

EV/BOX

EVBox Liviqo

Socket

Installation and user manual

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Contents

1. Introduction	3
1.1. Scope of the manual	3
1.2. Symbols used in this manual	3
1.3. Icons used in this manual	3
1.4. Certification and compliance	4
2. Safety	4
2.1. Safety precautions	4
2.2. Moving and storage precautions	6
3. Product features	6
3.1. Description	6
3.2. Technical specifications	7
3.3. Delivered components	9
4. Installation instructions	9
4.1. Prepare for installation	9
4.1.1. Plan for installation	9
4.1.2. Tools required	11
4.1.3. Power supply requirements	11
4.1.4. Optional: Dynamic load balancing	14
4.1.5. Optional: Cluster load balancing	14
4.1.6. Only for applicable countries: Remote power control by DSO	16
4.2. Unpacking	16
4.3. Install the wall bracket and charging station	18
4.4. Connect the power cable	20
4.5. Charging station communication	26
4.5.1. Route communication cables	26
4.5.2. Optional: Connect Ethernet cable for Internet	27
4.5.3. Optional: Install SIM card for Internet	28
4.5.4. Optional: Connect dynamic load balancing cable	29
4.5.5. Only for applicable countries: Connect remote power control cable	29
4.5.6. Tighten the cable gland	30
4.6. Install the charging station covers	31
4.7. Configuration	35
4.7.1. Configure the charging station	35
4.7.2. Optional: Activate the charging station with CMP	36
4.7.3. Ready for use	36
5. User instructions	36
5.1. Start and stop a charging session	36
5.2. Status indication	37
5.3. Maintenance by user	38
5.4. Log in to the charging station	38
5.5. Only for Germany: Verify transaction data	38
6. Only for Germany: Terms of use for CPO/EMSP	38
6.1. Requirements for users of the charging equipment	38
6.2. Requirements for users of the measured values	39

- 7. Troubleshooting 40
 - 7.1. Error indication 40
 - 7.2. Access the RCBO 40
- 8. Decommissioning 44
- 9. Appendix 44
 - 9.1. Glossary 44
 - 9.2. EU Declaration of Conformity 45

1. Introduction

This Installation and user manual describes how to install the charging station and make it ready to use. You must carefully read the safety information before you start.

1.1. Scope of the manual

The installation and configuration instructions in this manual are intended for qualified installers who can assess the work and identify potential danger.

The user instructions are intended for users of the charging station.

Retain all documentation delivered with the charging station in a safe place for the entire life cycle of the product. Forward all documentation to any subsequent owners or users of the product.

All EVBox manuals can be downloaded from evbox.com/manuals.

Disclaimer

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1.2. Symbols used in this manual

Symbols used in this manual

DANGER

Indicates an imminently hazardous situation with a high risk level which, if the danger is not avoided, will cause death or serious injury.

WARNING

Indicates a potentially hazardous situation with moderate risk level which, if the warning is not obeyed, can cause death or serious injury.

CAUTION

Indicates a potentially hazardous situation with a medium risk level which, if the caution is not obeyed, may cause minor or moderate injury or damage to the equipment.

Note

Notes contain helpful suggestions, or references to information not contained in this manual.

1., a. or i. Action to be followed in the stated order.

1.3. Icons used in this manual



Choose one feature



Installer



User



Visually check



Only for use in a dry location



Do not use a power screwdriver



AC power supply

14. Certification and compliance

	The charging station has been CE-certified by the manufacturer and bears the CE logo. The relevant declaration of conformity may be obtained from the manufacturer.
	Electrical and electronic appliances, including accessories, must be disposed of separately from the general municipal solid waste.
	Recycling of materials saves raw materials and energy and makes a major contribution to conserving the environment.



FR

Cet appareil et ses accessoires se recyclent

À DÉPOSER EN MAGASIN

À DÉPOSER EN DÉCHÈTERIE



OU

Points de collecte sur www.quefairedemesdechets.fr
Privilégiez la réparation ou le don de votre appareil !

Note

See [EU Declaration of Conformity on page 45](#) for the Declaration of Conformity for this product.

2. Safety

2.1. Safety precautions

DANGER

Not following the installation and user instructions given in this manual will result in the risk of electric shock, which will cause severe injury or death.

- Read this manual before installing or using the charging station.

DANGER

Installation, servicing, repair and relocation of this charging station by a non-qualified person will result in the risk of electric shock, which will cause severe injury or death.

- Only a qualified electrician is permitted to install, service, repair, and relocate the charging station.
- The user must not attempt to service or repair the charging station as it does not contain user-serviceable parts.
- Local regulations may be applicable and may vary depending on your region or country of use. The qualified electrician must always ensure that the charging station is installed according to local regulations.

DANGER

Working on electric installations without proper precautions will result in the risk of electric shock, which will cause severe injury or death.

- Switch off the input power before installing the charging station.
- Do not switch on the charging station if it is not fully installed or not secure.
- Do not install a charging station that is faulty or has a noticeable issue.

DANGER

Extensive exposure of the charging station to water will result in the risk of electric shock, which will cause severe injury or death.

- Do not direct powerful jets of water toward or onto the charging station.
- Do not put the charging plug into any liquid.

 DANGER

Operating the charging station when it is damaged or worn will result in the risk of electric shock, which will cause severe injury or death.

- Do not operate the charging station if the power supply, the enclosure or an EV connector is broken, cracked, open, or shows any other indication of damage.
- Do not operate the charging station if a charging cable is frayed, has broken insulation, or shows any other indication of damage.
- In the event of danger and/or an accident, have the electrical supply to the charging station disconnected immediately.
- Contact your installer if you suspect that the charging station is damaged.

 WARNING

Installing the charging station during wet environmental conditions (for example, rain or fog) can result in the risk of electric shock and damage to the product, which can cause severe injuries or death.

- Do not install or open the charging station during wet environmental conditions (for example, rain or fog).

 WARNING

Incorrect use of the charging station will result in the risk of electric shock, which can cause injury or death.

- Make sure that the contact area of the charging plug is free from dirt and moisture before starting a charging session.
- Make sure that the charging cable is positioned so that it will not be stepped on, tripped over, driven over, or otherwise subjected to excessive force or damage. Where applicable, make sure that the charging cable is correctly stowed when it is not in use, making sure that the charging plug does not touch the ground.
- Only pull on the charging plug hand grip and never on the charging cable itself.
- Keep the charging station, charging cable and charging plug away from heat sources, dirt, and water.
- Do not use explosive or readily flammable substances near the charging station.

 WARNING

Using adapters, conversion adapters, or cord extensions with the charging station can result in technical incompatibilities and can result in damage to the charging station, which can cause injury or death.

- Use this charging station to charge compatible electric vehicles only. Refer to the charging station specifications in the charging station installation manual for details.
- Refer to your vehicle user manual to check if your vehicle is compatible.

 WARNING

Exposure of the charging station or the charging cable to heat or flammable substances can result in damage to the charging station, which can cause injury or death.

- Make sure that the charging station and the charging cable never come into contact with heat.
- Do not use explosive or readily flammable substances near the charging station.

 WARNING

Using the charging station under conditions not specified in this manual can result in damage to the charging station, which can cause injury or death.

- Use the charging station only under the operating conditions specified in this manual.

 WARNING

Working on electrical installations without using personal protective equipment can result in the risk of injury.

- Use personal protective equipment such as eye protection, cut-resistant gloves, and non-slip safety shoes to prevent personal injuries.

 WARNING

In the event of a fire, not following the fire fighting instructions can result in increased danger, which can cause injury or death.

- When safe to do so, have the electrical supply to the equipment that is burning or endangered by fire disconnected.
- Do not use water to extinguish electrical installations and equipment that have a live power supply.
- To extinguish a charging station, use an extinguisher that is specified for use on electrical equipment with a rating of up to 1 kV.

⚠ CAUTION

Charging a vehicle with the charging cable not completely extended can result in overheating of the cable, which can damage the charging station.

- Before you connect the charging cable to the vehicle, fully unwind the charging cable so it has no overlapping loops.

⚠ CAUTION

Putting fingers into or leaving other objects inside the plug port (for example, during cleaning) can cause injury or can damage the charging station.

- Do not put your fingers into the plug port.
- Do not leave objects inside the plug port.

⚠ CAUTION

Not taking precautions against ESD (Electrostatic discharge) can damage electronic components in the charging station.

- Take the necessary precautions against ESD before touching electronic components.

⚠ CAUTION

Not enabling firmware updates for this charging station, or disabling, opting out of, or otherwise failing to install available firmware updates, can cause the charging station to encounter problems, function with errors, and be more prone to safety or security risks.

2.2. Moving and storage precautions

Obey the following guidelines when moving and storing the charging station:

- Disconnect the input power before removing the charging station for storage or relocation.
- Transport and store the charging station only in its original packaging. No liability can be accepted for damage incurred when the product is transported in non-standard packaging.
- Store the charging station in a dry environment in the temperature and humidity ranges given in the Technical specifications (see [Technical specifications on page 7](#)).

3. Product features

3.1. Description

1. Charging station

The charging station safely supplies electrical power from the grid to the electric vehicle (EV).

2. Display

The display guides the user through the actions required, and shows information about the charging session.

3. Light sensor and proximity sensor

The light sensor measures the light intensity to automatically adjust the brightness of the display and the LED ring. The proximity sensor switches on the display when a person is close to the charging station.

4. RFID reader

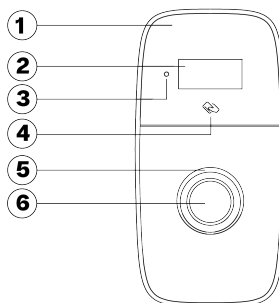
This is the area where you scan your charge card or key fob to start or stop a charging session.

5. LED ring

The LED ring indicates the status of the charging station.

6. Socket

The socket connects the charging cable to the EV.



3.2. Technical specifications

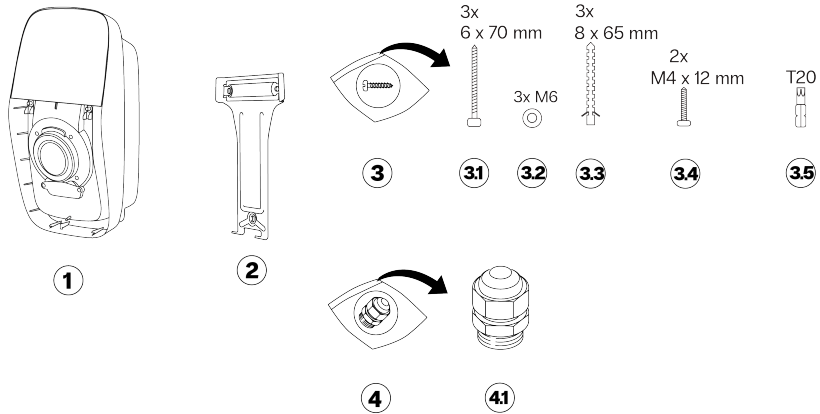
Feature	Description
Electrical properties	
Maximum charge rate	Up to 22 kW (3-phase, 32 A) Note Derating may occur. The charge rate depends on factors such as the demand from the EV, the available power supply, and the ambient temperature.
Charging mode	Mode 3 (IEC 61851-1)
Socket	Type 2 socket (IEC 62196-1, IEC 62196-2) Type 2 socket with shutter Type 2 socket with shutter and Type E module ⁽¹⁾
kWh meter	MID-approved with class B accuracy (EN-50470) Eichrecht compliant meter ⁽¹⁾
Input capacity	6 – 32 A configurable 1-phase, 230 V $\pm 10\%$, maximum 32 A $\pm 6\%$, 50/60 Hz 3-phase, 400 V $\pm 10\%$, maximum 32 A $\pm 6\%$, 50/60 Hz
Power cable sheath diameter	12 to 25 mm
Power cable wire gage	Solid wire: maximum 16 mm ² Stranded wire with ferrule (without plastic sleeve): maximum 10 mm ²
Rated impulse withstand voltage (U_{imp})	4000 V
Rated insulation voltage (U_i)	250 V AC (phase to ground) 450 V AC (phase to phase)
Leakage current detection	Tripping times and limits are compliant with IEC 61851-1:2017 Cl. 8.5. (in accordance with IEC 62955:2018 Table 2). See Power supply requirements on page 11 . RCBO: Type A or Type B
Environment and safety class	
Operating temperature range	-30 °C to +50 °C
Operating temperature range (Eichrecht)	-25 °C to +55 °C
Storage temperature range	-40 °C to +80 °C
Humidity (non-condensing)	5% to 95%
Maximum installation altitude	2000 m above sea level
Enclosure codes	IP55 (IEC 60529), IK10 (IEC 62262)
Safety class	Safety Class I and overvoltage Category III
Pollution degree of the macro-environment	Pollution degree 3
Electromagnetic compatibility (EMC) classification	Environment A and Environment B (in accordance with IEC 61439-1)

