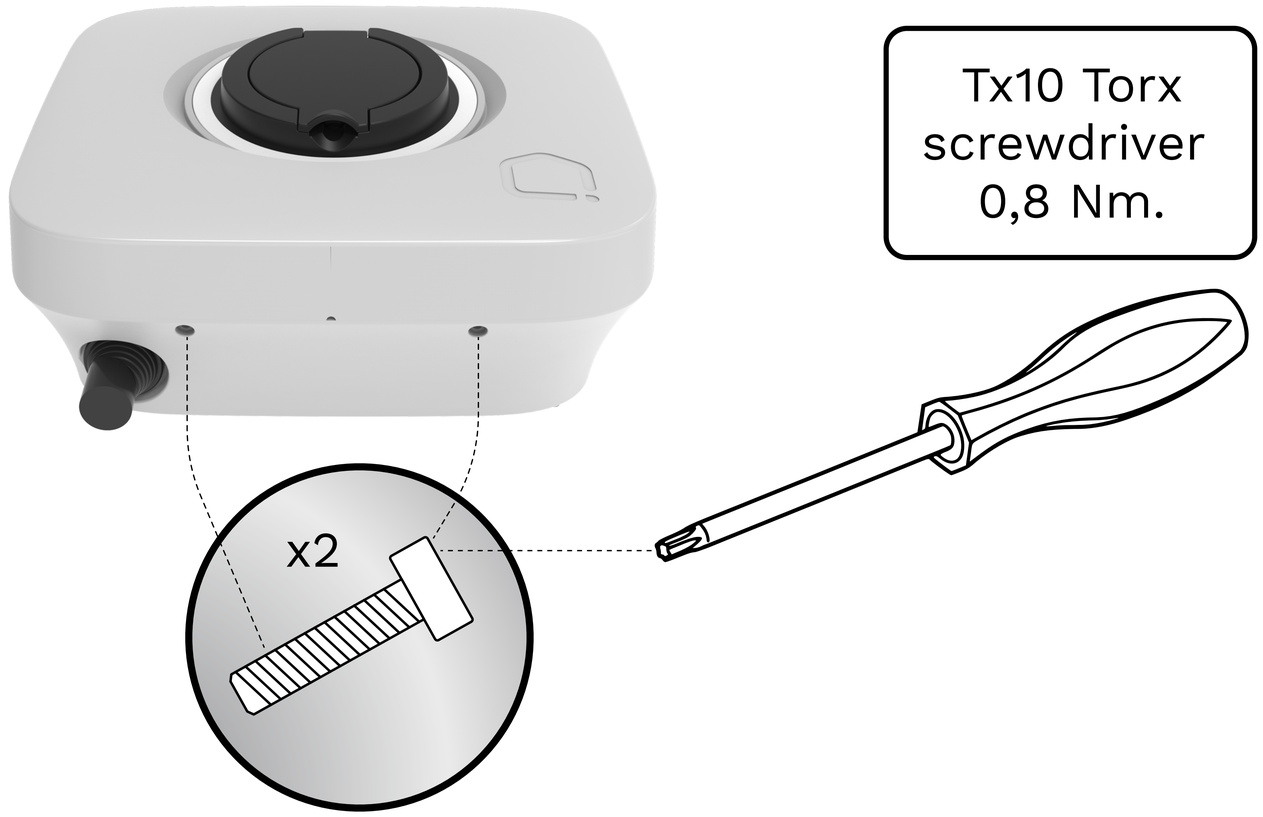
Attach the front plate to the backplate.

15 Secure the front plate

Screw in the two screws on the bottom of the charger (0,8 Nm.)

ST2.9*12 mm.
Torx screws

TX10



Verify the installation before configuring the charger

- Ensure that all protective measures for the charger are in place. This includes, but is not limited to, circuit breakers, leakage protection devices, and measures safeguarding the charger against weather conditions.
- The charger must be installed in strict accordance with the guidelines provided in this document, as well as any applicable regulations.
- Test the circuit breaker and the charger in compliance with regulations.

Warning	The configuration of the charger must be carried out by a certified electrician.

Download the Futurehome app

Download and install the "Futurehome" app from either the Google Play Store or the Apple App Store.

Download on the App Store

GET IT ON Google Play

First steps

futurehome.io/en/start

Turn on the power

Turn on the power and the LED indicator on the front plate will light up.
If not, please check the power supply and electrical connection.

