

# ENSTO

## Ensto Pro EVF200 / EVF300



Installation Instructions  
User Guide



RAK112B\_ENG  
2023-06-27

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# Installation Instructions

## 1. Safety instructions



Electrically skilled person

- The installation must only be done by a qualified professional.
- Read these instructions carefully before you install, operate or maintenance the charging station.
- Obey the instructions in this manual and make sure that the installation complies with national safety regulations, installation methods and restrictions.
- The information provided in this manual in no way exempts the installer or user from responsibility to obey all applicable safety regulations.
- Keep this manual for future installation and maintenance.



**WARNING**

***Danger of electric shock! Risk of fire!***

- ***Improper installation can cause personal injury and property damage.***
- ***Do not switch on the power supply before the installation work is completed.***

## 2. Description of symbols

	WARNING - Indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury or considerable damage to the equipment.
	Electrically skilled person
	Identifier for plug and socket outlet AC / EN62196-2 / Type 2
	Radio-frequency identification reading area for automatical identifying of RFID tags.
	Environmental instructions



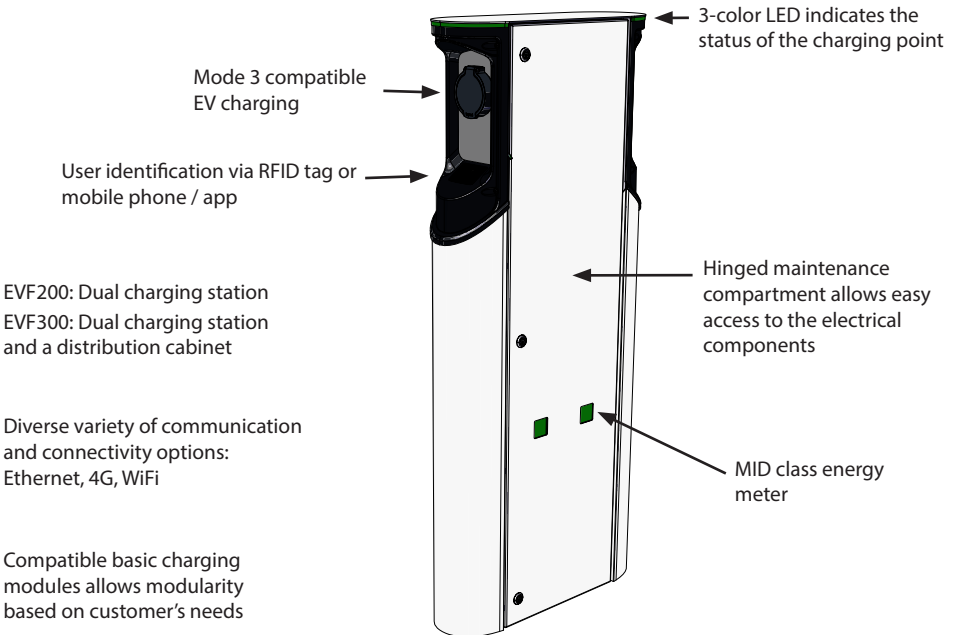
### 3. Abbreviations

Abbreviation	Description
LED	Light Emitting Diode
MCB	Miniature Circuit Breaker, protects cables from over load and short circuits
OCPP	Open Charge Point Protocol, protocol how the charger communicates with the backend systems
RCBO	Residual current Circuit Breaker with Overcurrent protection
RCD	Residual Current Device, protects humans and animals from electric shock
RDC-DD	Residual direct current detecting device
RFID	Radio Frequency Identification, information remote reading/writing system, here used to identify authorized charging point users
USB	Universal Serial Bus, specifications for cables, connectors and protocols
RS-485	Recommended Standard 485, standard defining the electrical characteristics of drivers and receivers for use in serial communications systems

### 4. Delivery contents

- Charging station
- Triangular key
- Installation Instructions / User Guide


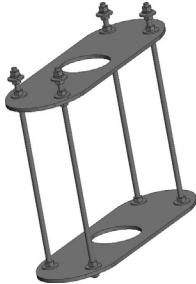
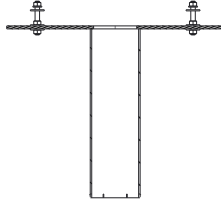
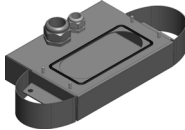
Ensto Pro (EVF) is a solution for charging two electric vehicles.  
It is engineered especially for fast AC charging.



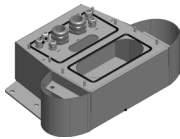
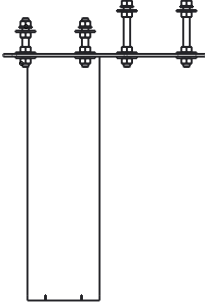
## 5. Accessories - installation method and site

The delivery does not include any installation accessories.

Please order applicable accessories for the selected mounting method separately.

EVF200	
Installation method and site	Accessories
Ground mounting on concrete at site	 <p>Anchor bolts from a local supplier</p>
Ground mounting on ground mounting frame	 <p>EVTL32.00: Ground mounting box, cable entry from bottom</p> <p>or</p> <p>EVTL28.00: Ground mounting frame</p>
Ground mounting on concrete foundation	 <p>Concrete foundation, product code SJR-08 from Sähkö-Jokinen Oy, <a href="https://www.sahkojokinen.fi/en">https://www.sahkojokinen.fi/en</a></p> <p>EVTL36.00: Adapter</p>
Ground mounting on Unimi concrete foundation	 <p>From Unimi Solutions: Concrete foundation, product code 100-1 Cover plate Adapter, product code 100-13 <a href="http://www.unimi.se">www.unimi.se</a></p> <p>EVTL34.00: Ground mounting box, cable entry from top</p>

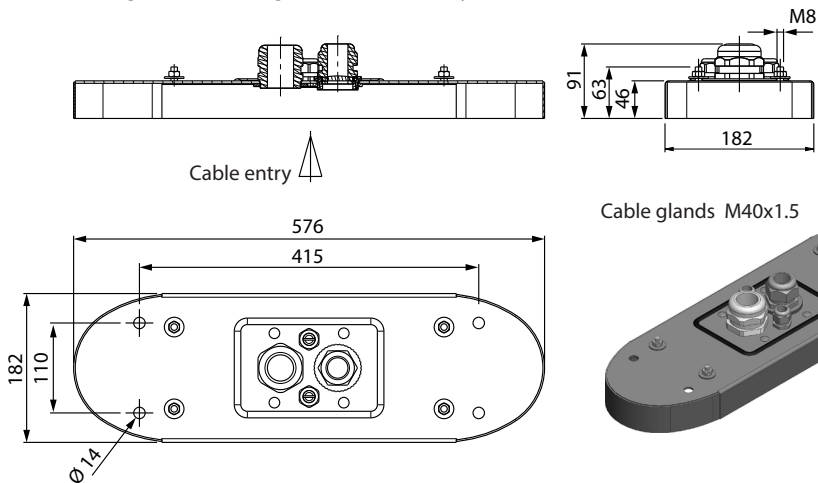


EVF300	
Installation method and site	Accessories
Ground mounting on concrete at site	Anchor bolts from a local supplier
Ground mounting on concrete foundation	 <p><b>EVTL35.00:</b> Ground mounting box</p>  <p><b>EVTL37.00:</b> Adapter</p> <p>Concrete foundation, product code SJR-08 from Sähkö-Jokinen Oy, <a href="https://www.sahkojokinen.fi/en">https://www.sahkojokinen.fi/en</a></p>

## 6. Accessories - order numbers and dimensions

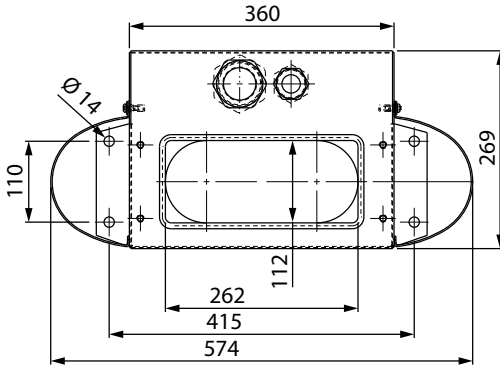
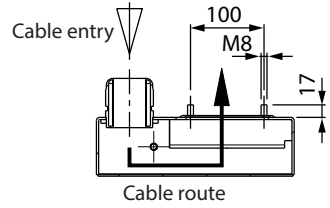
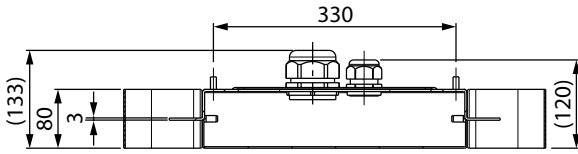
### EVTL32.00 ground mounting box for EVF200

EVTL32.00 is a ground mounting box with cable entry from bottom.

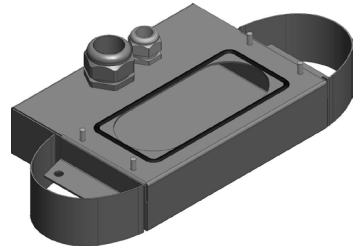


### EVTL34.00 ground mounting box for EVF200

EVTL34.00 is a ground mounting box with cable entry from top.