Feature	Description
Mechanical resistance for stationary assembly	High resistance
Connectivity	
Authorization	RFID reader or using an app
Wi-Fi	2.4/5 GHz
Local area network	Ethernet
Cellular communication	4G LTE-M (2G fallback supported)
Communication protocol	OCPP 2.0.1
Smart charging features	Dynamic Load Balancing, Cluster Load Balancing, EEBus compliant, ISO 15118 (hardware ready)
Physical properties	
Dimensions (W x H x D)	256 x 508 x 211 mm
Weight	Approximately 5 kg
Housing material	Low-carbon Makrolon RE®
HMI	5" 800 x 480 WVGA IPS LCD, LED ring, Buzzer, Authorization
Certification and compliance	
Power supply input	EV supply equipment permanently connected to AC supply network
Power supply output	AC EV supply equipment
Normal environmental conditions	Indoor and outdoor use
Access	Equipment for locations with non-restricted access
Equipment type	Stationary equipment that is wall-mounted or pole-mounted

⁽¹⁾Optional.

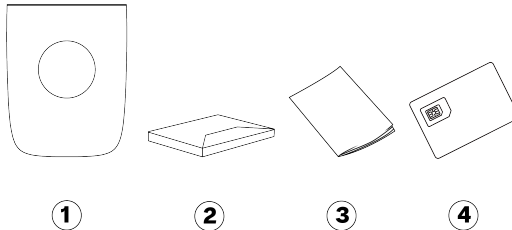
3.3. Delivered components

Components in the charging station box



- | | | | |
|-----|--------------------------------|-----|---|
| 1 | Charging station with socket | 3.3 | Wall-plugs, 8x65 mm, 3x |
| 2 | Wall bracket | 3.4 | Screws, M4x12 mm, T20, 2x |
| 3 | Installation kit | 3.5 | Torx bit, T20 security |
| 3.1 | Panel screws, 6x70 mm, T20, 3x | 4 | Cable gland kit |
| 3.2 | Washers, M6, 3x | 4.1 | Cable gland (with seal and blanking plug) |

Components in the cover box



- | | | | |
|---|-------------------------|---|------------------------------|
| 1 | Front cover | 3 | Installation and user manual |
| 2 | Welcome pack (optional) | 4 | SIM card (optional) |

4. Installation instructions

4.1. Prepare for installation

4.1.1. Plan for installation

The following recommendations help you to plan the installation of the charging station.

Choose location

- Position the charging station, where possible, in a location where it is not exposed to direct sunlight or vulnerable to external damage.
- The wall must have a flat structure and must be able to hold a load of at least 100 kg.
- The minimum free space around the charging station is 300 mm.
- The power cable can enter the charging station from the top or the bottom. The bottom cable entry A can be used in any location. The top cable entry B must only be used in a location where there is no risk of exposure to rain or moisture.

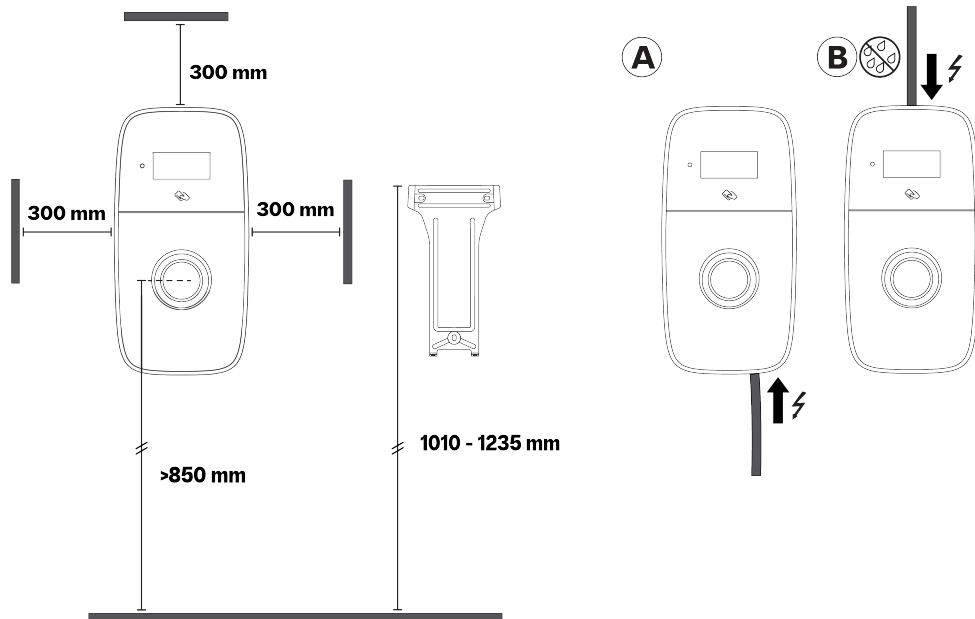
⚠ CAUTION

Risk of water ingress when the top cable entry B is used outdoors. Over a long period of time, rain and moisture can enter the charging station along the power cable, which can damage the charging station.

- Communication cable entry is only through the bottom of the charging station.

📘 Note

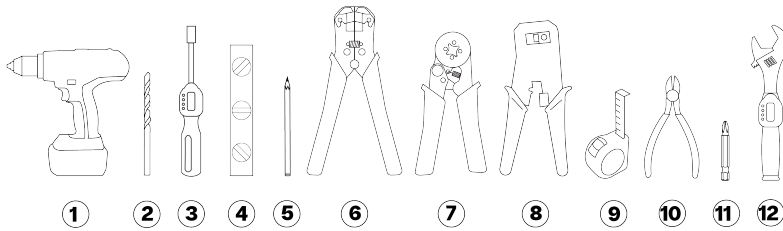
The following illustration shows the minimum recommended installation height. Observe and comply with the local accessibility regulations.

**Pre-installation checklist**

Before starting the installation of the charging station, check the following:

- The installation will be in accordance with IEC 60364 and any applicable local regulations.
- All necessary permits have been obtained from the local authority that has jurisdiction.
- The existing electrical load has been calculated to find the maximum operating current for the charging station installation.
- For a charging station without an RCBO, a miniature circuit breaker (MCB) and residual current device (RCD) are installed upstream and have the recommended ratings. See [Power supply requirements on page 11](#).
- The power supply cable with the correct specification has been routed to the installation area, and there is sufficient cable length to strip and connect the wires.
- The power supply cable will remain within its bending tolerance during and after installation.
- The recommended tools are available on site. See [Tools required on page 11](#).
- The plugs, screws, and drill bit used for installing the charging station are suitable for the wall structure.
- If using a cluster set up, the correct phase order is planned and the requirements are met. See [Optional: Cluster load balancing on page 14](#).

4.1.2. Tools required



- | | |
|---|--|
| 1. Drill | 7. Ferrule crimp tool |
| 2. Drill bit for masonry, 8 mm (5/16 in) | 8. Wire stripper and crimp tool (RJ45) |
| 3. Torque screwdriver with bit holder, 0.5 – 3 Nm | 9. Tape measure |
| 4. Spirit level | 10. Wire cutters |
| 5. Pencil | 11. Screwdriver bit, PH2 |
| 6. Wire stripper (power cable) | 12. Torque wrench, 3 – 6 Nm |

4.1.3. Power supply requirements

⚠ DANGER

Connecting the charging station to the power supply other than as specified in this section will result in incompatibility of the installation and risk of electric shock, which will cause damage to the charging station and injury or death.

- Connect the charging station only in a configuration that is specified in this section.

Earthing system	TN-S and TNC-S systems	PE-cable.
	TT-system IT-system	Earth electrode installed separately (self-installed).
Power input (phase)	1-phase	230 V $\pm 10\%$, up to 32 A $\pm 6\%$, 50/60 Hz.
	3-phase	400 V $\pm 10\%$, up to 32 A $\pm 6\%$, 50/60 Hz.
MCB (Miniature Circuit Breaker)	<ul style="list-style-type: none"> • Tripping characteristic: Type C. • The tripping current of the MCB can decrease if the ambient temperature in the power supply cabinet becomes high. Consider potential higher ambient temperatures when choosing the MCB specifications. • Not required for stations with a built-in RCBO. 	
	<p>Note</p> <ul style="list-style-type: none"> • The installation, including the MCB, must be in accordance with IEC 60364 and any applicable local regulations. • The MCB must match the amperage settings of the charging station and the maximum current available for the charging station, in accordance with the MCB manufacturer specifications. • The maximum I^2t value of the MCB must not exceed 75000 A²s. 	

RCD (Residual Current Device)	<ul style="list-style-type: none"> • RCD amperage rating: The rating must match the amperage of the charging station. • Standard installations: <ul style="list-style-type: none"> ◦ For France, the RCD must be a Type B with a rated current of 20 A or 40 A and have maximum 30 mA AC leakage current detection. ◦ For other countries, the RCD must be a Type A, F, or B with a rated current of 20 A, 32 A or 40 A and have maximum 30 mA AC leakage current detection. • EV Ready installations: The RCD must be a Type A+, high immunity (for example: HPI, SI, HI, KV, etc., depending on the RCD manufacturer). • Not required for stations with a built-in RCBO. <p>Note</p> <ul style="list-style-type: none"> • The installation, including the RCD, must be in accordance with IEC 60364 and any applicable local regulations. • The charging station has internal DC leakage detection with tripping times and limits compliant with IEC 61851-1:2017 Cl. 8.5. (in accordance with IEC 62955:2018 Table 2).
-------------------------------	---

Power supply wiring

The tables below describe how to connect the power supply to the charging station, depending on the type of the power supply and the configuration of the station.

⚠ WARNING

Connecting an IT power supply (without neutral) to a built-in Type A RCBO can result in damage to the charging station, which can cause injury or death.

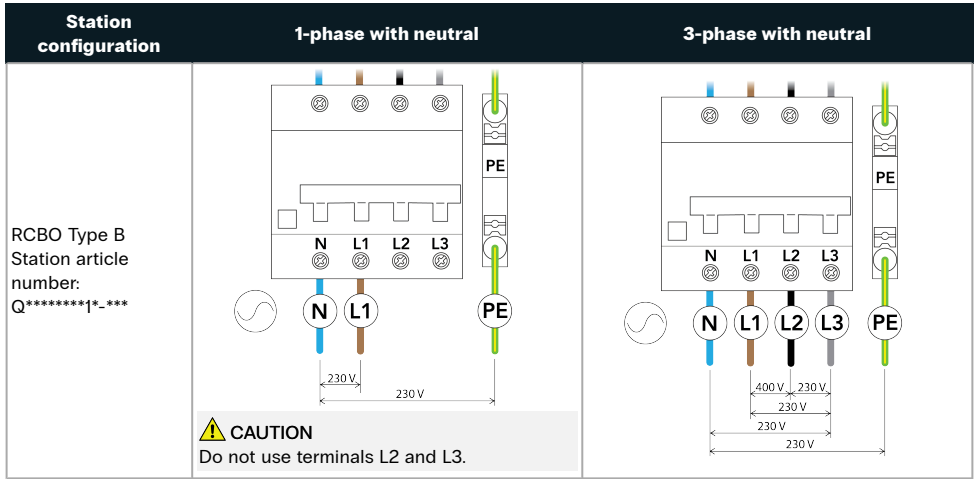
- Only connect a TN or TT 3-phase power supply (with neutral) to a built-in Type A RCBO.