Danger	Ensure that the front plate is securely attached and that the charger is installed in accordance with the installation guides in this manual.

Configure the charger

In the app, navigate to settings, select 'devices', and choose 'Install EV Charger'. Then follow the steps in the app. The process is complete when the LED turns permanently white. If other colors are indicated, refer to section 2.7.

To commission the charger in the Futurehome app, carry out the following steps:

- Create a new household in the app
- Start the commissioning from the “install EVSE” tile
- Follow the steps in the app

If you install the charger on a site where a Smarthub is already installed and added in the app, go to “settings”, click “devices” and click “install EVSE”. In case any problems occur, scan the following QR code or refer to the troubleshooting section in this manual.

Transfer ownership and handover to the end-customer

To transfer the ownership of the EVSE and the household in the Futurehome app, go through the following steps:

- In the app, go to “settings” (lower right corner)
- Click “household”
- Click “transfer ownership” and follow the steps in the app

Once this is done, hand over this manual to the owner of the charger and advise the customer to read the instructions. Additional resources are available on our website.

futurehome

Charge

OPERATION & MAINTENANCE

Before you begin charging

1. Make sure you have read the safety instructions in this document.
2. Inspect the charging cable. Ensure that it is not damaged and that there are no dirt or water on the connectors.
3. Plug the cable into the socket of the Futurehome Charge and then into your electric car. The charger will begin charging your car.
4. Futurehome Charge will indicate a successful connection by blinking white twice and staying solid white.
5. A started charging session is indicated by a blue light rotating clockwise.

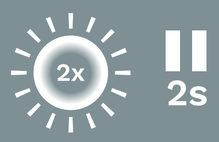
- If the EVSE shows a constant white light, then it is is waiting for the car to start charging.
- If the EVSE shows a constant blue light, it is waiting for Smart Charging to start the session.

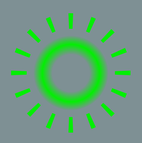
Smart charging optimizes energy consumption and charging may be paused until a more suitable time. If you are not using Futurehome as your primary system, please consult the documentation of your specific smart charging provider before charging.

You can find further information about the charger and how it works on our website or scan the QR code below:

futurehome.io/en/

LED indication

LED Indication	State	Description
	Booting	The EVSE is booting
	Installation mode (Not configured)	The charger is waiting for configuration
	Installation mode - Bluetooth connection active (not configured)	The charger is being configured and has an active Bluetooth connection with phone
	Update in progress	The charger is being updated through an over the air update
	Standby	EVSE powered and ready, no cable connected
	Handshake	The charger is connected to a vehicle
	Ready to start, waiting for vehicle	The Handshake is complete. The charger is waiting for vehicle to start charging
	Ready to start, waiting for system	The charging is paused by the system for reasons such as: • StrømKontroll • Schedule • Threshold • Load balancing • Spot price • Max power guard • Solar
	Charging	An active charging session is ongoing

LED Indication	State	Description
	Charging complete/ Suspended by EV	The charging is complete or suspended by the EV or waiting for a scheduled start
	Waiting for authentication	The EVSE is waiting for authentication from EMS (system) or user
	Successful operation	The EVSE is confirming that an action was successful, e.g.: • Authentication approved • Configuration saved
	Unsuccessful operation	The EVSE is confirming that an action was unsuccessful, like authentication declined

Furter information of LED behavior during errors can be found in the troubleshooting table under fault finding.

FAULT-FINDING & END OF LIFE

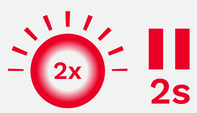
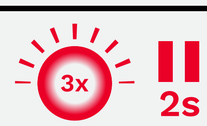
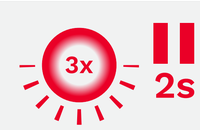
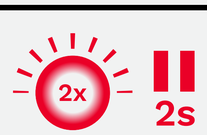
Fault resolution & warranty

Refer to the overview of the LED states for an overview of various states & errors on the product. With the help of the information in this section, you can try to find a solution.

 **Warning**	If the solution provided does not address the issue, or if you're unable to find an appropriate remedy, please reach out to your local after-sales service. Do not attempt any repairs, as this will void the warranty. The manufacturer will not be held liable for damages or losses resulting from actions not in accordance with the provided guidance.