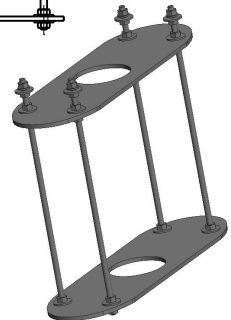
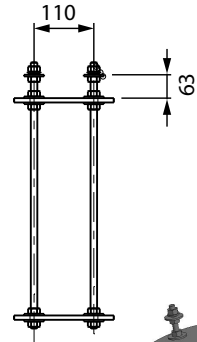
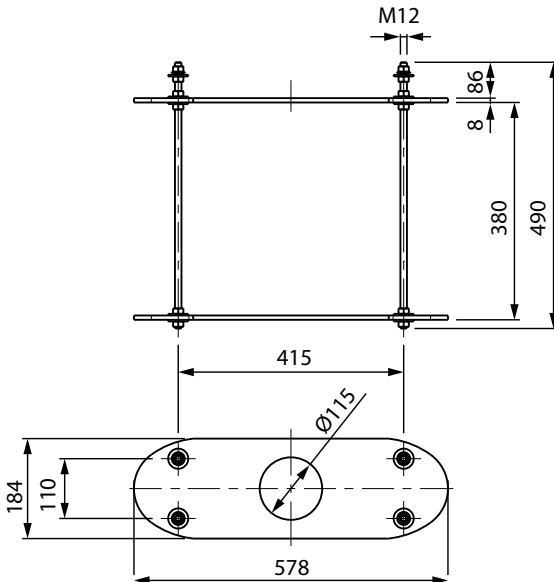


Cable glands M40x1.5



### EVTL28.00 Ground mounting frame for EVF200

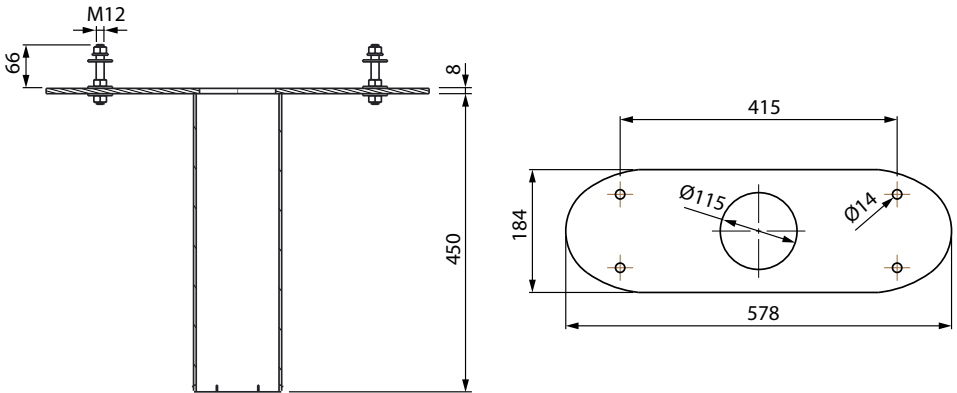
EVTL28.00 is a whole set as shown on the picture.



## EVTL36.00 concrete foundation adapter for EVF200

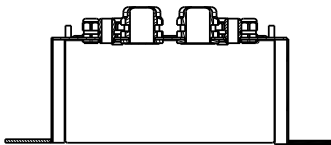
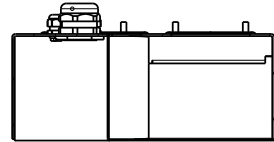
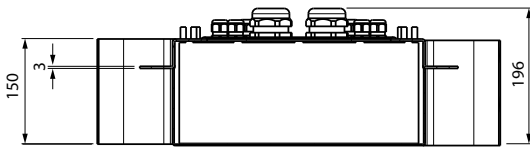
The concrete foundation adapter is designed to be used with a concrete foundation, product code SJR-08, supplied by Sähkö-Jokinen Oy. Please order the foundation from: <https://www.sahkojokinen.fi/en>

*If you want to use a foundation from another manufacturer, make sure that the foundation is compatible with the adapter.*

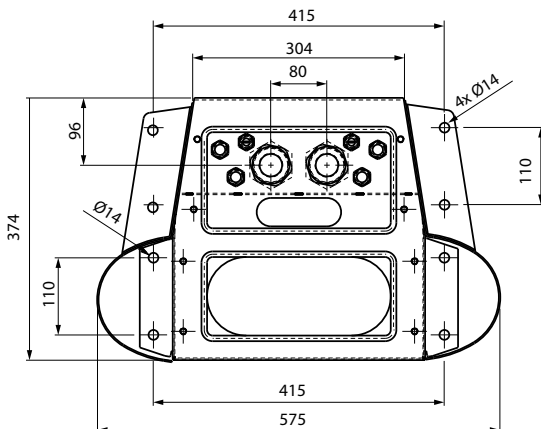
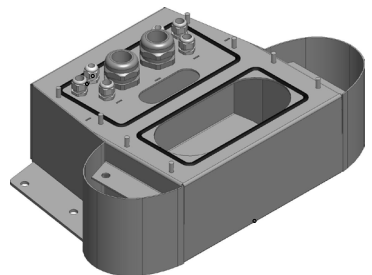


## EVTL35.00 mounting box for EVF300

EVTL35.00 is a ground mounting box with cable entry from bottom to the main board.



Cable glands M40x1.5

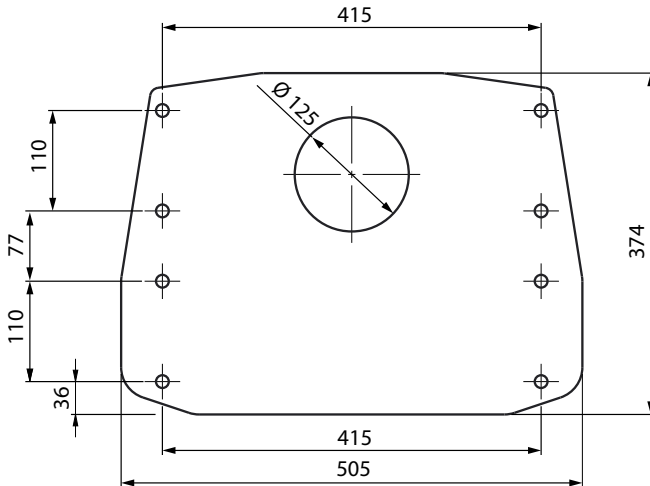
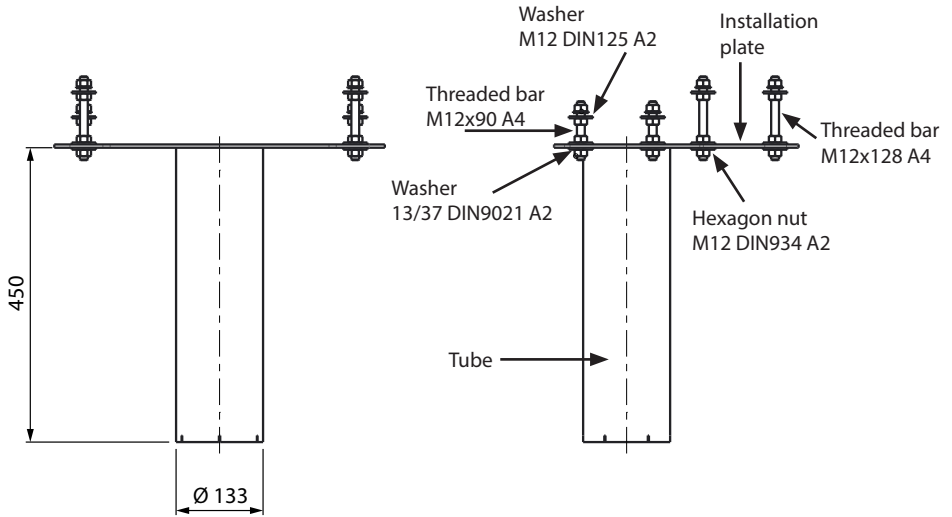




## EVTL37.00 concrete foundation adapter for EVF300

The concrete foundation adapter is designed to be used with Sähkö-Jokinen SJR-08 foundation. Please order the foundation from: <https://www.sahkojokinen.fi/en>

*If you want to use a foundation from another manufacturer, make sure that the foundation is compatible with the adapter.*



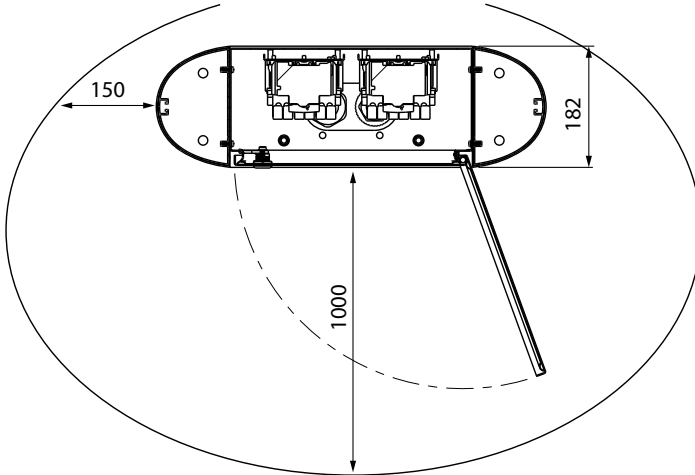
## 7. Mounting instructions

### 7.1. Before installation

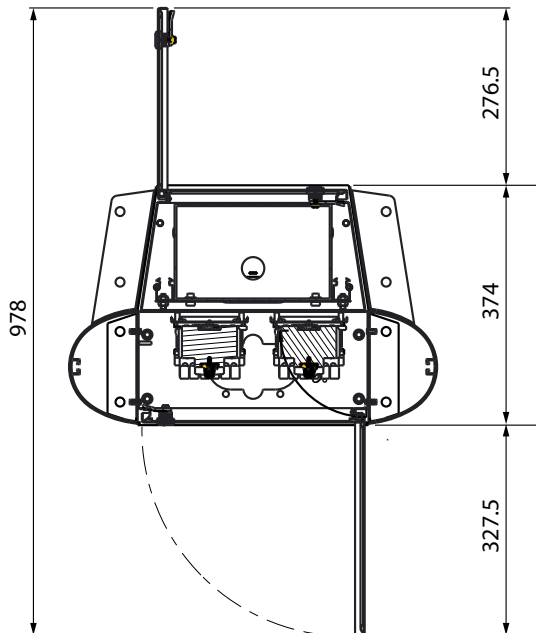
Remove the package around the charging station. Remove the film protecting the metal parts only after the installation is completed.

**Note!** When you select the installation location, take into consideration the minimum space necessary for operating and maintenance.