TN and TT power supply to RCBO

Note

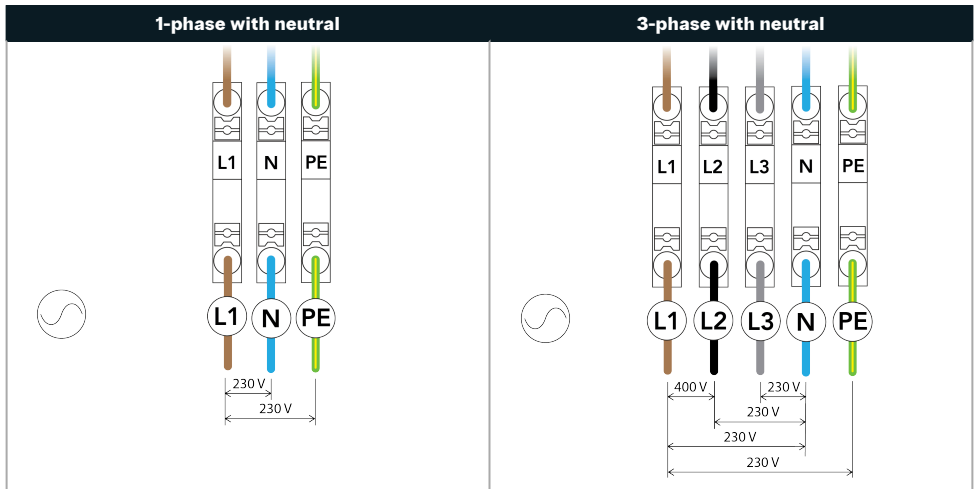
This section is only applicable to stations with a built-in RCBO.

Station configuration	1-phase with neutral	3-phase with neutral
RCBO Type A Station article number: Q*****8*_***	<p>⚠ CAUTION</p> <p>Not supported. Do not connect a single phase supply to a station with a 3-phase plus neutral RCBO.</p>	



TN and TT power supply

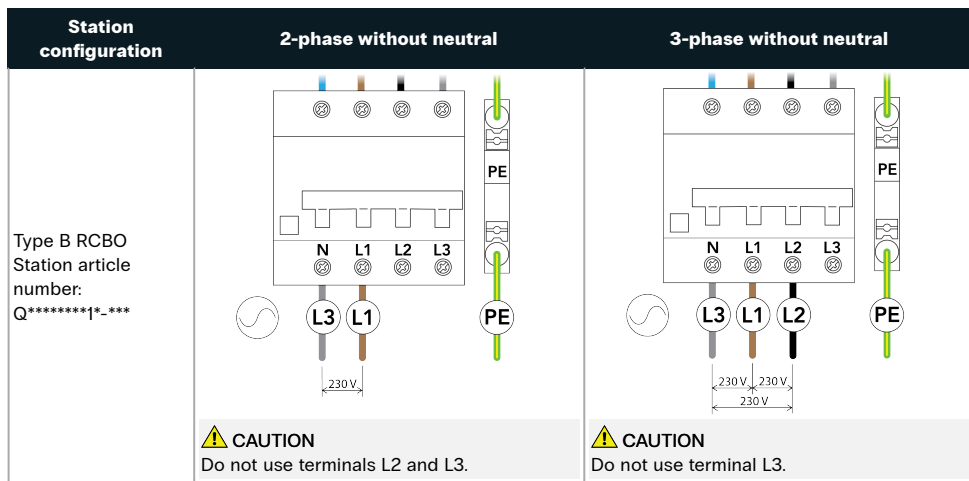
Note
This section is only applicable to stations without a built-in RCBO.



IT power supply (without neutral) to RCBO

CAUTION
Make sure that local regulations permit the installation of this charging station on an IT-grid without neutral. Make sure that the EV is compatible with this type of installation.

Note
This section is only applicable to stations with a built-in RCBO.



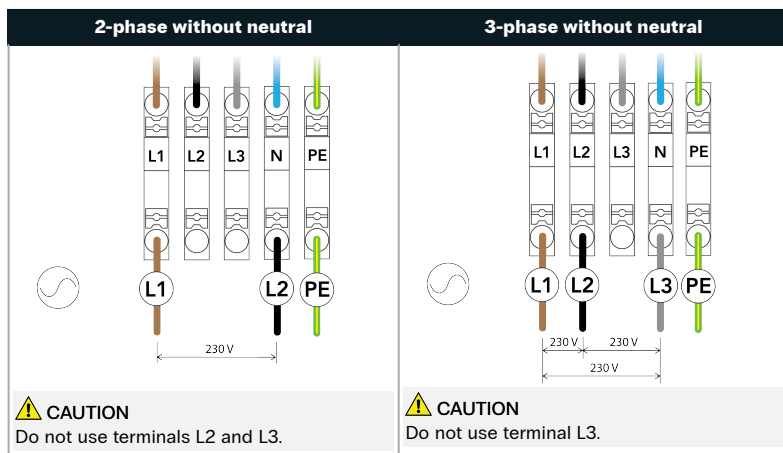
IT power supply (without neutral)

CAUTION

Make sure that local regulations permit the installation of this charging station on an IT-grid without neutral. Make sure that the EV is compatible with this type of installation.

Note

This section is only applicable to stations without a built-in RCBO.



4.1.4. Optional: Dynamic load balancing

Dynamic load balancing monitors the power consumption of all electrical appliances using the same power source. The EVBox Dynamic Load Balancing Kit supplies a control signal to the charging station to regulate the current that the station supplies to the EV, which keeps the total power consumption from the power source within preset limits.

Dynamic load balancing requires a wired input from a load balancing detection system (see [Charging station communication on page 26](#)).

4.1.5. Optional: Cluster load balancing

A cluster load balancing installation consists of multiple charging stations connected in a cluster. A cluster

enables a smart grid to be established across the whole cluster to optimize power usage. Any station can be used as the connected station in the cluster. The cluster is set-up using EVBox Install App. For correct load balancing, a cluster must be connected to a single power supply circuit.

Cluster load balancing requires each station in the cluster to be connected to the same local area network (LAN) using the Ethernet connection (see [Charging station communication on page 26](#)).

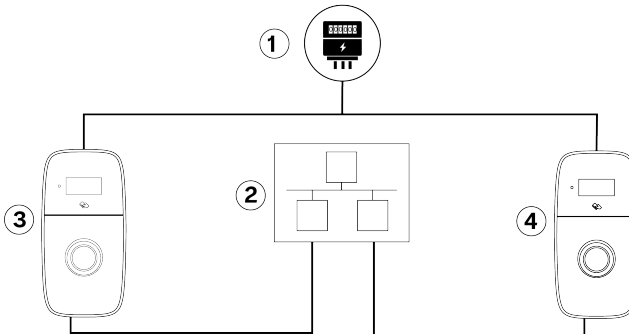
Cluster load balancing requirements

Charging station	EVBox Liviqo EVBox Livo
Ethernet Switch	<ul style="list-style-type: none"> • IPv6 support • Not managed • Number of ports: The number of port must be equal or greater than the number of chargers connected to the cluster. • RJ45 port • 100 Mbps or higher • Static Multicasting: Disabled • Dynamic Multicasting (MLD snooping): Disabled <div style="background-color: #f0f0f0; padding: 5px;"> <p>Note</p> <ul style="list-style-type: none"> ◦ For large clusters, two or more switches can be combined in the same network. ◦ An additional port is required if the switch is used for internet connection. </div>
Cables	<ul style="list-style-type: none"> • CAT5 • Length: 100 m maximum length for each cluster node

Connection Diagram

The following diagram describes how multiple charging stations are connected in a cluster.

Note
The diagram does not include the internet connection of the charging station. The internet connection of the charging station may be set up using cellular, Wi-Fi, or Ethernet.



- | | |
|--------------------|-----------------|
| 1. Power supply | 3. AC charger 1 |
| 2. Ethernet switch | 4. AC charger N |

Phase rotation

To avoid overloading the first phase with single-phase electric vehicles, the phase order for each charging station that connects to a 3-phase supply in a Power-Sharing installation must be configured using the EVBox Install App.

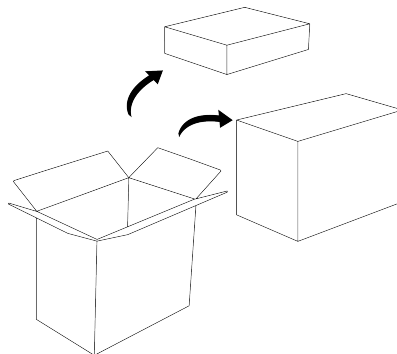
4.1.6. Only for applicable countries: Remote power control by DSO

According to Technical Connection Rules VDE-AR-N-4100:2019-04 Cl. 10.6.4, a charging station with a total rated power of more than 12 kVA must have a remote power control interface to allow remote shutdown of the station by the Distribution System Operator (DSO). This charging station can be connected by cable to an upstream DSO device equipped with a Normally Open (NO) relay. When the relay closes, the station enters a suspended state and charging is paused. Charging resumes when the relay opens. See [Only for applicable countries: Connect remote power control cable on page 29](#) for cable connection instructions.

Registration with the DSO is required.

4.2. Unpacking

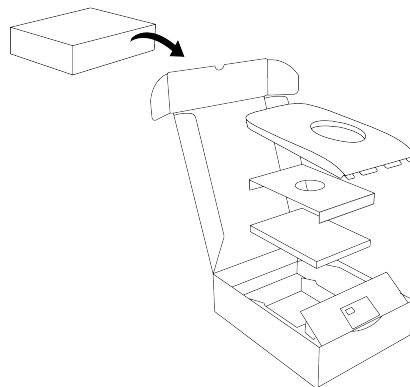
1. Open the shipping box. Remove the cover box and the charging station box.



2. Open the cover box. Find the front cover, the Welcome Pack (optional), the charging station documentation, and the SIM card (optional).

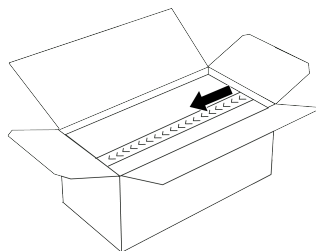
Note

To prevent damage, leave the front cover in the packaging until installation.

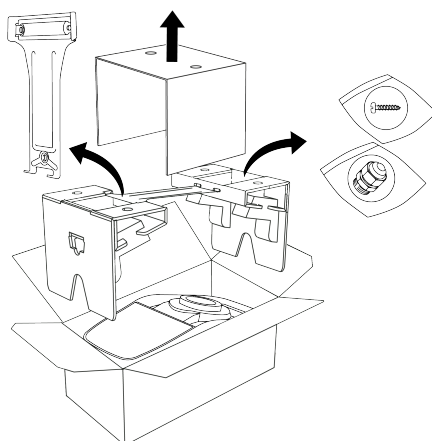


4. Installation instructions

3. Open the station box.



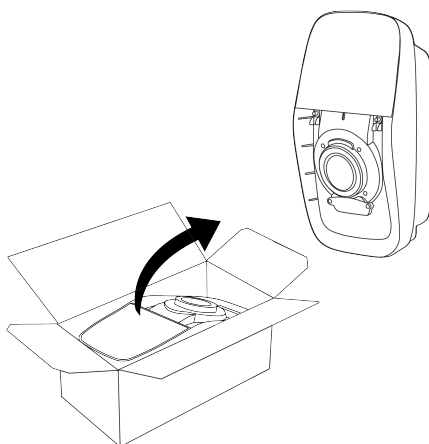
4. Remove the three cardboard fillers, the wall bracket, and the installation kits.



