

EVB200EB-B4BC



Installation Instructions User Guide



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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
C	Identifier for plug and socket outlet AC / EN62196-2 / Type 2
	Radio-frequency identification reading area for automatical identifying of RFID tags.
X	Environmental instructions

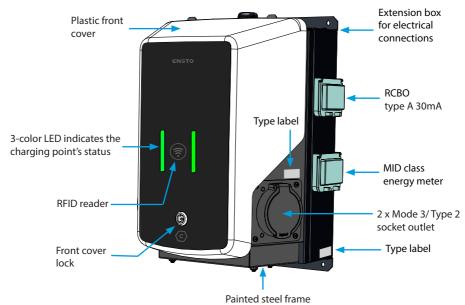
3. Abbreviations

Abbrevia- tion	Description
LED	Light Emitting Diode
МСВ	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
- Extension box
- Mounting accessories
- Label set with RCBO testing instructions
- Triangular key
- Installation and Operating instructions

4.1. Product features



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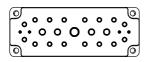
4.2. Mounting accessories

Item	Description and use	Quantity
())))))	 Screw 3x8, Tx10 To lock the covers on the protective devices and the energy meters 	4
	RJ45 connector • For Ethernet connections	2
	Cable gland M32 • For chaining power supply to another charging station	1
	Cable gland M16 • For an additional Ethernet cable	1
	 Cover plug M16 To replace the pre-installed cable gland M16, if an Ethernet cable is not necessary 	1

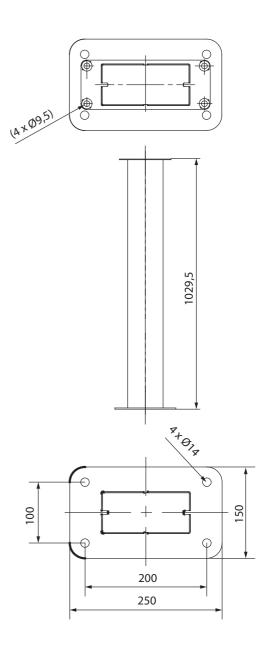
5. Accessories

EVTL43.00

Ground / Floor mounting pole



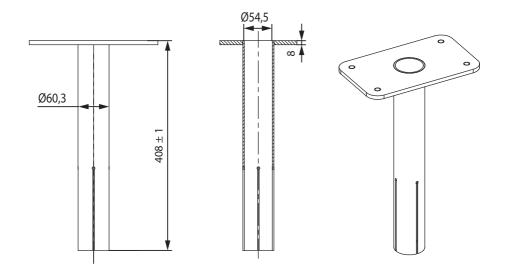
Flange 2202 (not necessary with this product)

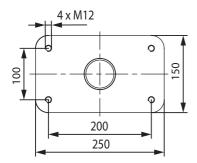


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EVTL44.00

Adapter for ground mounting





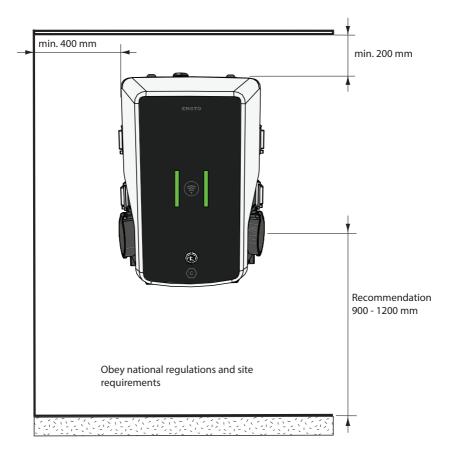
6. Mounting instructions

6.1. Before installation

Remove the charger and the extension box from their package. Do not scratch the surface of the items after removal from the package.

When selecting installation site, take into consideration the following:

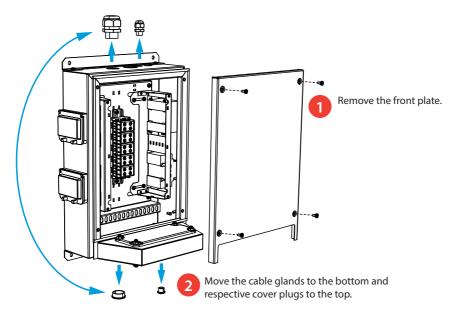
- The minimum space necessary for operating and maintenance.
- The mounting foundation is applicable and robust.
- To ensure the optimal charging performance, the charging station should not be exposed to direct sunlight.
- If the charging station is installed in corrosive conditions where there is a risk of metal rusting, visible metal surfaces must be protected regularly with anti-corrosion agent.