EVF200



EVF300



## 7.2. EVF200 mounting on concrete casting at site

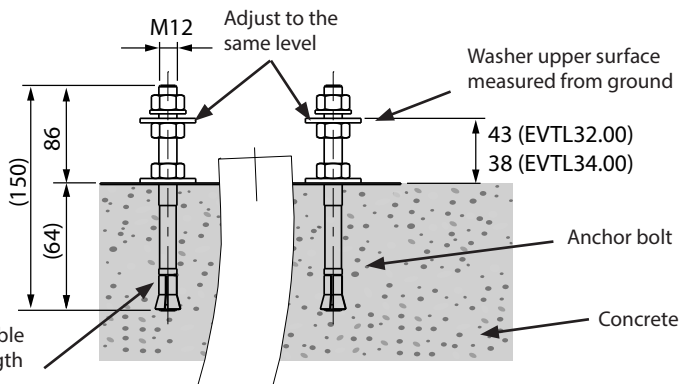
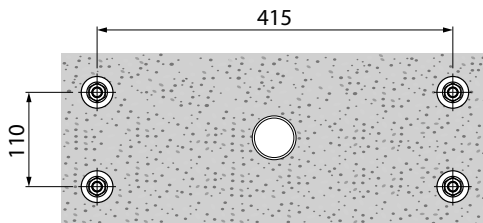
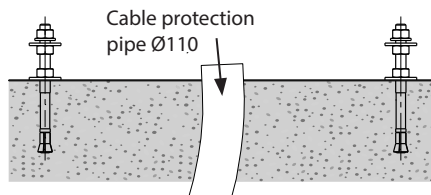
Installation accessories	Ground mounting box EVTL32.00 / EVTL34.00	1 pcs
	Anchor bolts M12	4 pcs
	Washers	
	Nuts	

**Make sure that the materials used for the concrete foundation and the installation procedures follow local building regulations and safety standards.**

- Dig a trench for cable conduits and an excavation pit for the concrete foundation. The pit floor should be compacted and level.
- Put cable and possible drain pipes in place.
- Fill the pit with concrete.
- Let the concrete cure, make sure that the surface stays level during the process.

### Installation steps

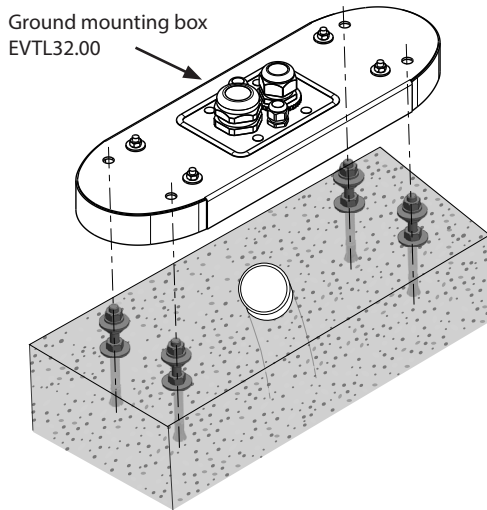
1. Drill a hole in the concrete for the anchor bolts. For more information see the anchor bolt instructions. Use the ground mounting box as a jig.



Select anchor bolts applicable for the thickness and strength of the concrete



2. Put the anchor bolts in place and tighten the anchor bolt nuts.
3. Adjust the upper nuts and washers on the anchor bolts horizontally. Use a spirit level.
4. Attach the mounting box to the anchor bolts with applicable washers and nuts.



5. **EVTL32.00:** Pull electrical cables through the ground mounting box cable gland(s) approx. 400 mm measured from the upper surface of the mounting box.  
**EVTL34.00:** Pull electrical cables through the ground mounting box cable gland(s) and further through the mounting box cable hole approx. 400 mm measured from the upper surface of the mounting box.
6. Tighten the cable gland(s). Close the unused cable entries with cable gland plugs.
7. Open the maintenance door of the charging station.
8. Remove the nuts and the washers from the ground mounting box.
9. Lift the charging station on the ground mounting box. Pull the electrical cables through the cable hole.
10. Attach the charging station in place with the washers and the nuts you removed from the ground mounting box.
11. **EVTL32.00:** Remove the supply cable sheath at the length of max. 200 mm.  
**EVTL34.00:** Remove the supply cable sheath beginning from the cable gland exit.
12. Cut the supply cable conductors to applicable lengths. The earth conductor must be long enough, so that if a fault occurs it is the last one that comes loose.
13. Strip the supply cable conductors 25 mm.
14. Connect the supply cable wires to the supply terminal blocks.
15. Make sure that the PE is connected to the charging station.
16. Switch on F0, F1, F2 (if present) and QF1.
17. Close the maintenance door.

### 7.3. EVF200 mounting on ground mounting frame

Installation accessories	Ground mounting frame EVTL28.00	1 pcs
	Ground mounting box EVTL32.00 / EVTL34.00	1 pcs

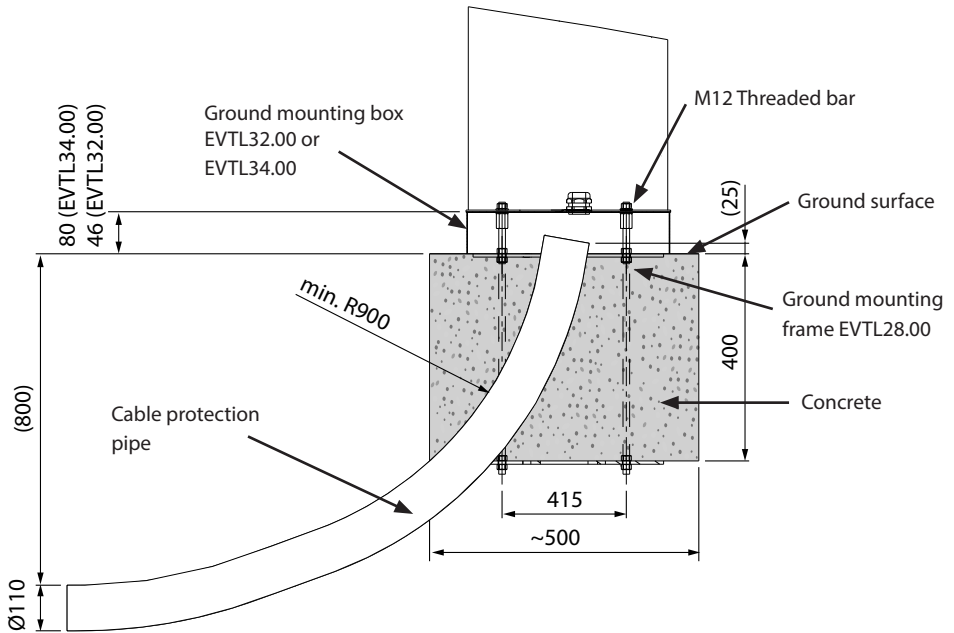
*Make sure that the materials used for the concrete foundation and the installation procedures follow local building regulations and safety standards.*

- Plan the installation depth so that the top surface of the ground mounting frame is flush with the final ground surface. Take into consideration the possible paving materials.
- Dig a trench for cable conduits and an excavation pit (depth approximately 490 mm) for the concrete foundation. The pit floor should be compacted and level.
- Put the ground mounting frame into the pit.
- Put cable and possible drain pipes in place.
- Pour concrete over the frame and pipes.
- Let the concrete cure. Make sure that the surface stays level during the process.

#### Installation steps

1. Remove the upper nuts and washers from the top of the ground mounting frame bolts.
2. Put the mounting box on the mounting frame.
3. Adjust the nuts on the mounting frame bolts so that the top surface of the mounting box is horizontal.
4. **EVTL32.00:** Pull electrical cables through the ground mounting box cable gland(s) approx. 400 mm measured from the upper end of the mounting box.  
**EVTL34.00:** Pull electrical cables through the ground mounting box cable gland(s) and further through the mounting box cable hole approx. 400 mm measured from the upper end of the mounting box.
5. Tighten the cable gland. Close the unused cable entries with cable gland plugs.
6. Open the maintenance door of the charging station.
7. Remove the nuts and the washers from the ground mounting box.
8. Lift the charging station on the mounting box. Pull the electrical cables through the cable hole.
9. Attach the charging station in place with the washers and the nuts you removed from the ground mounting box.
10. **EVTL32.00:** Remove the supply cable sheath at the length of max. 200 mm.  
**EVTL34.00:** Remove the supply cable sheath beginning from the cable gland exit.
11. Cut the supply cable conductors to applicable lengths. The earth conductor must be long enough, so that if a fault occurs it is the last one that comes loose.
12. Strip the supply cable conductors 25 mm.
13. Connect the supply cable wires to the supply terminal blocks.
14. Make sure that the PE is connected to the charging station.
15. Switch on F0, F1, F2 (if present) and QF1.
16. Close the maintenance door.





#### 7.4. EVF200 mounting on concrete foundation

Installation accessories	Ground mounting box EVTL32.00 / EVTL34.00	1 pcs
	Adapter for concrete foundation EVTL36.00	1 pcs
	Concrete foundation	1 pcs

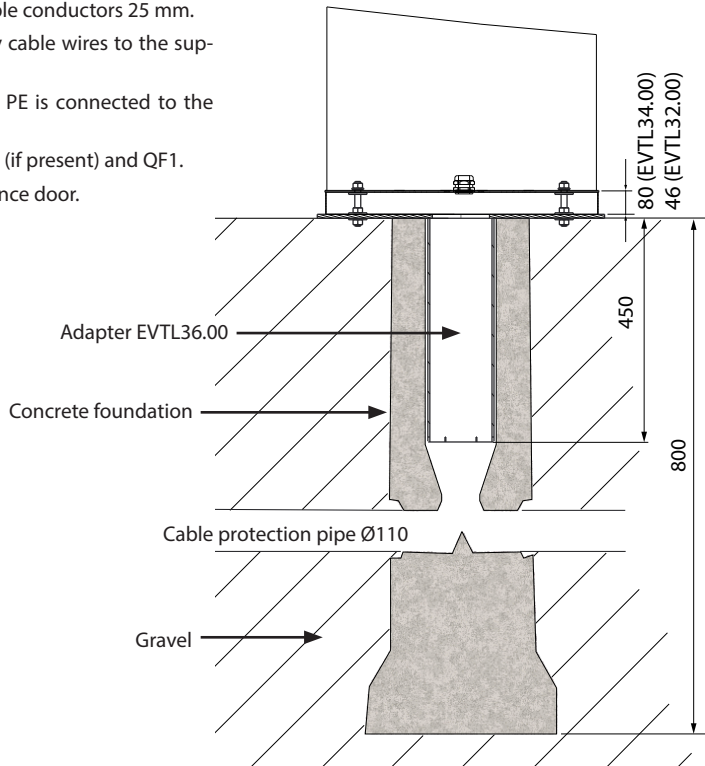
This example describes the installation procedure when using a concrete foundation supplied by Sähkö-Jokinen Oy, product code SJR-08.