5. When the charging station can be installed on the wall bracket, remove the charging station from the packaging.

i Note

To prevent damage, leave the charging station in the packaging until installation.

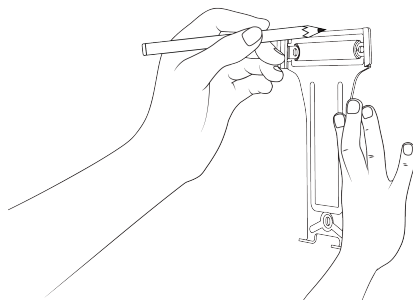


4.3. Install the wall bracket and charging station

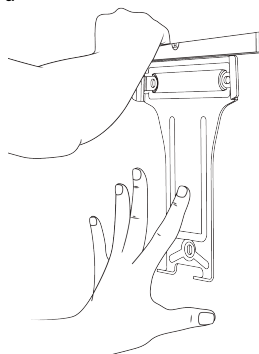
CAUTION

Follow the recommendations in [Plan for installation on page 9](#) when selecting a location and an installation height for the charging station, and when choosing a power cable entry.

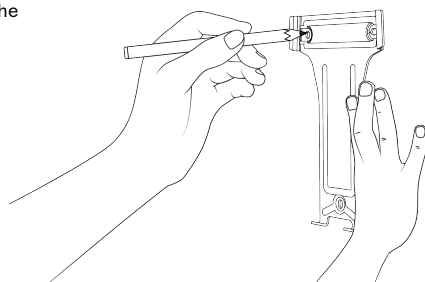
1. Install the wall bracket as follows:
 - a. Mark the height of the top of the wall bracket.



- b. Hold the wall bracket on the wall and level it using a spirit level.

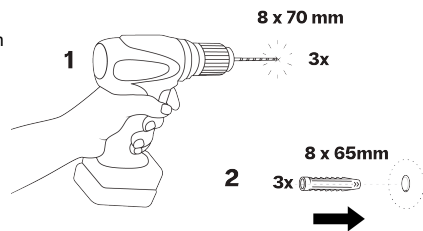


- c. Mark the three screw points on the wall. Remove the wall bracket.

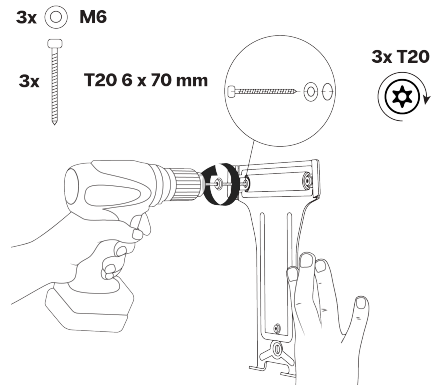


4. Installation instructions

- d. Drill an 8 mm hole to a depth of 70 mm at each screw point. Install an 8 x 65 mm wall plug in each hole.

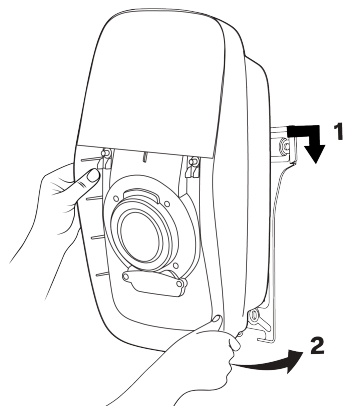


- e. Install the wall bracket using three T20 6 x 70 mm screws and M6 washers.



2. Install the charging station as follows:

- a. Engage the charging station with the top of the wall bracket, then rotate the charging station down to align the two lower screw holes.

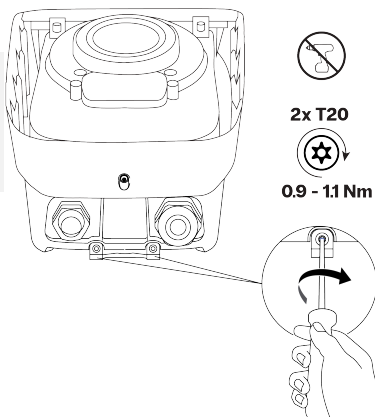


- b. Install two security Torx T20 screws to attach the charging station to the wall bracket.

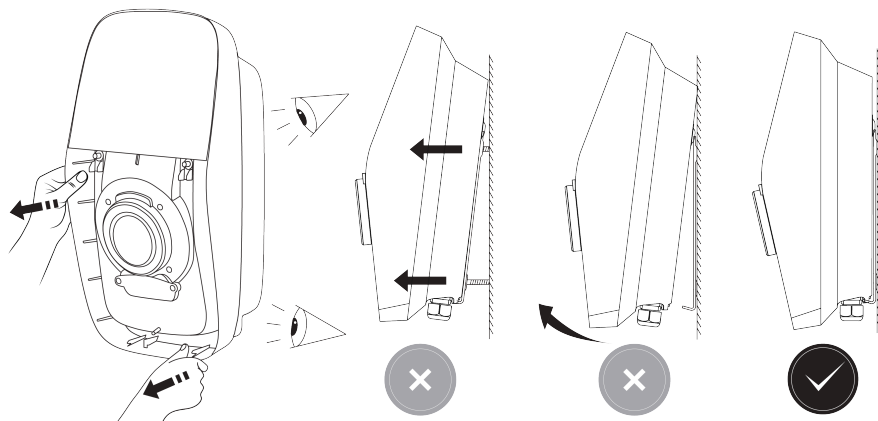
⚠ CAUTION

Using a power screwdriver with a high torque can damage the screws and components.

- Use only a low-torque screwdriver with the correct torque setting.



- c. Gently pull on the charging station to make sure it is securely attached to the wall bracket and to the wall.



4.4. Connect the power cable

The charging station has two interchangeable cable glands:

- The installed cable gland is for a power cable with a sheath diameter of 13 to 25 mm.
- The cable gland kit is for a power cable with a sheath diameter of 12 to 20 mm.

The terminals accept a wire gage in the following range:

- Solid wire: maximum 16 mm².
- Stranded wire with ferrule (without plastic sleeve): maximum 10 mm².

The power cable can enter the charging station from the top or the bottom. The bottom cable entry A can be used in any location. The top cable entry B must only be used in a location where there is no risk of exposure to rain or moisture.

⚠ CAUTION

Follow the recommendations in [Plan for installation on page 9](#) when selecting the power cable entry point for the charging station.

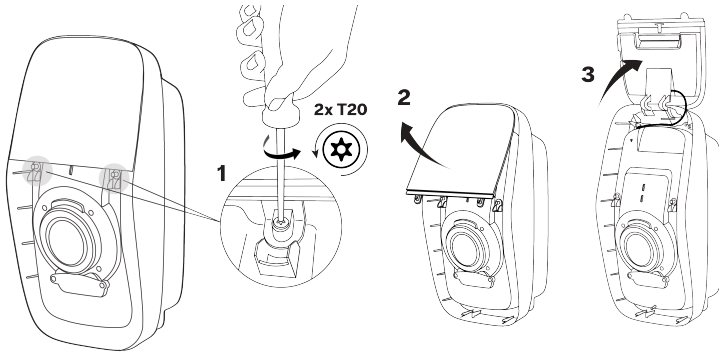
i Note

Communication cable entry is only through the bottom of the charging station.

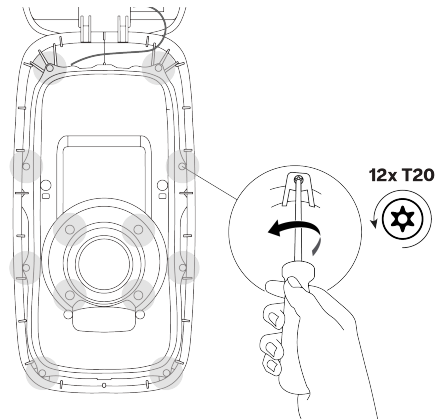
Note

All security Torx T20 screws are captive. Do not fully remove the captive screws from the charging station.

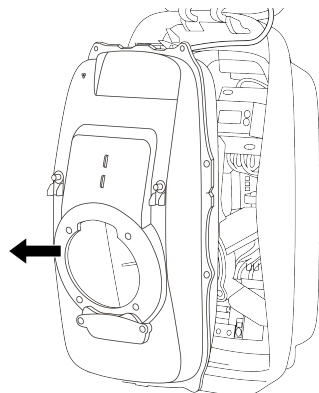
1. Remove the inner cover as follows:
 - a. Loosen the two Torx security T20 captive screws that secure the display cover. Fully open the display cover so it locks in the open position.



- b. Loosen the 12 Torx security T20 captive screws that attach the inner cover.



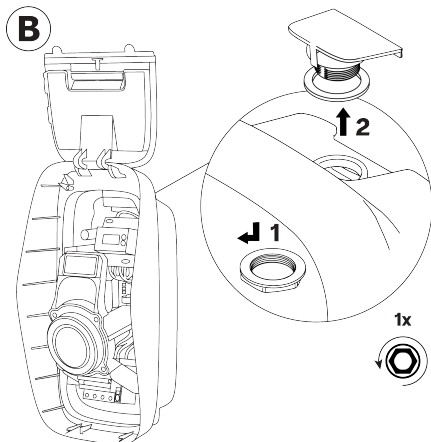
- c. Remove the inner cover.



2. For top cable entry B: Prepare the top entry for the power cable as follows:

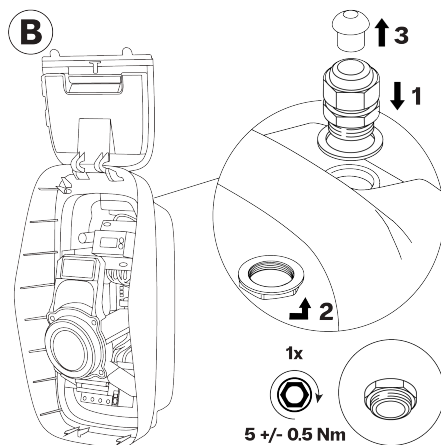
- a. Remove the nut that secures the cover on the top entry. Remove the cover.

Keep the nut to use on the cable gland. Store the cover in the packaging.



- b. Install the cable gland and seal in the top entry. Install and tighten the nut.

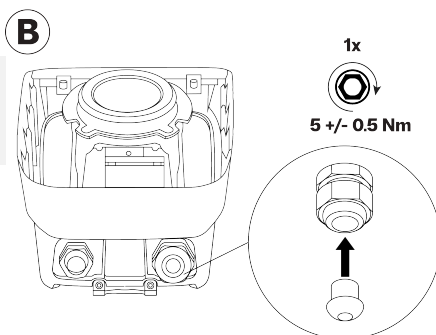
Remove the blanking plug from the cable gland and keep it for later use.



- c. Install the blanking plug in the unused gland in the bottom of the charging station.

⚠ CAUTION

Make sure that the blanking plug is installed in the cable gland to maintain the IP code of the charging station.