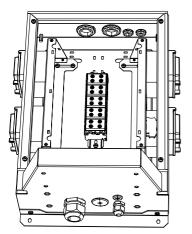


6.2. Cable entries

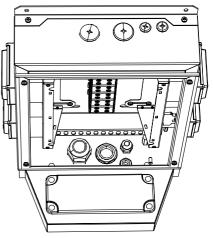
- Take the cable routing into consideration when planning the installation. The supply cable can be routed into the enclosure from the top or bottom. Default cable routing is from the top.
- An M32 cable gland for the supply cable and an M16 for a possible data cable are pre-assembled on the top of the extension box.

When the supply is from the bottom





When you mount the charging station to wall, attach the cable glands to the outside of the extension box.



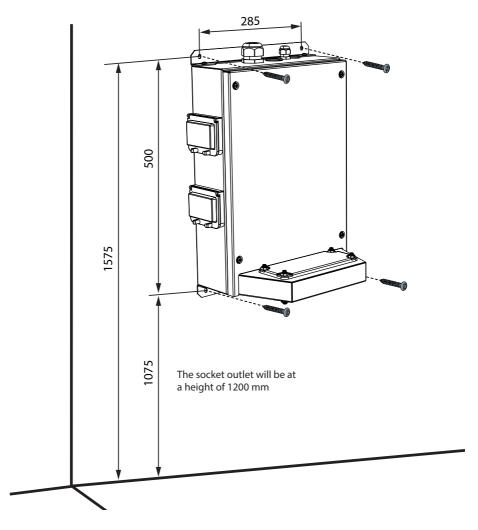


When you mount the charging station on a mounting pole, attach the cable glands to the inside of the extension box.

6.3. Wall mounting

Installation accessories Screws max. Ø 6mm (not included)	4 pcs
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- 1. Drill screw holes for the wall brackets.
- 2. Select applicable screws for the the wall.
- 3. Attach the extension box to the wall with 4 fastening screws.
- 4. See wiring instructions on page 16.

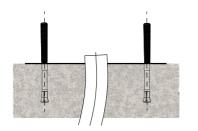


6.4. Ground mounting on concrete casting with ground mounting pole

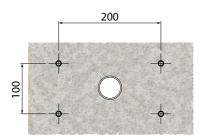
Installation accessories	Ilation accessories Ground mounting pole EVTL43.00	
	Anchor bolts M12	4 pcs
	Bolts and nuts (not included)	

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

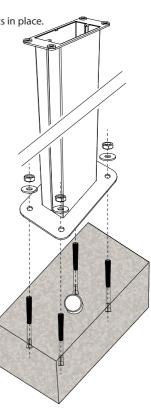
- Dig a trench for cable conduits and an excavation pit for the concrete foundation. The pit floor should be compacted and level.
- Put cable and possible drain pipes in place.
- Fill the pit with concrete.
- Let the concrete cure. Make sure that the surface stays level during the process.



- 1. Make sure that the concrete surface is compacted and level.
- 2. Drill a hole in the concrete for the anchor bolts. For more information, please see the anchor bolt instructions.
- 3. Put the anchor bolts in place.



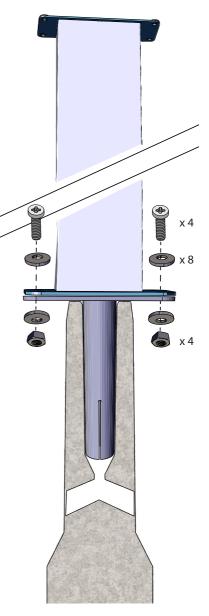
- 4. Pull the electric cables approx. 1500 mm measured from the concrete surface.
- 5. Attach the ground mounting pole to the anchor bolts with washers and nuts.
- 6. Pull the electrical cables through the ground mounting pole.
- 7. Attach the charging station to the mounting pole. See instructions on page 15.