*If you want to use a foundation manufactured by another supplier, make sure that the foundation is compatible with the adapter.*

- Plan the installation depth so that the top surface of the adapter is above the ground surface. Take into consideration the possible paving materials.
- Dig a trench for cable conduits and an excavation pit for the concrete foundation to applicable depths.
- Lift the foundation into the pit.
- Put cable and possible drain pipes in place. Install the pipes in relevant inlets.
- Close the unused inlets with plugs.
- Tighten the foundation to its place by filling the excess space outside the foundation with gravel.

## Installation steps

1. Assemble the concrete foundation adapter.
2. Attach the mounting box EVTL32.00 / EVTL34.00 on the concrete foundation adapter EVTL36.00 and put the assembly on the concrete foundation.
3. Attach the assembly in place. Use the screws on the concrete foundation.
4. **EVTL32.00:** Pull electrical cables through the ground mounting box cable gland(s) approx. 400 mm measured from the upper end of the mounting box.  
**EVTL34.00:** Pull electrical cables through the ground mounting box cable gland(s) and further through the mounting box cable hole approx. 400 mm measured from the upper end of the mounting box.
5. Tighten the cable gland. Close the unused cable entries with cable gland plugs.
6. Open the maintenance door of the charging station.
7. Remove the nuts and the washers from the ground mounting box.
8. Lift the charging station on the mounting box. Pull electrical cables through the cable hole.
9. Attach the charging station in place with the washers and the nuts you removed from the ground mounting box.
10. **EVTL32.00:** Remove the supply cable sheath at the length of max. 200 mm.  
**EVTL34.00:** Remove the supply cable sheath beginning from the cable gland exit.
11. Cut the supply cable conductors to applicable lengths. The earth conductor must be long enough, so that if a fault occurs it is the last one that comes loose.
12. Strip the supply cable conductors 25 mm.
13. Connect the supply cable wires to the supply terminal blocks.
14. Make sure that the PE is connected to the charging station.
15. Switch on F0, F1, F2 (if present) and QF1.
16. Close the maintenance door.



## 7.5. EVF200 mounting on Unimi concrete foundation

This example describes the installation procedure when a concrete foundation supplied by Unimi Solutions is used.

<b>Installation accessories</b>	Ground mounting box EVTL32.00 / EVTL34.00	1 pcs
	Please order the following items from <a href="http://www.unimi.se">www.unimi.se</a>	
	Concrete foundation Ensto Pro, product code 100-1	1 pcs
	Cover plate	1 pcs
	Ensto EVF compatible adapter element, product code 100-13	1 pcs

### Installation steps

**Figure 1**

- Dig a trench for cable conduits and an excavation pit for the concrete foundation to applicable depths. The pit floor should be compacted and level.
- Adjust the depth of the pit so that the top of the foundation will be flush with the final surrounding ground surface. Take into consideration the possible paving materials.
- Close the unused conduit openings with plugs included in the foundation delivery.
- Lift the foundation into the installation pit. You can use the attachment bar embedded in the foundation as a lifting point. Make sure that the mounting bar is in a direction that enables the installation of the charging station in correct position.
- Put cable conduits into the trenches and install the conduits to relevant inlets.
- Pull electric cables through the conduits into the foundation.



**Figure 2**

- Tighten the foundation to its place by filling the excess space outside the foundation with gravel.
- Set the final layer of gravel so that the top of the foundation will be flush with ground or the final paving material.
- Always put a cover plate on the foundation if the charging station is installed in a separate session than the foundation.



**Figure 3**

- Remove the cover plate before you start the installation work.





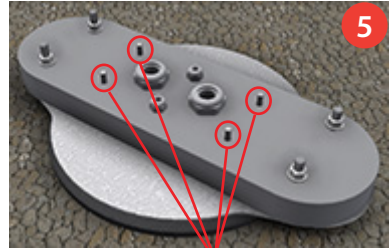
**Figure 4**

- Put the adapter element on the foundation.
- Attach the adapter element to the foundation attachment bar with bolts 3 pcs (included).
- Remove the upper nuts and upper pair of washers from the adapter element. (Make sure that there is one polyamide washer on each side of the mounting box.)
- Pull the supply cable and the possible data cable through the hole in the center of the adapter.



**Figure 5**

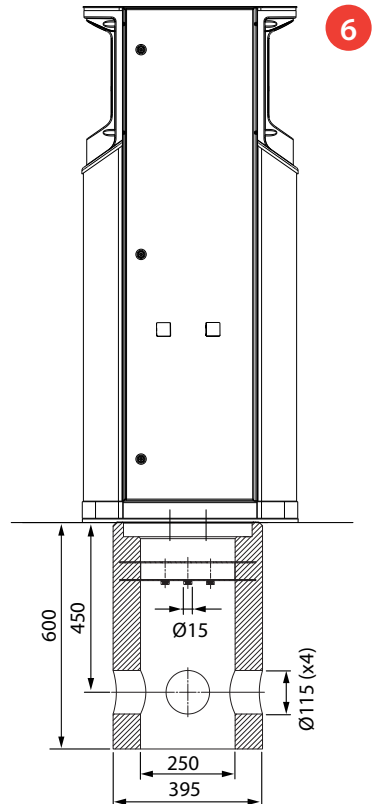
- Put the mounting box on the adapter element.
- Attach the mounting box in place with the washers and the nuts you removed from the adapter element. (Make sure that there is one polyamide washer on each side of the mounting box.)
- Handy hint to adjust the mounting box level: First flip the mounting box upside down and put the nuts under it so that the mounting box is horizontal. Then flip the mounting box over again and tighten the upper nuts and washers.
- **EVTL32.00:** Pull electrical cables through the ground mounting box cable gland(s) approx. 400 mm measured from the upper end of the mounting box.
- **EVTL34.00:** Pull electrical cables through the ground mounting box cable gland(s) and further through the mounting box cable hole approx. 400 mm measured from the upper end of the mounting box.
- Tighten the cable gland. Close the unused cable entries with cable gland plugs.



Attach the EVF in correct position with bolts

**Figure 6**

- Open the maintenance door of the charging station.
- Remove the nuts and washers from the ground mounting box.
- Lift the charging station on the mounting box and pull the electrical cables through the cable hole.
- Attach the charging station in place with the washers and the nuts you removed from the ground mounting box.
- **EVTL32.00:** Remove the supply cable sheath at the length of max. 200 mm.
- **EVTL34.00:** Remove the supply cable sheath beginning from the cable gland exit.
- Cut the supply cable conductors to applicable lengths. The earth conductor must be long enough, so that if a fault occurs it is the last one that comes loose.
- Strip the supply cable conductors 25 mm.
- Connect the supply cable wires to the supply terminal blocks.
- Make sure that the PE is connected to the charging station.
- Switch on F0, F1, F2 (if present) and QF1.
- Close the maintenance door.

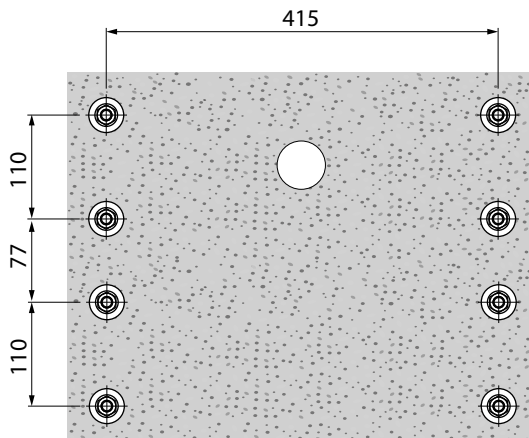
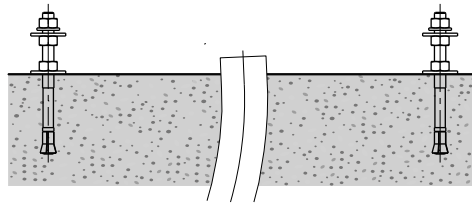


## 7.6. EVF300 mounting on concrete casting at site

Installation accessories	Ground mounting box EVTL35.00	1 pcs
	Anchor bolts M12	8 pcs
	Washers	
	Nuts	

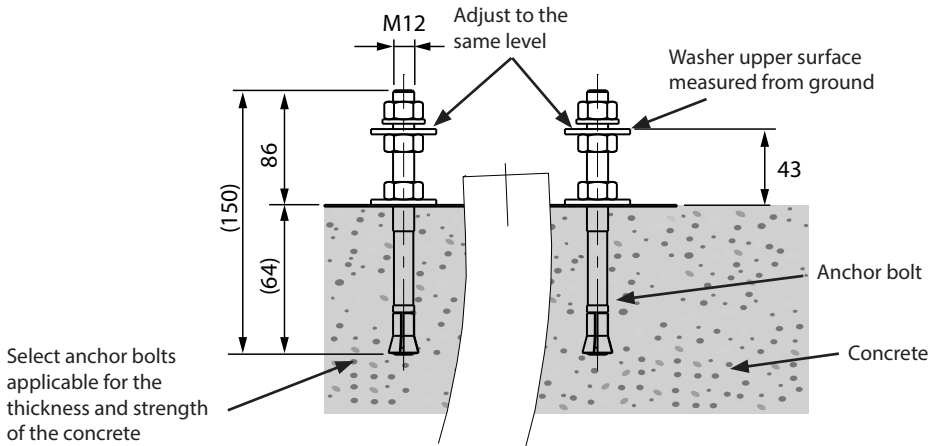
***Make sure that the materials used for the concrete foundation and the installation procedures follow local building regulations and safety standards.***

- Dig a trench for cable conduits and an excavation pit for the concrete foundation. The pit floor should be compacted and level.
- Install the cable pipes for supply and output chaining and, if necessary, the cable pipe for the data cable into the ground.
- Fill the pit with concrete.
- Let the concrete cure, make sure the surface stays level during the process.