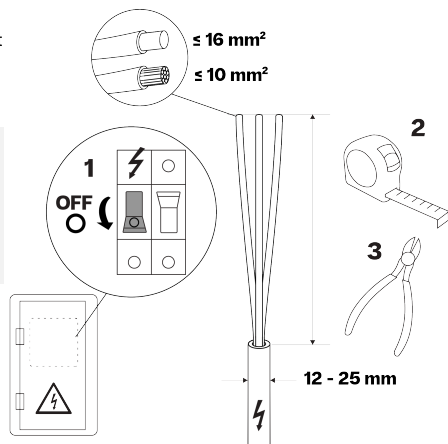


4. Installation instructions

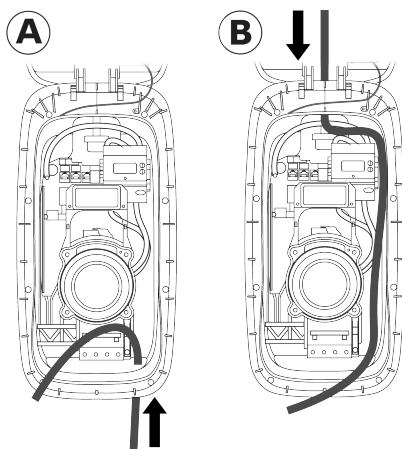
3. Cut the power cable and strip the outer sheath so the cable and its wires will have sufficient length to connect to the RCBO and PE terminal terminal block in the charging station. If required, install extra insulation on the individual wires.

⚠ CAUTION

To protect Separated Extra Low Voltage (SELV) circuits, the stripped single-insulated wires must not touch the components on the main board. When required, install double insulation on the individual wires, for example using heat-shrink tubing or insulation sleeves.



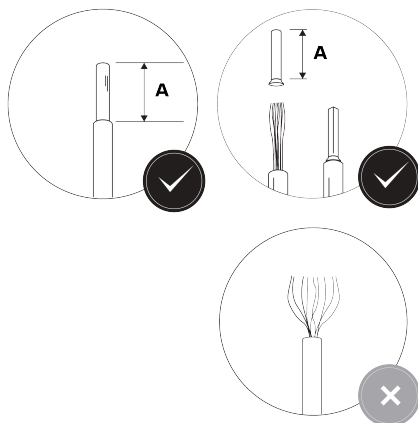
4. Feed the power cable into the charging station using bottom cable entry A or top cable entry B. Route the power cable to the connection points. Leave sufficient length to strip and connect the wires.



5. Strip the wire ends of the power cable:

- For an RCBO, A = 12 mm
- For a terminal block, A = 18 mm

When stranded wires are used, install wire end sleeves and apply a square crimp for optimal fit into the RCBO and the PE terminal block.



6. For a station with a built-in RCBO: Connect the power cable as follows:

⚠ WARNING

Incorrect connection of the power wires can result in the risk of electric shock, and thus cause damage to the charging station, and injury or death.

- Make sure that the power wires are securely connected.

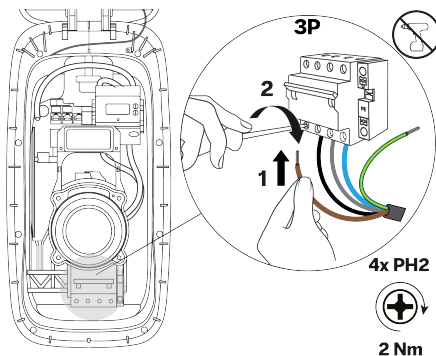
i Note

Connect the wires in accordance with the power supply wiring schematics in [Power supply requirements on page 11](#).

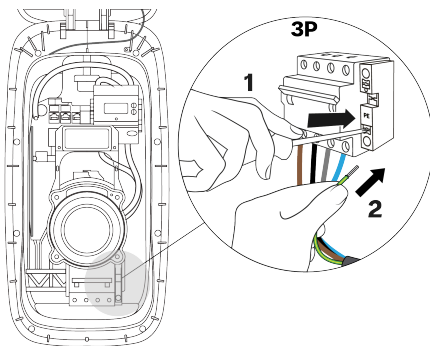
i Note

Type B RCBOs are installed upside down in the charging stations.

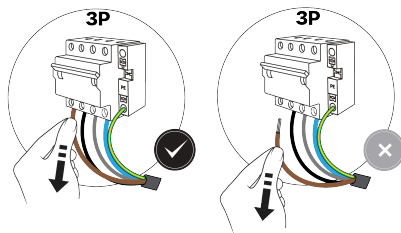
- a. Connect the wires of the power cable to the RCBO. Tighten the screws to secure the wires.



- b. Connect the PE wire of the power cable to the PE terminal block.



- c. Pull each wire to check that each wire is securely connected.



7. For a station with terminal blocks: Connect the power cable as follows:

⚠ WARNING

Incorrect connection of the power wires can result in the risk of electric shock, and thus cause damage to the charging station, and injury or death.

- Make sure that the power wires are securely connected.

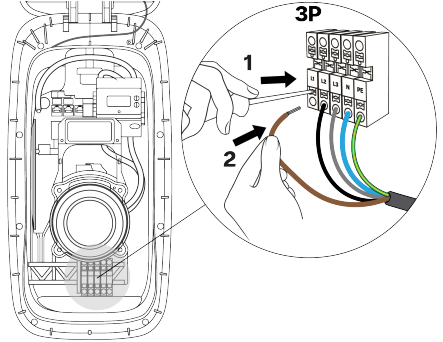
i Note

Connect the wires in accordance with the power supply wiring schematics in [Power supply requirements on page 11](#).

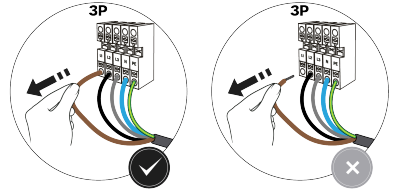
i Note

The illustrations show a 3-phase with neutral connection.

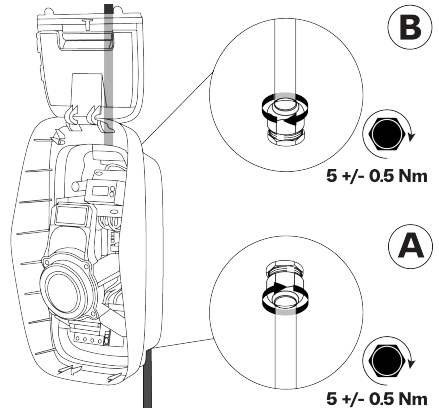
- a. Connect the wires of the power cable to the terminal blocks.



- b. Pull each wire to check that each wire is securely connected.



8. Tighten the cable gland to secure the power cable and to maintain the IP code for the charging station.



4.5. Charging station communication

Communication cable entry is only through the left cable gland in the bottom of the charging station. A maximum of four communication cables can enter the charging station through the gland.

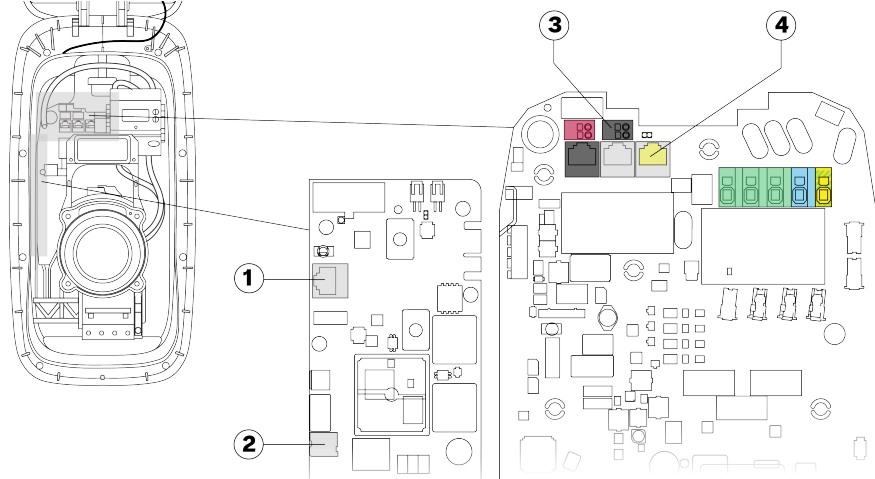
There are three options to connect the charging station to the Internet:

- Ethernet (recommended option)
- Wi-Fi (see [Configuration on page 35](#))
- Cellular (SIM card)

Communication connections and components

i Note

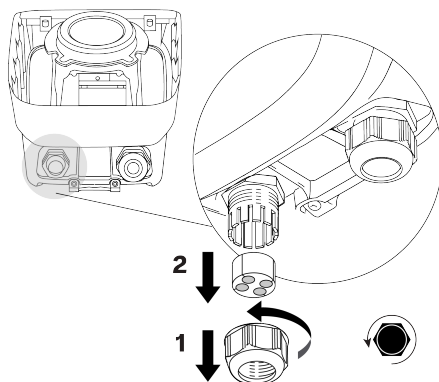
The communication connections and components used depend on the model of the charging station and the required functionality.



1. Ethernet socket for wired internet connection
2. Nano-SIM card slot for cellular internet connection
3. Terminals for active power control (only for Germany)
4. CT IN socket for dynamic load balancing

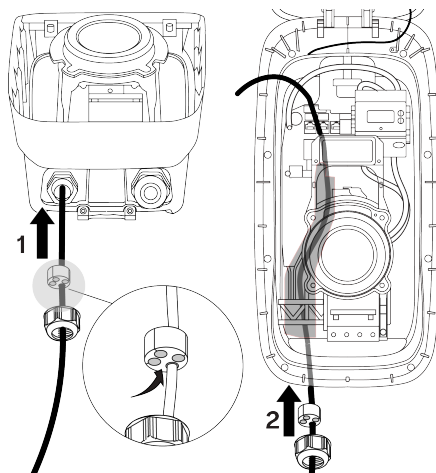
4.5.1. Route communication cables

1. Remove the cable gland nut and seal from the left cable gland.



4. Installation instructions

2. Feed the required communication cables through the cable gland nut and seal, then through the left cable gland in the bottom of the charging station. Feed the cables through the cable channel to the top of the charging station.



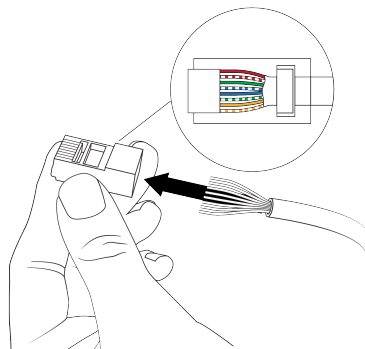
4.5.2. Optional: Connect Ethernet cable for Internet

i Note

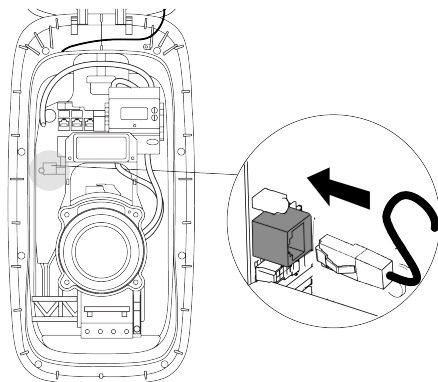
Use any network cable of Cat5 and above (Cat5, Cat5e, Cat6), with twisted pair wires.

- The use of shielded network cable is recommended but not mandatory.
- If a shielded cable is used, do not ground the shield.
- For outdoor installations, use a UV-stabilized network cable.
- Network cables can have a pre-installed RJ45 plug, or the RJ45 plug can be installed before or after routing the network cable into the charging station.

1. If an RJ45 plug is not pre-installed, install an RJ45 plug on the network cable.



2. Connect the network cable RJ45 plug to the Ethernet socket on the communication board.

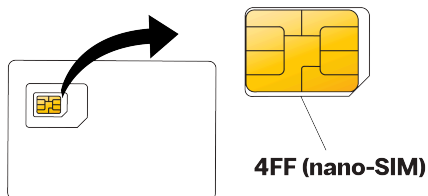


4.5.3. Optional: Install SIM card for Internet

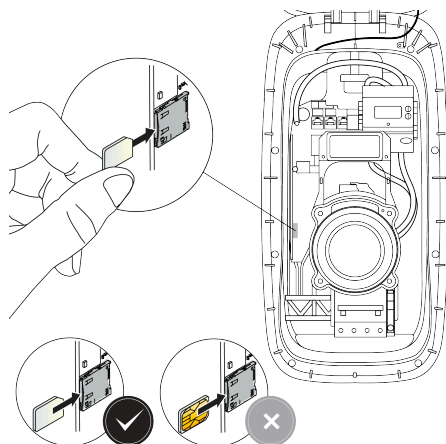
Note

Only certain SIM cards are supported.