Troubleshooting table

Item	Problem	LED State	Solution
1	Wi-Fi connectivity issues		• If your Wi-Fi isn't displayed in the list, ensure it operates on a 2.4Ghz band. • Otherwise, either set up to a 2.4Ghz network or connect the charger via Zigbee. • Consider using a Wi-Fi extender for enhanced connectivity.
2	Over-the-Air (OTA) update failure	N/A	• Ensure the charging cable is unplugged and position yourself near the charger and maintain a steady Bluetooth connection. • If interruptions persist, restart the application and initiate the update procedure from the beginning. • If you encounter any issues after completing an update then please turn off the power to the charger for at lest 30 seconds and then turn it back on.
3	Zigbee range issue		Extend the Zigbee network's reach by installing a Zigbee device that is continually connected to power, such as a Smartplug, between the Smarthub and the charger.
4	The LED ring does not work		Ensure that the charger is connected to power and press the front plate of the charger to ensure it sits correctly.
5	Charging does not start	N/A	• If the charger is connected to a Futurehome Smarthub, check the app to see if the system is pausing the charge, for example, due to high energy prices or to avoid exceeding the threshold. • Ensure that the power for the charger is turned on and that there is no charging schedule set in the car interrupting the charging.

Item	Problem	LED State	Solution
6	Charging is slow		• Check what charging speed your car supports and ask your electrician for the charging speed your electrical system allows. • If the charger is connected to Futurehome PowerManager, check in the app if the system is slowing down the charging to optimize the energy consumption.
7	Over-heating		Stop charging and wait until the weather conditions are within the operating temperature of -30 to + 50 degree Celsius. The charger may automatically reduce the charging power to avoid overheating.
8	Earth fault (Residual current)		Unplug the vehicle and plug in again. If the problem persists, contact customer support.
9	Critical temperature		The charger has detected an internal overheating issue and has stopped charging.
10	Critical error		The device has detected a critical error. Please contact support. Do not try to use the product until the fault has been cleared.
11	Wiring problem		As an electrician you should verify that the wiring is correctly installed based on the installation instructions matching the supply circuit and grid type.
12	Overvoltage		The charger has detected an overvoltage and charging has stopped.
13	Overcurent		The charger has detected an overcurrent and charging has stopped.
14	Undercurent		The charger has detected a fault with the internal switchgear. Please contact customer support
15	Contactor failure		The charger has detected a fault with the relay, welded relay or relay that does not operate as it should.

If you have further questions, please refer to our homepage http://www.futurehome.io/.

Waste treatment

Responsible disposal of electronic products and their components is a commitment to environmental sustainability and the well-being of future generations.

Always choose to recycle and dispose of your electronic waste in an eco-friendly manner.

• Reduce Waste: Before opting for disposal, consider if the product can still be used, such as through resale or repair.

• Personal Data: Perform a factory reset of the device to erase all personal information from the product to protect your privacy. Factory reset is found under the device settings in the app.

• End customers can hand in the product for disposal at a public collection or return point in their vicinity. Addresses of suitable collection points can be obtained from the municipal or local government. Some municipalities also offer private disposal bins for electronic or hazardous waste.

futurehome

Charge

Warranty period

Equipment purchased from Futurehome becomes the property of the customer upon purchase. The equipment's warranty adheres to local regulations at the time of purchase. In some regions, Futurehome may offer an extended warranty beyond local regulations. Any warranty extensions are formalized through a separate agreement.

Futurehome cannot guarantee that the equipment will support all future functionalities.

The warranty does not cover damages from external factors, including but not limited to misuse, vandalism, lightning, fire, flood, or events classified as "force majeure."

Certain devices and equipment sourced from Futurehome require installation by an authorized electrical installer. This requirement will be specified in the user manual for the respective device.

In specific countries, some Futurehome devices mandate installation by a certified electrician. For all Futurehome products, buyers must comply with local installation regulations. We strongly advise exercising caution when working with devices connected to live electrical circuits; electric shocks can be lethal. Always disconnect the power before starting the installation of Futurehome products.

For more details, please refer to the Futurehome Terms and Conditions.

Designer address: Gjerdrums vei 16, 0484, Oslo, Norway
Made in China.

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