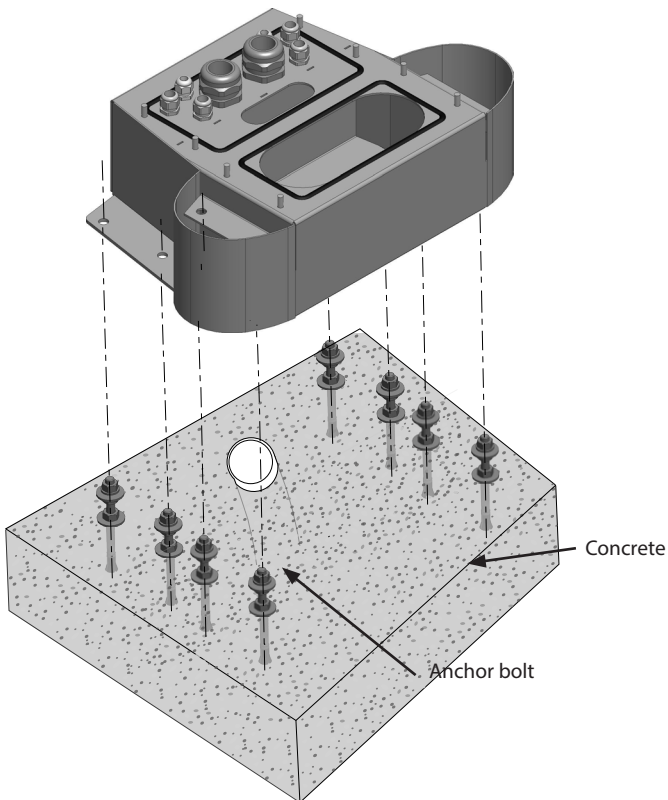


### Installation steps

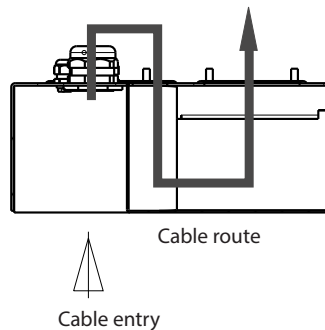
1. Drill a hole in the concrete for the anchor bolts. For more information see the anchor bolt instructions. Use the ground mounting box as a jig.
2. Put the anchor bolts in place and tighten the anchor bolt nuts.
3. Adjust the upper nuts and washers on the anchor bolts horizontally. Use a spirit level.



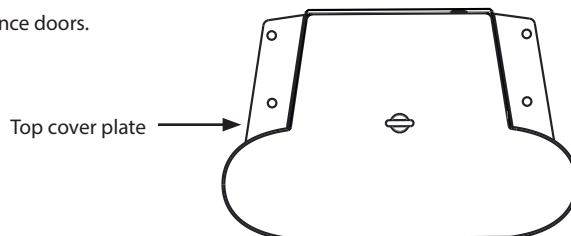
4. Attach the mounting box to the anchor bolts with applicable washers and nuts.
5. Pull electrical cables through the ground mounting box cable gland(s) approx. 450 mm measured from the upper surface of the mounting box.
6. Tighten the cable gland(s). Close the unused cable entries with cable gland plugs.



7. Remove the nuts and the washers from the ground mounting box.
8. Open the maintenance door of the distribution cabinet.
9. Lift the distribution cabinet module on the mounting box and attach it in place, max. tightening torque 14 Nm.
10. Remove the supply cable sheath at the length of max. 200 mm.
11. Cut the supply cable conductors to applicable lengths. The earth conductor must be long enough, so that if a fault occurs it is the last one that comes loose.
12. Strip the supply cable conductors 25 mm.
13. Connect the supply cable wires to the power connectors in the distribution cabinet.
14. Make sure proper strain relief to the cable by fastening the cable with e.g. MUPRO EuroQuick. Select an applicable strain relief according to the cable diameter.
15. Connect the supply to the charging points with intervening connection cables. The intervening connection cables are pre-connected to the power connectors in the distribution cabinet.



16. Pull the intervening connection cables first down through the mounting box hole on the distribution cabinet side and then up through the mounting box hole on the charging point side.
17. Open the maintenance door of one charging point.
18. Lift the charging point module on the mounting box and attach it in place with bolts, max. tightening torque 14 Nm.
19. Connect the intervening connection cable conductors to the supply terminal blocks located in the maintenance space of the charging point, max. tightening torque 12 Nm.
20. Make sure that the PE is connected to the charging point.
21. Switch on F0, F1, F2 (if present) and QF1.
22. Install the other charging point module accordingly.
23. Attach the top cover plate on the charging station modules with the washer and the screw included in the delivery.
24. Close the maintenance doors.



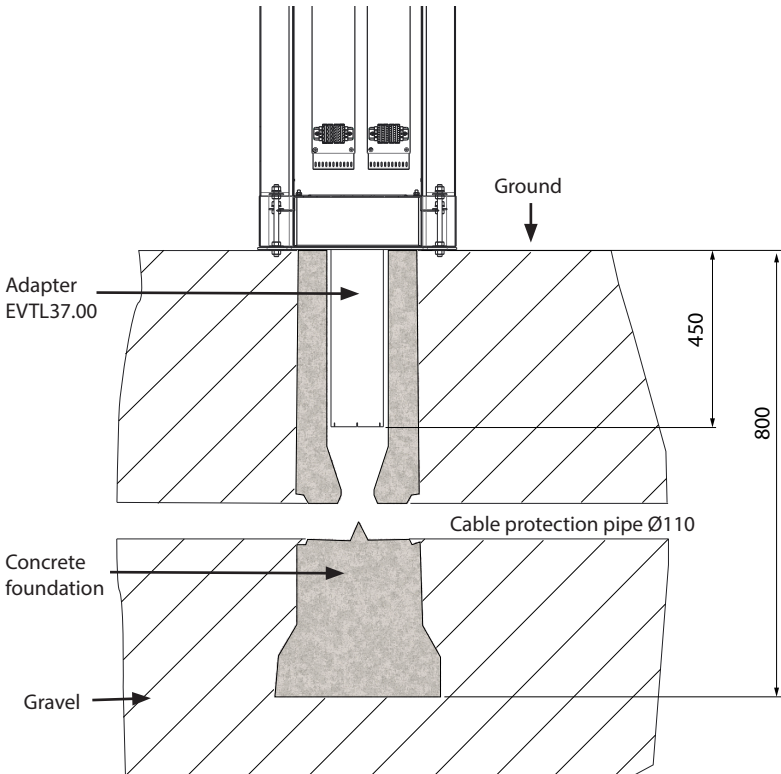
## 7.7. EVF300 mounting on concrete foundation

Installation accessories	Mounting box EVTL35.00	1 pcs
	Adapter for concrete foundation EVTL37.00	1 pcs
	Concrete foundation	1 pcs

This example describes installation procedure when using a concrete foundation supplied by Sähkö-Jokinen Oy, product code SJR-08.

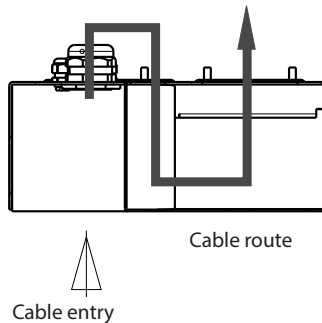
*If you want to use a foundation manufactured by another supplier, make sure that the foundation is compatible with the adapter.*

- Plan the installation depth so that the top surface of the adapter is above the ground surface. Take into consideration the possible paving materials.
- Dig a trench for cable conduits and an excavation pit for the concrete foundation to applicable depths.
- Lift the foundation into the pit.
- Put cable pipes for supply and output chaining and, if necessary, the cable pipe for the data cable into the ground. Install the pipes in relevant inlets.
- Close the unused inlets with plugs.
- Tighten the foundation to its place by filling the excess space outside the foundation with gravel.

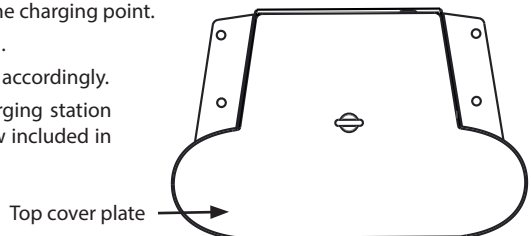


## Installation steps

1. Assemble the concrete foundation adapter.
2. Attach the mounting box EVTL35.00 on the concrete foundation adapter EVTL37.00 and put the assembly on the concrete foundation.
3. Attach the assembly in place. Use the screws on the concrete foundation.
4. Pull electrical cables through the ground mounting box cable gland(s) approx. 450 mm measured from the upper surface of the mounting box.
5. Tighten the cable gland. Close the unused cable entries with cable gland plugs.
6. Open the maintenance door of the distribution cabinet.
7. Lift the distribution cabinet module on the mounting box and attach it in place, max. tightening torque 14 Nm.
8. Remove the supply cable sheath at the length of max. 200 mm.
9. Cut the supply cable conductors to applicable lengths. The earth conductor must be long enough, so that if a fault occurs it is the last one that comes loose.
10. Strip the supply cable conductors 25 mm.
11. Connect the supply cable wires to the power connectors in the distribution cabinet.
12. Make sure proper strain relief to the cable by fastening the cable with e.g. MUPRO EuroQuick. Select an applicable strain relief according to the cable diameter.
13. Connect the supply to the charging points with intervening connection cables. The intervening connection cables are pre-connected to the power connectors in the distribution cabinet.



14. Pull the intervening connection cables first down through the mounting box hole on the distribution cabinet side and then up through the mounting box hole on the charging point side.
15. Open the maintenance door of one charging point.
16. Lift the charging point module on the mounting box and attach it in place with bolts, max. tightening torque 14 Nm.
17. Connect the intervening connection cable conductors to the supply terminal blocks located in the maintenance space of the charging point, max. tightening torque 12 Nm.
18. Make sure that the PE is connected to the charging point.
19. Switch on F0, F1, F2 (if present) and QF1.
20. Install the other charging point module accordingly.
21. Attach the top cover plate on the charging station modules with the washer and the screw included in the delivery.
22. Close the maintenance doors.