1. Remove the 4FF (nano-SIM) SIM card from its card.



2. Push in and lock the 4FF (nano-SIM) SIM card in the slot in the communication board. The SIM card contacts must face the communication board.



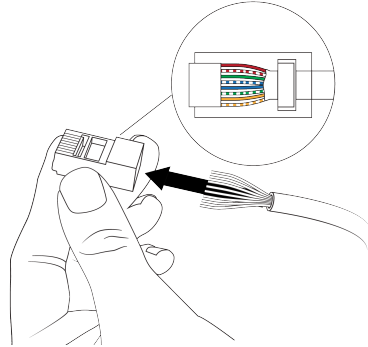
4.5.4. Optional: Connect dynamic load balancing cable

i Note

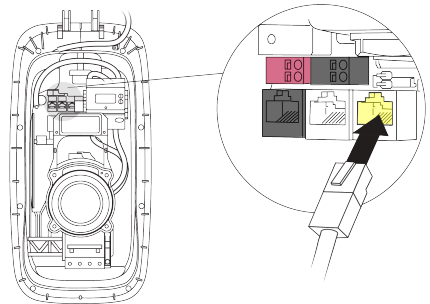
Use any network cable of Cat5 and above (Cat5, Cat5e, Cat6), with twisted pair wires.

- The use of shielded network cable is recommended but not mandatory.
- If a shielded cable is used, do not ground the shield.
- For outdoor installations, use a UV-stabilized network cable.
- Network cables can have a pre-installed RJ45 plug, or the RJ45 plug can be installed before or after routing the network cable into the charging station.

1. If an RJ45 plug is not pre-installed, install an RJ45 plug on the network cable.



2. Connect the network cable RJ45 plug to the CT IN socket.



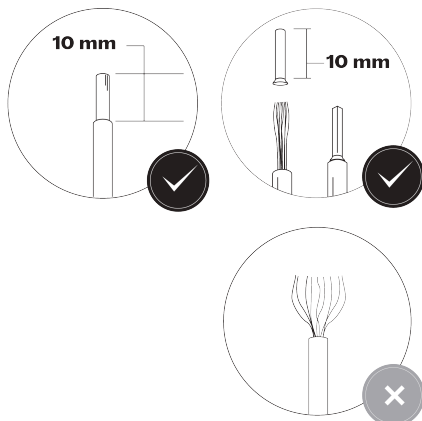
4.5.5. Only for applicable countries: Connect remote power control cable

The terminal blocks accept a wire gauge in the following range:

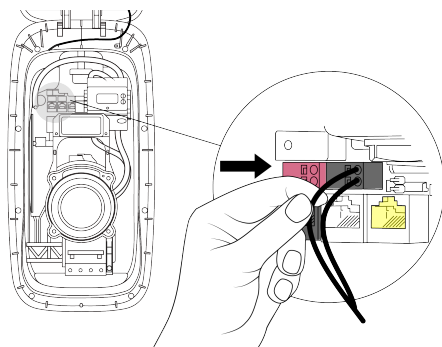
- Solid wire: maximum 1.5 mm².
- Stranded wire with ferrule (without plastic sleeve): maximum 1.5 mm².

Use double-insulated cable that is resistant to temperatures of up to 90 °C.

- Strip the wire ends of the active power control cable.
When stranded wires are used, install ferrules (without plastic sleeves) and apply a square crimp for optimal fit into the terminal blocks.



- Connect the active power control wires to the black terminal block (digital input 1).



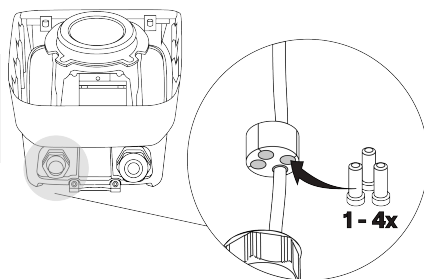
- Connect the other end of the active power control cable to a DSO control device with normally-open (NO) contacts.

4.5.6. Tighten the cable gland

- Install blanking plugs in the unused entries in the cable gland seal.

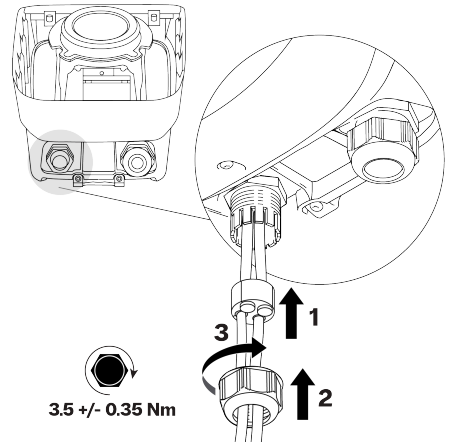
⚠ CAUTION

Make sure that blanking plugs are in place in the unused entry points in the cable gland to maintain the IP code of the charging station.



4. Installation instructions

2. Move the cable gland seal up into the cable gland, then tighten the cable gland to secure the network cables and blanking plugs.

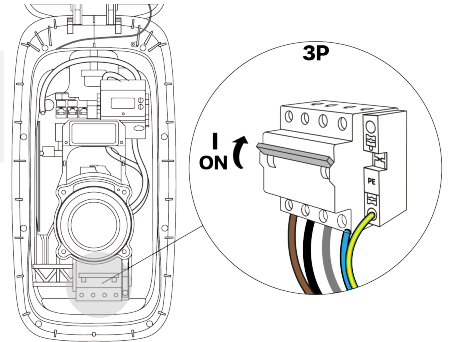


4.6. Install the charging station covers

1. For a station with a built-in RCBO: In the charging station, make sure that the RCBO is switched on.

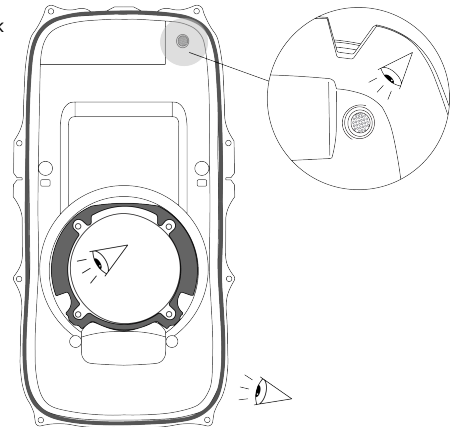
i Note

Type B RCBOs are installed upside down in the charging stations. If the charging station has a Type B RCBO, the on and off directions are reversed.

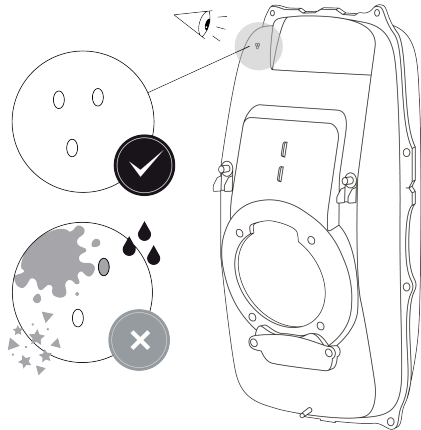


2. Before installation, check the inner cover as follows:

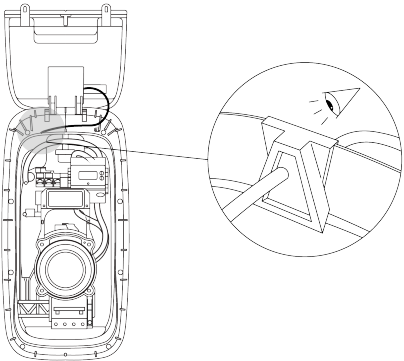
- a. On the inside, check that the inner cover seal and the center seal are clean and free of damage. Check that the venting membrane is secure and free of damage.



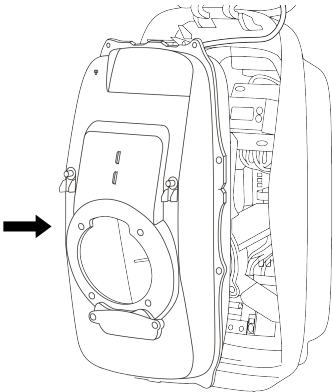
- b. On the outside, check that the three venting holes are not blocked by water, dust, or debris.



- 3. On the charging station, check that the feed-through seal for the display cable is correctly installed.



- 4. Install the inner cover as follows:
 - a. Engage the bottom of the cover below the center hole, then push the top of the cover into position.



- b. Tighten 12 security Torx T20 captive screws in the order shown to secure the inner cover.

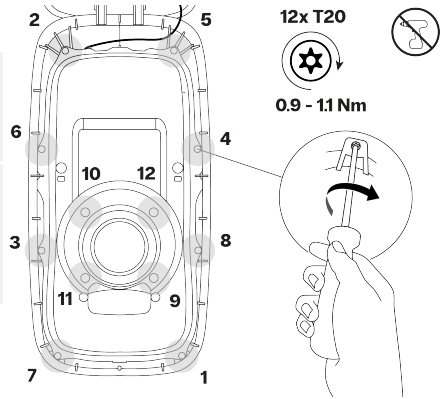
⚠ CAUTION

Risk of water ingress. Rain and moisture can enter the charging station if the screws are not tightened in the correct order.

⚠ CAUTION

Using a power screwdriver with a high torque can damage the screws and components.

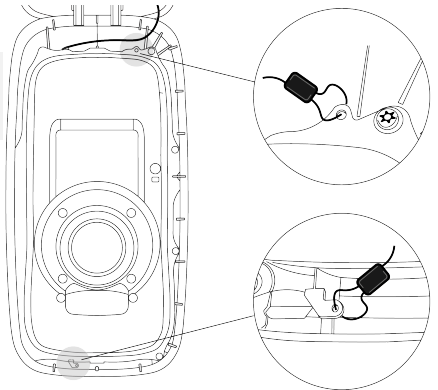
- Use only a low-torque screwdriver with the correct torque setting.



- c. Optional: Install two tamper-evident seals on the top right and bottom left corners of the inner cover.

i Note

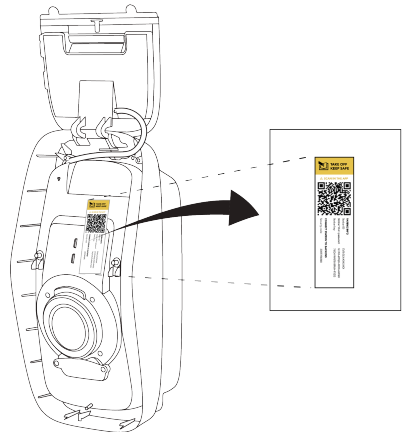
The tamper-evident seals are required for Eichrecht compliance.



5. Remove the sticker containing the charging station-specific information from the inner cover. Store the sticker with the charging station documentation. The information on the sticker is required during configuration.

⚠ CAUTION

To prevent unauthorized access to the charging station settings, do not leave the sticker with the charging station.



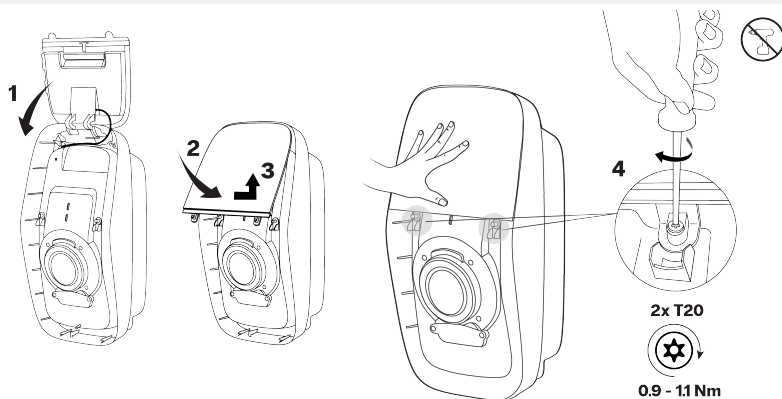
6. Install the display cover and the front cover as follows:

- a. Close the display cover and hold it closed. Secure the display cover using two security Torx T20 captive screws.

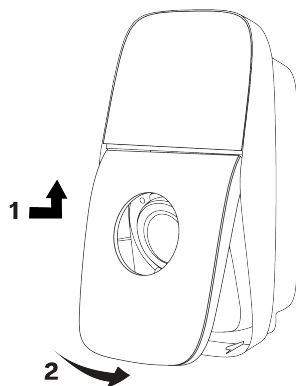
⚠ CAUTION

Using a power screwdriver with a high torque can damage the screws and components.

- Use only a low-torque screwdriver with the correct torque setting.



- b. Engage the top edge of the front cover under the bottom edge of the display cover, then rotate the cover down to align the lower screw hole.

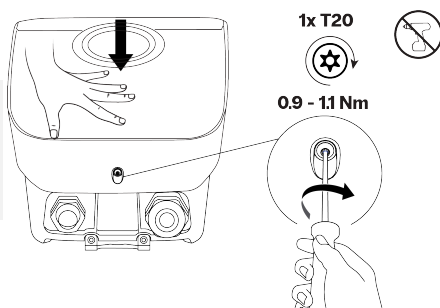


- c. Push the front cover against the spring. Tighten the security Torx T20 captive screw to secure the front cover on the charging station.

⚠ CAUTION

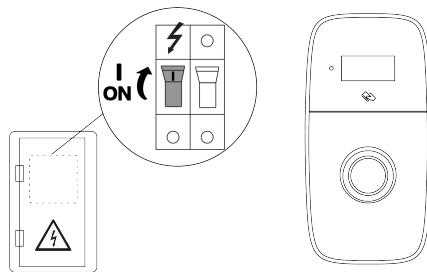
Using a power screwdriver with a high torque can damage the screws and components.

- Use only a low-torque screwdriver with the correct torque setting.



4. Installation instructions

- Switch on the power to the charging station. The LED ring shows spinning white to indicate that the charging station is booting.



The charging station is now fully installed. The LED ring shows white, blinking on and off two times, to indicate that configuration can be started.

4.7. Configuration

For the charging station to function, it must be connected to the Internet. Once connected, it is recommended to activate the charging station on a Charging Management Platform (CMP) to fully benefit from all the charging station features and online support.

Configuration must be completed before the charging station can be used.

4.7.1. Configure the charging station

WARNING

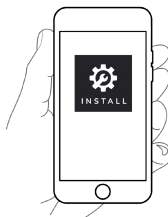
Risk of electric shock, which can cause severe injuries or death. Only a qualified electrician is permitted to use the EVBox Install app to configure the charging station.

- Download and install EVBox Install App on your smartphone or tablet.



- Open EVBox Install App and follow the instructions in the app.

The charging station-specific information required for station configuration is on the sticker that was removed during installation.



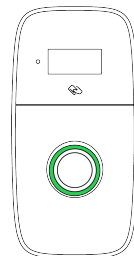
3. Using EVBox Install App, set the following key settings to ensure that the charging station operates safely:
 - Maximum charging current.
 - Internet connectivity.
 - Other configuration settings.

4.7.2. Optional: Activate the charging station with CMP

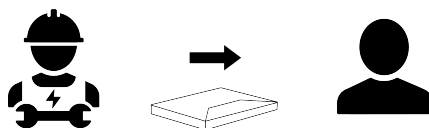
For an online charging station, the user must activate the charging station with the Charging Management Platform (CMP) on the CMP website or by using the CMP-specific app. Contact the Charging Point Operator (CPO) for details about the charging station activation procedure.

4.7.3. Ready for use

The charging station is ready to charge an EV when the covers are installed on the charging station, the commissioning is completed, and the LED ring shows steady green



Hand over all documentation to the owner. The owner must retain all documentation delivered with the charging station in a safe place for the entire life cycle of the product.



5. User instructions

DANGER

Not following the user instructions given in this manual will result in the risk of electric shock, which will cause severe injury or death.

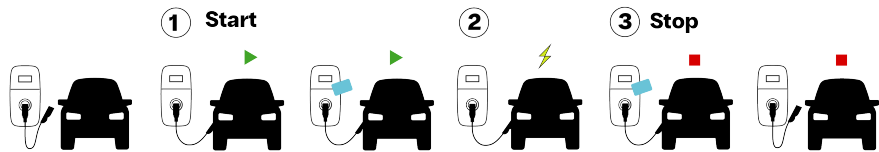
- Read the safety precautions and the user instructions in this manual before using the charging station.
- If you are unsure about how to use the charging station, contact your reseller for more information.

5.1. Start and stop a charging session

Note

Charging session instructions are also shown on the display.

1. Start charging:
 - Fully unwind your charging cable.
 - Connect the charging cable to the charging station and your vehicle.
 - If you use a charge card or key fob, hold it in front of the reader on the charging station to start charging.*
2. Your vehicle is charging.
3. Stop charging:
 - If you use a charge card or key fob**, hold it in front of the reader on the charging station to stop charging.*
 - Disconnect the charging cable from your vehicle and the charging station.



* When the charging station is configured to only accept charge cards or key fobs.

** You must use the same charge card or key fob that you used to start the charging session.









5.2. Status indication


Note

The status of the charging station is also shown on the display.

Note

Some features and status indications are not available on all models.

LED ring	Color	State description
	White (spinning)	Charging station is starting, or software is updating.
	White (blinking)	Charging station is waiting for configuration using EVBox Install App.
	Green (constant)	Idle. Charging station is ready to charge.
	Red (constant)	Authentication not accepted. Indication changes to Green after 5 seconds.
	Blue (constant)	<ul style="list-style-type: none"> Charging station is waiting for vehicle. Charging is paused.
	Blue (filling from bottom)	The vehicle is charging.
	Green (blinking)	The charging session is complete. The vehicle can be disconnected from the charging station.
	Orange (constant)	Charging is slow or paused because of high temperature. Charging will resume automatically.

LED ring	Color	State description
	Orange (blinking)	Charging session has failed. Disconnect the vehicle and try again.

5.3. Maintenance by user

The user of the charging station is responsible for the condition of the charging station, whereby both the law regarding the safety of persons, animals, and property must be observed, as well as the installation regulations in force in the country of use. Have the charging station and its installation inspected by a qualified electrician on a regular basis and in compliance with installation regulations applicable in your country.

DANGER

Extensive exposure of the charging station to water will result in the risk of electric shock, which will cause severe injury or death.

- Do not direct powerful jets of water toward or onto the charging station.
- Do not put the charging plug into any liquid.

CAUTION

Do not use aggressive chemical cleaners or solvents to clean the charging station.

1. Remove dirt and natural organic matter from the outside of the charging station using a damp soft cloth. Make sure that the display, the LED ring and the light sensor are clean.
2. Visually check the charging station and the socket. If you suspect that the charging station or socket are damaged or dirty, contact a qualified electrician to repair or replace the damaged components.
3. Gently pull on the charging station to make sure it is still securely installed. Make sure that the station outer cover is secure. If the charging station or the cover is loose, contact a qualified electrician to correctly re-install the station.

5.4. Log in to the charging station

Using a Wi-Fi enabled smartphone, tablet, or laptop, the user can log in to the charging station to change settings such as Wi-Fi, and view the software licenses. For instructions, see help.evbox.com.

5.5. Only for Germany: Verify transaction data

Eichrecht requires that kWh meters are calibrated to make sure that the energy delivered corresponds to the actual usage, and end users are provided the ability to check if their invoice is accurate. To ensure that the quantities invoiced have not been manipulated by third parties, refer to evbox.com/liviqo-eichrecht-user.

6. Only for Germany: Terms of use for CPO/EMSP

Requirements to be met by users of the charging devices and users of the measured values

6.1. Requirements for users of the charging equipment

The user of the charging device is its operator, in accordance with the MessEG, clause 31, within the meaning of the Charging Station Regulation. The user only uses the charging device in compliance with the calibration law and in accordance with its intended use if they comply with the requirements and conditions specified in these operating instructions dedicated to them.

For this reason, the manufacturer will provide the following information together with the operating instructions:

Notes on the correctness of measurement according to type examination certificate I

Conditions for the operator of the charging device, which the operator must fulfill as a necessary prerequisite for the intended operation of the charging device.

The charging device's operator is the measuring device user in the sense of § 31 of the MessEG.

1. The charging equipment is only considered to be used in accordance with the legal metrology regulations and compliance with the legal metrology regulations if it is not exposed to environmental conditions other than those for which its type of examination certificate was issued.
2. When registering the charging points with the Federal Network Agency, the user of this product must also

6. Only for Germany: Terms of use for CPO/EMSP

register the Public Key (PK) specified on the charging pole for the charging points in their registration form! Without this registration, operating the charging station in compliance with calibration regulations is not possible. Weblink: https://www.bundesnetzagentur.de/DE/Sachgebiete/ElektrizitaetundGas/Unternehmen_Institutionen/HandelundVertrieb/Ladesaeulen/Anzeige_Ladepunkte_node.html

3. The user of this product must ensure that the re-verification period for the components in the charging device and for the charging device itself is not exceeded.
4. The user must permanently store the signed data packets read out from the charging device - in accordance with the pagination, (also) on hardware dedicated for this purpose in their possession ("dedicated memory") - keep them available for authorized third parties (operation obligation for the memory). Permanently means that the data must be stored not only until the conclusion of the business transaction but at least until the expiry of possible statutory appeal periods for the business transaction. For billing purposes, no substitute values may be formed for non-existent data.
5. The user of this product shall provide an operating manual in electronic format to users of measured values who receive these measured values from this product and use them in business transactions. In doing so, the user of this product must refer, in particular, to No. II "Requirements for users of measured values from the charging device".
6. The user of this product is subject to the obligation to notify according to § 32 MessEG (excerpt):
§ 32 Obligation to notify (1) Anyone who uses new or renewed measuring instruments must notify the authority responsible under state law no later than six weeks after commissioning.
7. To the extent deemed necessary by authorized authorities, the complete contents of the dedicated local memory or the memory present at the charge point operator, including all data packets of the billing period, must be made available by the user of the measuring device.

6.2. Requirements for users of the measured values

The user of the measured values from the charging device is, in accordance with § 33 of MessEG, the party to whom the customer owes payment for the supply of electrical energy received at the charging device, i.e., the Electro-Mobility Service Provider (EMSP). The EMSP will only use the measured values in compliance with the calibration law if it complies with the requirements and conditions listed in these operating instructions dedicated to it.

For this reason, the manufacturer will attach the following information to the operating instructions:

II Requirements for users of measured values from the charging device (EMSP)

The user of the measured values must comply Section 33 of the MessEG:

§ 33 MessEG (citation)

§ 33 Requirements for the use of measured values

(1) Values for measured variables may only be specified or used in business or legal transactions or for measurements in the public interest if a measuring device was used as intended and the values can be traced back to the respective measurement result, insofar as the statutory ordinance pursuant to Section 41 number 2 nothing else is determined. Other federal regulations that serve comparable protective purposes continue to apply.

(2) Anyone who uses measured values must ensure, within the scope of their possibilities, that the measuring device meets the legal requirements and must have the person using the measuring device confirm that they are fulfilling their obligations.