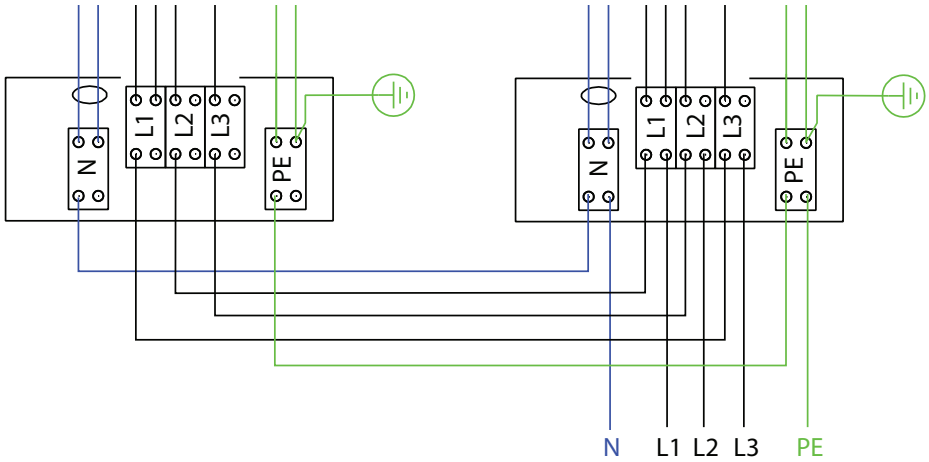
## 8. Supply connections

*The voltage and current ratings including cables and line protector dimensioning must comply with national regulations. System dimensioning must be done by a qualified electrical designer.*

### EVF200

Possible supply connections:

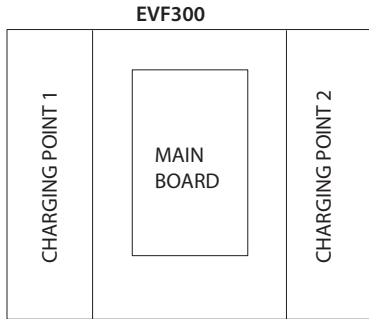
- Use separate supply cables for each charging point
- Use one supply cable and chain internally to the charging points



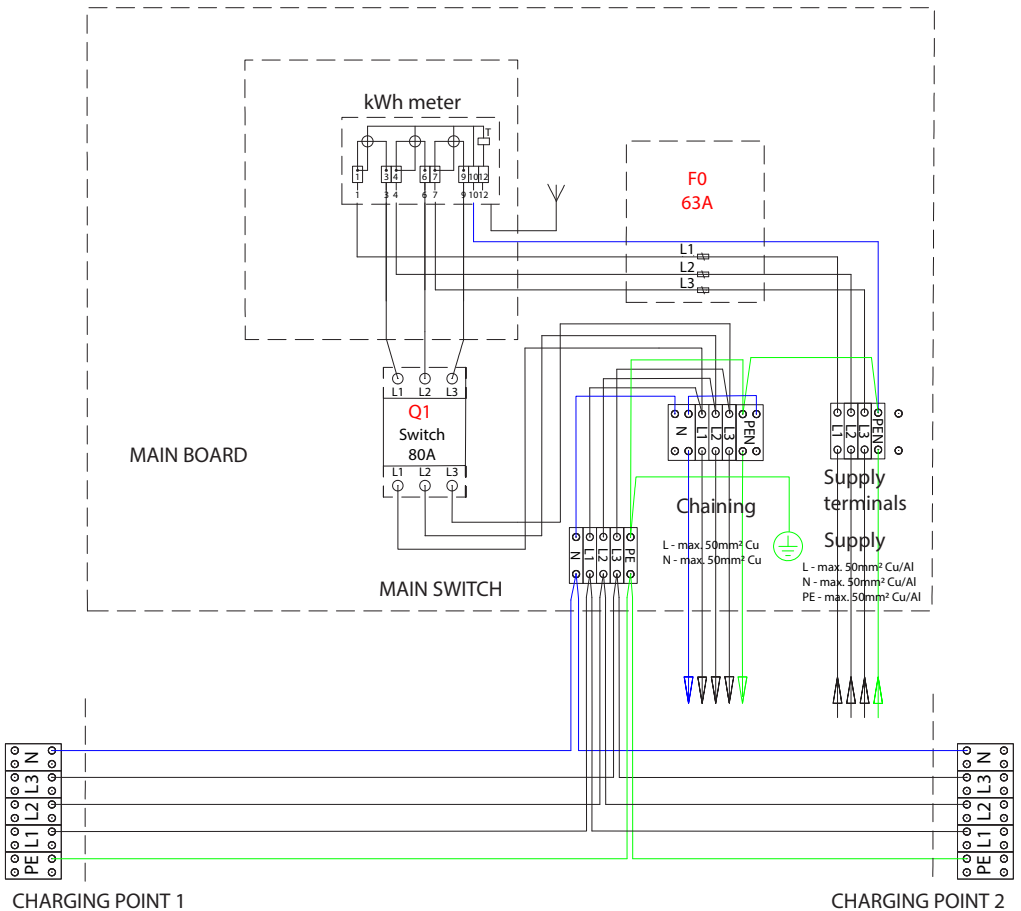
## EVF300 Internal Circuit, Main Board Example

The distribution cabinet is delivered empty.

The layout and contents varies depending on local needs and requirements.



### EXAMPLE OF LAYOUT



NOTE! If phase rotation is necessary, it can be done with charging point 1 and 2 supply terminals (L1, L2, L3). The phase rotation must be done in accordance with the electrical plan.



## 9. Commissioning

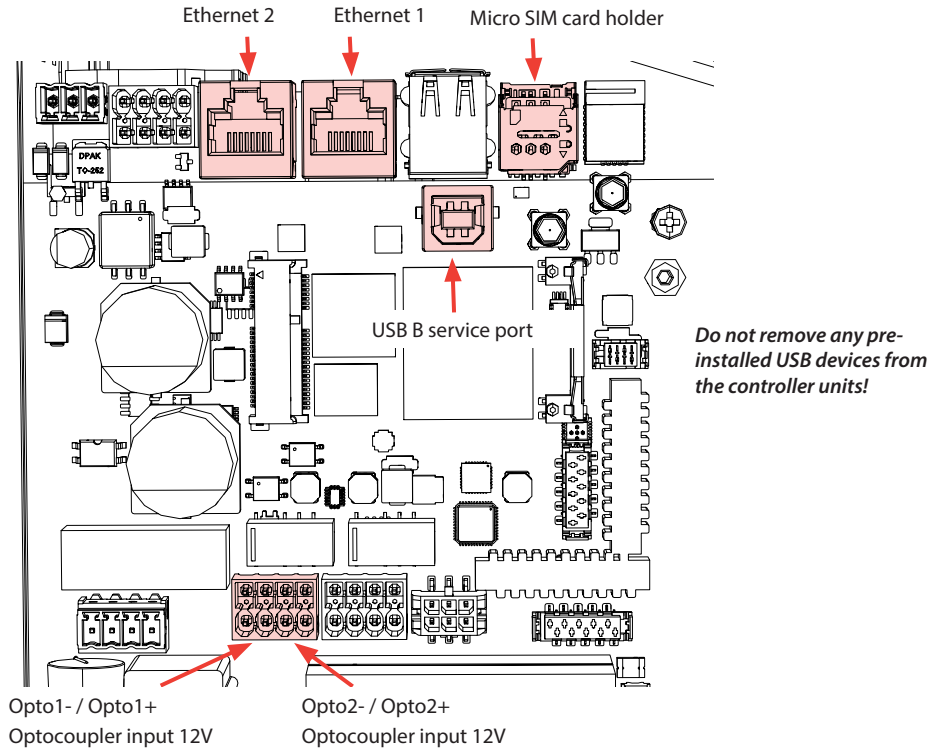
Before commissioning the charging station must be installed according to the installation instructions.

By default all charging stations are operating in free charging mode (standalone operation). In this free charging mode external communication (Ethernet, 4G, LAN or WiFi) is not active. If you connect the charging station to some back-office (online mode), first make sure that the basic functionality is working before establishing communication.

### 9.1. View of the component layout on the control unit

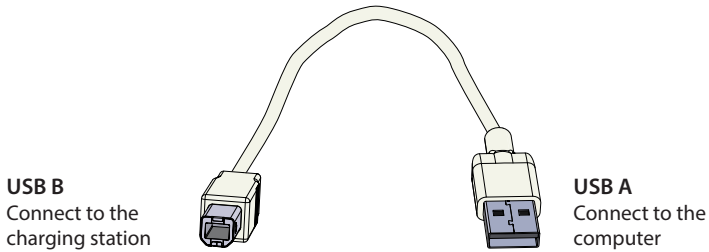
Component	Connection	Note
USB B Service port	Computer to the charging station	Connect to the right side
Ethernet 1 / 2	Ethernet communication cable	Connect input to the left side
Micro SIM card holder	Connection to mobile network	The holder is on the left side
Optocoupler input (+ / - 12V)	Control of charging event via external device / input	External input operation must be configured on charging station settings. Please ask your Ensto representative for details.

#### Control unit on the left side



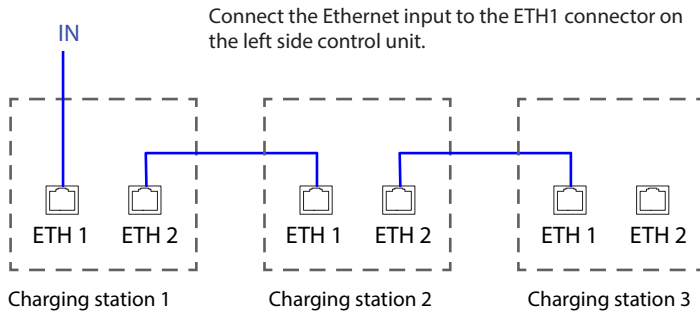
## 9.2. Connecting to the charging station

If you want to change the default settings, you must connect to the charging station via web configuration tool to be able to start configure the commissioning settings. Use Firefox, Chrome or Windows Edge web-browser for configuring.



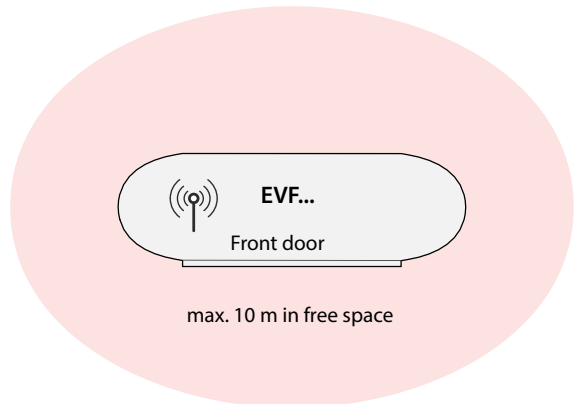
## 9.3. Ethernet connections

Chaining the Ethernet connections is allowed.



## 9.4. WiFi coverage area

Examine the available signal strength to make sure that the communication (4G, WiFi), reception and connectivity are working.



If you want to use a WiFi network, first do a WiFi survey to make sure that the network works correctly. The survey helps you to identify potential issues and optimize coverage.

### General steps how to do a WiFi survey

1. Plan the survey.  
Define the purpose of the survey: estimate coverage, identify dead spots, optimize performance etc. Define the survey areas, including indoor and outdoor spaces.
2. Collect necessary tools.  
Get a WiFi survey tool or software. There are various free and commercial options available, such as Ekahau, NetSpot and Acrylic Wi-Fi Home.
3. Prepare the survey environment.  
Make sure that the WiFi network is working. Make sure that in the survey area are not any objects or interference sources that may affect signal propagation, such as large metal objects or other electronic devices.
4. Configure survey settings.  
Set the parameters in the survey tool based on your requirements. Select the appropriate frequency bands (2.4 GHz), set the channel width and specify the survey duration.
5. Do the survey.  
Walk through the survey area by following a systematic path, while the survey tool records the WiFi signal strength and other relevant data. Take note of the specific locations where measurements are taken.
6. Analyze the survey data.  
After the survey is completed, use features of the survey tool to analyze the collected data. Look for areas with low signal strength, high interference, or excessive co-channel and adjacent-channel interference. Identify potential sources of interference or coverage gaps.
7. Take corrective measures.  
Based on the survey results, take necessary actions to optimize the WiFi network. You may have to adjust access point placement, modify channel assignments, install additional access points or install additional repeaters to improve coverage.
8. Repeat the WiFi survey if necessary.  
If important changes are made to the network infrastructure or if you want further optimization, do additional surveys to evaluate the effectiveness of the modifications.

To get accurate results use professional tools which are intended for WiFi surveys. We recommend that you consult with a wireless network specialist or professional if you want in-depth analysis or troubleshooting assistance. Take into consideration that the WiFi environment is by nature changing, so it can change during the life cycle of the charging system.

Please see detailed commissioning instructions on <https://evwiki.ensto.technology/>



## 10. Technical data

Electrical connections	EVF200 / EVF300
Nominal supply voltage	1-ph/3-ph, 230/400VAC
Nominal frequency	AC 50 Hz
Nominal supply current	3× 63A
Charging power (nominal)	22kW per charging outlet, 2x 3 x 32A
Supply connections and terminals	L1, L2, L3, N, PE Cu 2.5–50 mm <sup>2</sup> (according to supply current and local regulations) Tightening torque: 4 Nm (2.5 - 4 mm <sup>2</sup> ), 10 Nm (6 - 50 mm <sup>2</sup> )

Design and mechanics	EVF200 / EVF300
Material	Painted aluminium and stainless steel
Color	RAL9016S "Traffic White"
Weight	<b>EVF200B-A4BC:</b> approx. 41 kg <b>EVF200B-B4BC:</b> approx. 42 kg <b>EVF300:</b> approx. 68 kg (distribution cabinet empty)
Ingress Protection	IP54
Impact resistance	IK10
Operating temperature	-25 °C ... +50 °C
Standard	IEC 61851-1, general requirements for electric vehicle conductive charging system
Approvals	CE

Safety features	EVF200 / EVF300
Over current protection (MCB)	32 A (C-curve)
Residual current protection (RCD)	Type A (30mA AC)
Residual current detection RCMB	6mA DC
Overvoltage and undervoltage protection	Configurable
Control voltage	12 VDC
Temperature control	High operating temperature, such as direct sunlight, can cause reduced charging current or temporary interruption in the charging procedure
Optional features	Remotely controlled and monitored RCD reclosing functionality (ARD)

User interface	EVF200 / EVF300
Connection to vehicle	Default: Mode 3, Type 2
Charging status indication	3-color LED <ul style="list-style-type: none"> <li>Green / Available</li> <li>Blue / Charging</li> <li>Red / Error</li> </ul>
Simultaneous users	2 users
Use access and control	RFID (ISO/IEC 14443A, ISO/IEC 15693) Free access Mobile apps via 3rd party operators ISO15118 (Plug & Charge support)
Energy measurement	MID class kWh meter (per charging point)

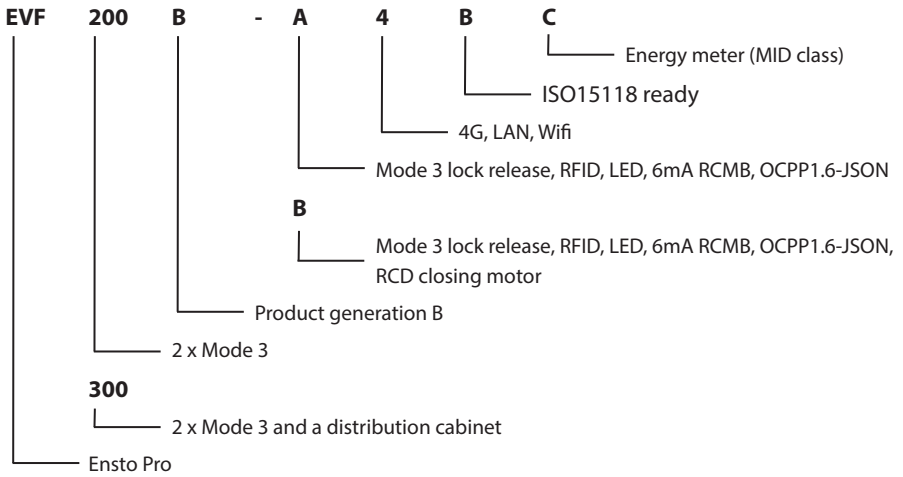
### Cybersecurity

- Ensto charging stations are designed to be safe to use according to relevant cybersecurity requirements, where regular security penetration tests are done and all the known vulnerabilities are mitigated.
- The manufacturer provides regular firmware updates. The responsibility to update the charger firmware is under operator/owner/back-office provider.
- The charging stations do not collect personal data and the manufacturer is not liable for personal data, but this is in responsibility of the back-office provider.
- The unique access password of the charging station can be changed. This action must be done during the installation and commissioning to fulfill cybersecurity act (for example EU) requirements. The owner of the charging station must keep the valid passwords safe so that annual maintenance and other activities, which are necessary to keep the charging station in operation, can be done.

Control and communication	EVF200 / EVF300
Operation mode	Standalone / Online
Wireless	4G/LTE WiFi 2.4 GHz (IEEE802.11b/g/n) 2 radio's (hotspot and client simultaneously)
Wired	LAN / Ethernet
Protocol	OCPP1.5-SOAP or OCPP1.6-JSON
Dynamic Load Management (DLM)	Local, embedded software feature over IP Protocol



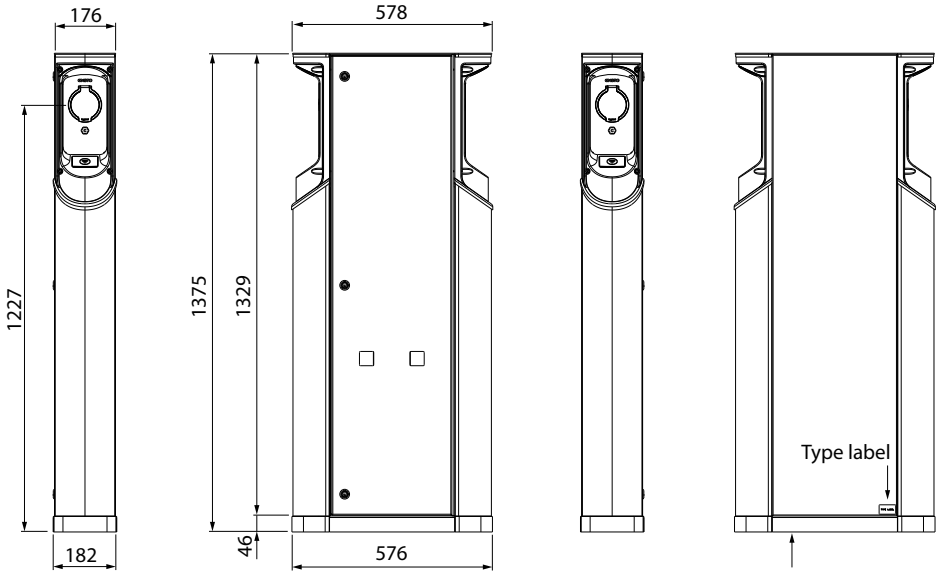
# 11. Code key



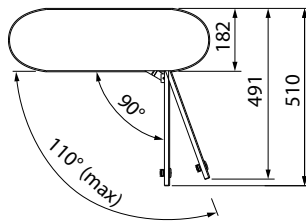
## 12. Dimensional drawings

### EVF200

Charging station with two charging points.

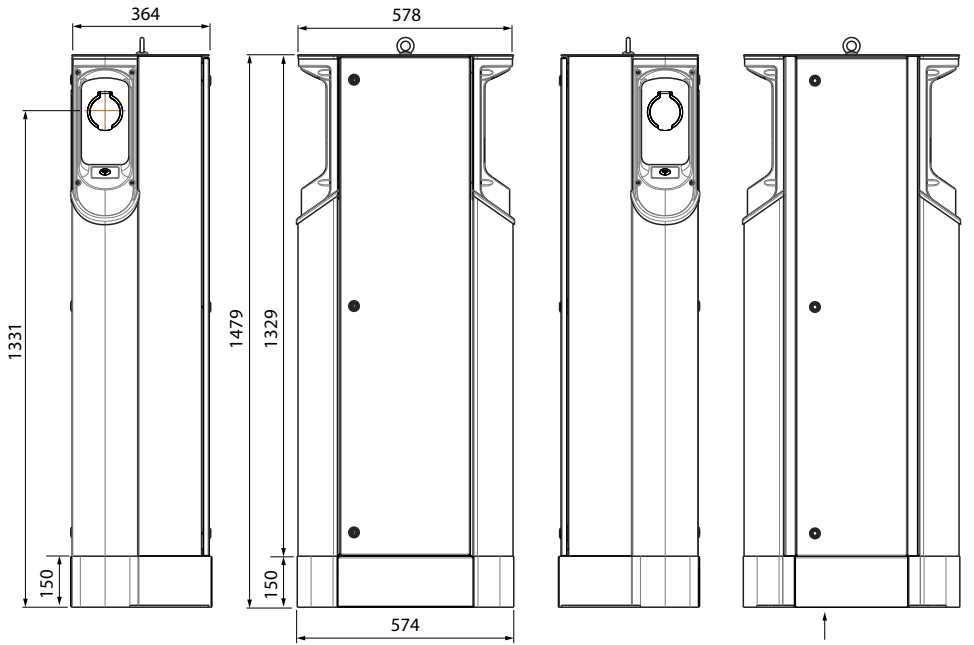


EVTL32.00 Ground mounting box  
(accessory)

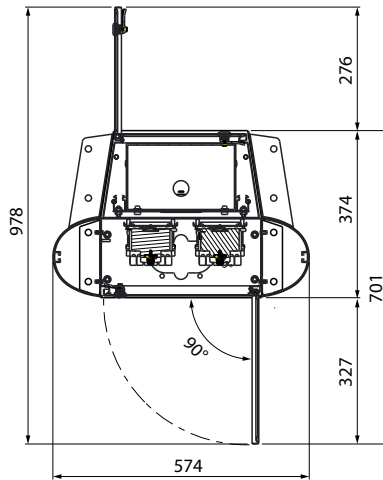


# EVF300

Charging station with two charging points and a distribution cabinet.