(3) Whoever uses measurements has

1. *to ensure that invoices, insofar as they are based on measured values, can be traced by the party for whom the invoices are intended to check the measured values given and*
2. *if necessary, provide suitable aids for the purposes specified in number 1.*

For the user of the measured values, this regulation gives rise to the following specific obligations regarding the use of measured values in accordance with calibration law:

1. The contract between EMSP and customers must clearly state that only the supply of electrical energy and not the duration of the charging service is the subject of the contract.
2. The time stamps on the measured values come from NTP server that is not certified according to measurement and calibration law. They must, therefore, not be used to rate the measured values.
3. The EMSP must make the billing-relevant data packages available to the customer at the time of billing, including the signature, as a data file in such a way that they can be checked for authenticity using the transparency and display software. The provision can be made via channels that have not been checked under calibration law.

4. The EMSP must make available to the customer the transparency and display software associated with the charging device to check the data packets for authenticity.
5. The EMSP must be able to show in a verifiable manner which means of identification was used to initiate the charging process associated with a specific measured value. This means that they must be able to prove for every business transaction and billed measured value that they have correctly assigned the personal identification data to them. The EMSP must inform its customers of this obligation in an appropriate manner.
6. The EMSP may only use values for billing purposes available in a dedicated memory that may be available in the charging facility or in the memory of the operator of the charging facility. For billing purposes, substitute values are not allowed to be created.
7. The measuring capsule can detect an error in the form of a difference in the meter register readings between charging processes. This error is displayed as a status word "meter reading difference" in the transparency software. The EMSP must monitor and evaluate this status word and must not use values for billing purposes for which a "meter reading difference" occurs. This also includes the charging process that precedes the process in which this "meter reading difference" was detected.
8. The EMSP must make appropriate agreements with the operator of the charging facility to ensure that the data packets used for billing purposes are stored for a sufficient period of time to complete the associated business processes fully.
9. In the event of a justified notification of need for verifications, diagnostic tests and use monitoring measures, the EMSP must provide suitable means of identification to enable authentication on the specimens of the product belonging to these operating instructions used by them.
10. All of the above obligations apply to the EMSP as the meter user within the meaning of Section 33 MessEG, even if it obtains the meter readings from the charging facilities via a roaming service provider.



7. Troubleshooting

DANGER

Servicing and repair of this charging station by a non-qualified person will result in the risk of electric shock, which will cause severe injury or death.

- Only a qualified electrician is permitted to service or repair the charging station.
- The user must not attempt to service or repair the charging station as it does not contain user-serviceable parts.

7.1. Error indication

LED ring	Color	State description	Action
	Red (constant)	An error has occurred.	Follow the instructions shown on the display.
	Off	The power supply has failed.	Check the power supply to the station. Reset the MCB or RCD in the power supply cabinet. For a station with a built-in RCBO, check if the RCBO is open (see Access the RCBO on page 40).

Note

Some error states are solved by switching the power off and on again.

- For stations without a built-in RCBO, switch the power off and on again at the power supply cabinet.
- For stations with a built-in RCBO, switch the power off and on again using the RCBO (see [Access the RCBO on page 40](#)).

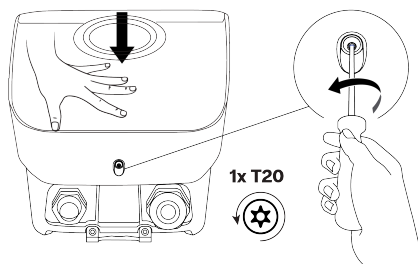
7.2. Access the RCBO

This procedure is only applicable for charging stations that have an built-in RCBO. The RCBO is accessible through an access cover located on the inner cover. Before starting this procedure, make sure that power is being supplied to the charging station.

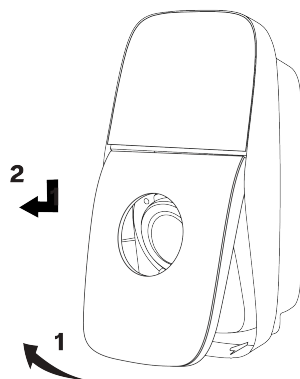
i Note

All security Torx T20 screws are captive. Do not fully remove the captive screws from the charging station.

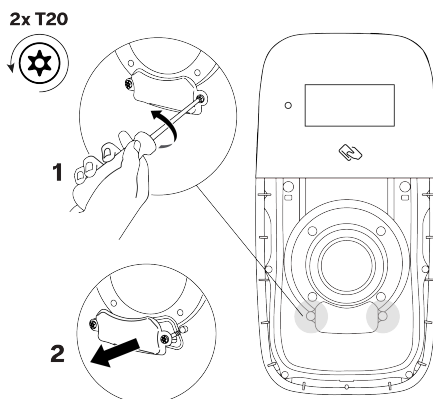
1. If an EV is connected to the charging station, disconnect the EV.
2. Push the front cover against the spring, then loosen one security Torx T20 captive screw that secures the front cover on the charging station.



3. Rotate the front cover up, then disengage the top edge of the front cover from under the bottom edge of the display cover.



4. Loosen two security Torx T20 captive screws. Remove the RCBO cover from the inner cover.

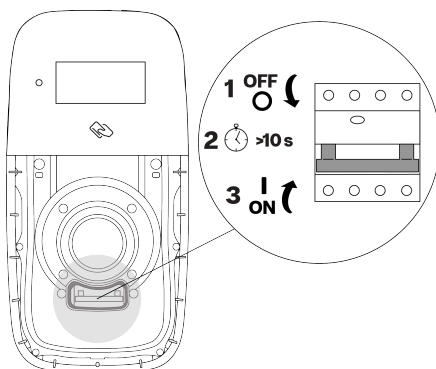


5. To switch the charging station off and then on again, switch off the RCBO, wait 10 seconds, then switch on the RCBO.

The LED ring shows spinning white to indicate that the charging station is booting. The charging station is ready to charge an EV when the LED ring shows steady green.

Note

Type B RCBOs are installed upside down in the charging stations. If the charging station has a Type B RCBO, the on and off directions are reversed.

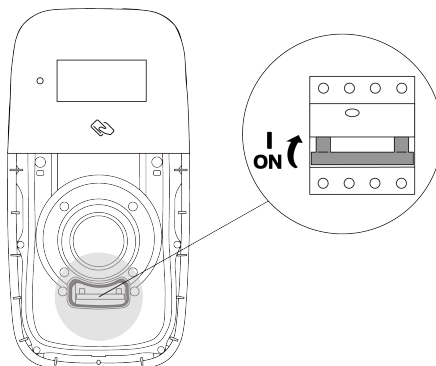


6. For an open RCBO, move the RCBO switch down.

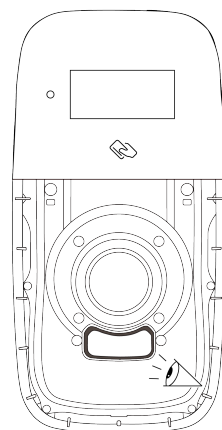
The LED ring shows spinning white to indicate that the charging station is booting. The charging station is ready to charge an EV when the LED ring shows constant green.

Note

Type B RCBOs are installed upside down in the charging stations. If the charging station has a Type B RCBO, the on and off directions are reversed.



7. Check that the seal on the inner cover is clean and free of damage.

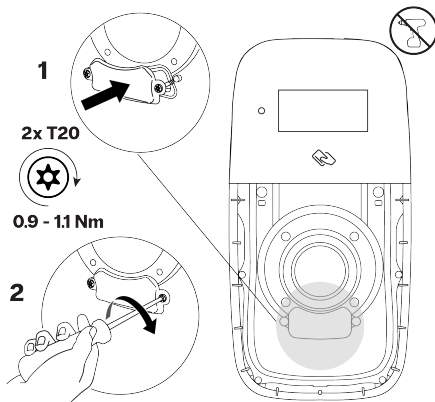


8. Install the RCBO cover on the inner cover. Tighten two security Torx T20 captive screws.

⚠ CAUTION

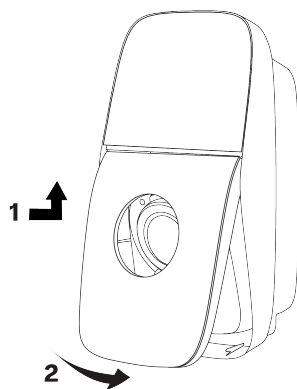
Using a power screwdriver with a high torque can damage the screws and components.

- Use only a low-torque screwdriver with the correct torque setting.



9. Install the front cover as follows:

- a. Engage the top edge of the front cover under the bottom edge of the display cover, then rotate the cover down to align the lower screw hole.

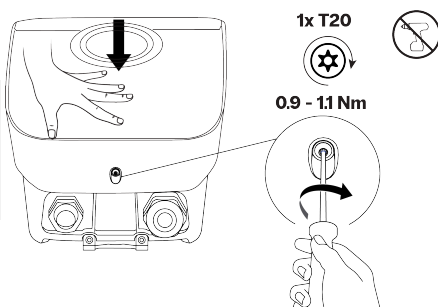


- b. Push the front cover against the spring. Tighten the security Torx T20 captive screw to secure the front cover on the charging station.

⚠ CAUTION



Using a power screwdriver with a high torque can damage the screws and components.

- Use only a low-torque screwdriver with the correct torque setting.



8. Decommissioning

Decommission and recycle the charging station in accordance with the applicable local disposal regulations.

	<p>Do not dispose of this charging station in household waste. Instead, dispose of this charging station at a local collection point for electric/electronic devices in order to enable recycling and thus avoid negative and hazardous impacts on the environment. Ask your city or local authorities for respective addresses.</p>
	<p>Recycling of materials saves raw materials and energy and makes a major contribution to conserving the environment.</p>



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9. Appendix

9.1. Glossary

Abbreviation	Meaning
1P	1-phase power supply (input and output). The station rating is shown on the bottom of the station.
3P	3-phase power supply (input and output). The station rating is shown on the bottom of the station.
AC	Alternating Current.
CMP	Charging Management Platform. The backend platform that links a charging station to the CPO.
CPO	Charging Point Operator. The owner and/or operator of the charging station installation.
DSO	Distribution System Operator. The operator responsible for the electrical power supply network.
EMSP	Electro-Mobility Service Provider.
ESD	Electrostatic discharge.
EV	Electric vehicle.
IK	Impact protection.
IP	Ingress Protection.
RF	Radio Frequency communication.
LAN	Local Area Network.
LED	Light Emitting Diode.
MCB	Miniature Circuit Breaker.
OCPP	Open Charge Point Protocol.
PE	Protective earth or ground.
RCBO	Residual Current Breaker with Over-Current.
RCD	Residual Current Device.

9.2. EU Declaration of Conformity

EVBox B.V. declares that the radio equipment type EVBox Liviqo is in compliance with Directive 2014/53/EU. The full text of the EU Declaration of Conformity is available at help.evbox.com.

Regulatory Information

Technology	Frequency bands	Max. output power
GSM 900	890 MHz – 915 MHz	27.77 dBm
GSM 1800	1710 MHz – 1785 MHz	24.77 dBm
LTE Band 3	1710 MHz – 1785 MHz	28.48 dBm
LTE Band 8	880 MHz – 915 MHz	28.48 dBm
LTE Band 20	832 MHz – 862 MHz	28.48 dBm
LTE Band 28	703 MHz – 748 MHz	28.48 dBm
WLAN (802.11b/g/n)	2412 MHz – 2484 MHz	16.79 dBm
WLAN (802.11a/n/ac)	5150 MHz – 5250 MHz	16.63 dBm
WLAN (802.11a/n/ac)	5725 MHz – 5850 MHz	11.46 dBm
RFID	13.56 MHz	19.00 dBm



101261

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