↑  
EVTL35.00 Ground mounting box  
(accessory)



Distribution cabinet	depth 160 mm
Mounting plate inside the cabinet	width 350 mm height 1250 mm



## 13. Installation / Commissioning checklist

### Introduction

Examine the mechanical and electrical installation in accordance with this checklist to make sure that the charging station is properly installed.

### Checking the Installation



*Examine the visual, mechanical and electrical installation when the charging station is un-powered.*

CATEGORY	X	ITEM
Overall look		You have received the ordered material.
		You have removed the protective plastic wrapping.
		You do not see any scratches or damages.
Mechanical installation		The charging station is mounted properly on the installation site.
Electrical installation		The charging point's power supply capacity meets electrical planning (cable size, protective devices...). Review the local electrical design plan.
		The PE-cable screw is tight.
		The power supply conductors (L1, L2, L3, N and PE) are properly connected.
		The insulation of the power supply cable and the conductors (L1, L2, L3, N and PE) is intact.
		The voltage between PE and N is less than 10 V.
Operational check		The PE conductor resistance is less than 3 Ω.
		All the LED states / colors (green, blue, red) and the RFID reader are functioning. <ul style="list-style-type: none"> <li>• Use a car simulator.</li> <li>• Create fail and charge.</li> <li>• Red at bootup, green at idle and blue while charging.</li> </ul>
		Test the functionality of the electric protective device (RCD).
Ready for use		The correct SW is in use.
		Correct operating mode <ul style="list-style-type: none"> <li>• Standalone</li> <li>• Online</li> </ul>
		Test the data communication, if it is in use. Examine the available signal strength to make sure that the communication (4G, WiFi), reception and connectivity are working.



## 14. Maintenance / Preventive maintenance instructions

Recommended 1 x per year, take into consideration local regulations and national standards.  
Protect the charging station against pollution (water, snow, dust).



### WARNING

***Danger of electrical shock or injury! Risk of fire!***

***Disconnect power before working inside the device or removing any components.***

X	MAINTENANCE ACTION
	Retighten all the screws on electric components.
	Examine the Mode 3 socket for burn or damaged parts. If necessary, replace it (socket cost is not under warranty).
	Examine the charging cable for wear out and mechanical damage. If necessary, replace it.
	Examine the sealings for wear out. If necessary, replace the sealings.
	All the LED states / color (green, blue, red) are functioning. <ul style="list-style-type: none"><li>• Use a car simulator.</li><li>• Create fail and charge.</li><li>• Red at bootup, green at idle and blue while charging.</li></ul>
	Make sure that the PE-cable screw is tight.
	Test that the voltage between PE and N is less than 10 V.
	Test that the PE conductor resistance is less than 3 $\Omega$ .
	Test the surge arrester, if there is any.
	Check if there are software updates available. Update always the latest version released by the charging station manufacturer.
	Restart the charging station from F0. Make sure that it will restart properly.
	Clean possible dirt and dust from the surface of the charging station. Wipe carefully with a moist cloth.
	Examine the visible metal parts for rust. Apply anti-corrosion agent, if necessary.
	Test the functionality of the electric protective device (RCD) every six months.

Maintenance actions done by:	Date:
------------------------------	-------

## 15. Testing instructions for the electric protective device

- Press the **TEST** button.
- The rocker turns to **0** position.
- Turn the rocker back to **I** position.
- If a fault occurs, contact an electrician.

## 16. Troubleshooting

### *Charging station is off, no lights on*

Issue	Corrective action
Mains voltage does not exist in supply connectors (L1, L2, L3).	Make sure that the supply conductors are properly connected. Make sure that there is power available.
The circuit breaker F0 is off.	Turn the F0 on.
The PWR LED indicator on the controller is not on.	Make sure that power supply to the controller is available.

### *Charging cable is locked in Mode 3 socket outlet*

Issue	Corrective action
Unexpected fault has occurred while power is on.	Turn off the power from the F0 and pull the charging cable out from the socket.
Power is off.	Switch Mode 3 lock into open position.

### *Configuration via web browser*

Issue	Corrective action
PC does not recognize micro USB plug and connection to the controller cannot be established via web browser.	Make sure from Windows operating system settings via "Device Manager" that RNDIS network adapter is available. If not, contact your local IT support.



## 17. Warranty

Warranty conditions, see [www.ensto.com/building-systems](http://www.ensto.com/building-systems)

## 18. Declaration of Conformity

The EU declaration of conformity is available at the following internet address:

<https://evwiki.ensto.technology/display/CHWI/Certificates>

## 19. Disposal












***Do not dispose of electrical and electronic devices including their accessories with the household waste.***

- When the charging station is at the end of its life cycle, it must be disposed of properly according to local recycling guidelines.
- The cardboard packing of the charging station can be recycled.
- Dispose of the plastic wrap with the household waste or according to local recycling guidelines.

# User Guide

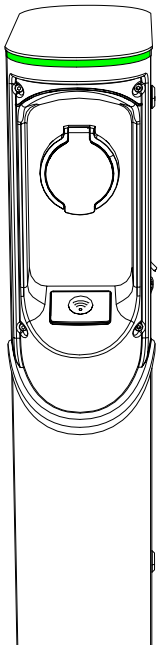
## 20. User Interfaces

LED indicator lights will show the status of the charging point as described below:

Charging point's status	LED light	LED operation
The charging point is free and ready to use	Green	Stable 
RFID read, authorization ongoing	Green	Flashing 
Charging authorization rejected	Red	Flashing 
Authorization accepted, charging allowed	Green	Waving 
While you connect the charging cable	Green	Flashing twice 
Your vehicle is connected, charging has not started	Green	Waving 
Your vehicle is connected, charging starts	Blue	Waving 
Charging ongoing	Blue	Stable 
Error state	Red	Stable 

## 21. Charging

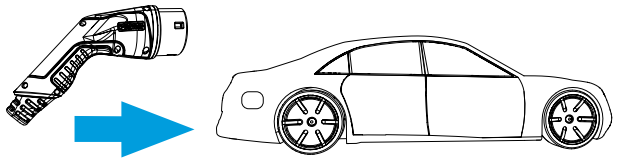
### 21.1. Free charging



#### Start charging

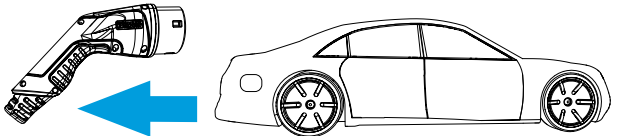
When the charging point is free and the LED indicator shows green, you can start a charging event.

- 1 Plug the charging cable to your electric vehicle.  
Plug the charging cable to the charging point.  
The LED indicator turns to stable blue.



#### Stop charging

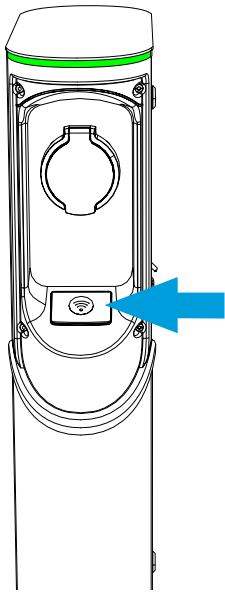
- 2 Unplug the charging cable from the charging point.  
Unplug the charging cable from your electric vehicle.  
After you have unplugged the charging point is free for the next user.



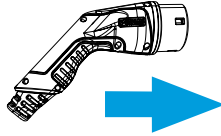
## 21.2. Charging with RFID

You must have an RFID tag which has a permission to access the charging point.

### Start Charging with RFID



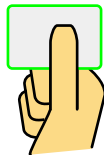
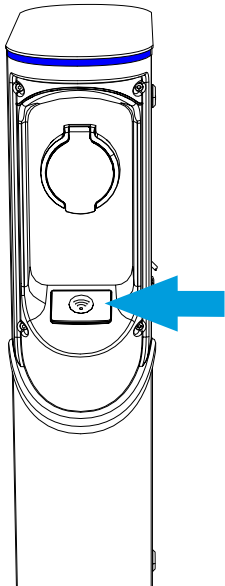
- 1 Plug the charging cable to your electric vehicle.  
Plug the charging cable to the charging point.



- 2 Show the RFID tag to the RFID reading area.  
While the RFID tag is read, the LED indicator flashes green and verifies the user permission to charge.
  - If the user authorization is rejected, the LED indicator flashes red.
  - If the user authorization is accepted, the indicator light turns to waving green.

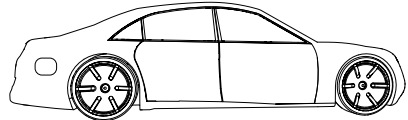
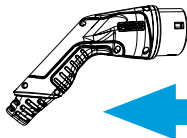
- 3 Charging event starts.
  - The LED indicator turns to stable blue.

### Stop Charging with RFID



- 4 Show the RFID tag to the RFID reading area.  
Charging event ends.
  - The LED indicator turns to waving green.

- 5 Unplug the charging cable from the charging point.  
Unplug the charging cable from your electric vehicle.





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# ENSTO

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