6.5. Ground mounting on concrete foundation with ground mounting pole

Installation accessories	Ground mounting pole EVTL43.00	1 pcs
	Adapter for concrete foundation EVTL44.00	1 pcs
	Concrete foundation (from different manufacturers)	1 pcs
	Bolts, washers and nuts	

- 1. Dig a trench for cable conduits and an excavation pit for the concrete foundation to applicable depths.
- 2. Add gravel to the bottom of the pit, to such thickness that the top of the foundation will be at applicable level when you lift the foundation into the pit. Take into consideration the possible paving materials when you set the level.
- 3. Lift the concrete foundation into the pit. For more information, please see the concrete foundation mounting instructions.
- 4. Put cable and possible drain conduits in place.
- Lift the adapter EVTL44.00 into the concrete foundation. Cut the adapter, if necessary. Adjust the adapter in such a manner, that the top surface of the adapter is horizontal. Make sure, that the adapter is securely in place and does not swing.
- 6. Pull electric cables through the conduits and the adapter approx. 1500 mm measured from the adapter flange.
- 7. Tighten the foundation to its place by filling the excess space outside the foundation with gravel.
- 8. Attach the ground mounting pole on the adapter with bolts, washers and nuts (included).
- 9. Pull the electrical cables through the ground mounting pole.
- 10. Attach the charging station to the mounting pole. See instructions on page 15.

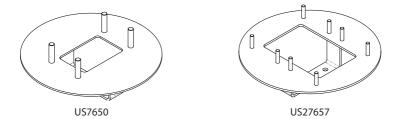


6.6. Ground mounting on Unimi concrete foundation

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

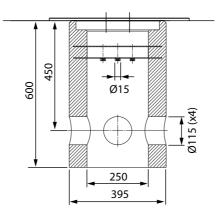
Installation accessories	Ground mounting pole EVTL43.00	1 pcs (1 x EVB)
		2 pcs (2 x EVB)

Installation accessories,	Concrete foundation	1 pcs
order from www.unimi.se	Cover plate	1 pcs
	Adapter for 1 x EVB, product code US7650	1 pcs
	Adapter for 2 x EVB, product code US27657	1 pcs

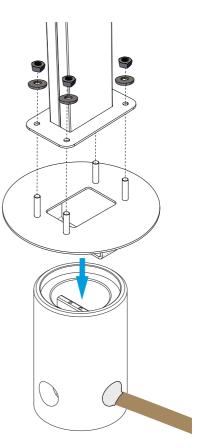


Note! When using the adapter for two charging stations (US27657), you can get up to four charging outlets.

- 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.
- 2. 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.
- 3. Cover the unused conduit openings with plugs, which are included in the foundation delivery.

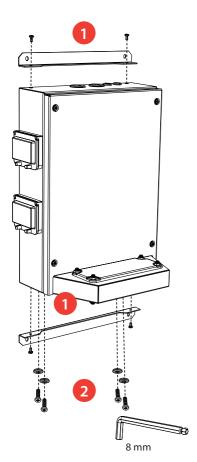


- 4. Lift the foundation into the installation pit. You can use the attachment bar in the foundation as a lifting point. Make sure that the mounting bar is in a direction that enables the installation of the charging station in correct position.
- 5. Put cable conduits into the trenches and install the conduits to relevant inlets.
- 6. Pull electric cables through the conduits into the foundation approx. 1500mm measured from the top of the foundation.
- 7. Tighten the foundation to its place by filling the excess space outside the foundation with gravel.
- 8. Set the final layer of gravel so that the top of the foundation will be flush with ground or the final paving material.
- 9. Always put a cover plate on the foundation, if the charging station is installed in a separate session than the foundation.
- 10. Remove the cover plate before you start the installation work.
- 11. Put the adapter element on the foundation.
- 12. Attach the adapter element to the foundation attachment bar with bolts 3 pcs (included).
- 13. Put the mounting pole on the adapter. Tighten with the washers and nuts included in the delivery.
- 14. Pull the electrical cables through the mounting pole.
- 15. Attach the charging station to the mounting pole. See instructions on page 15.

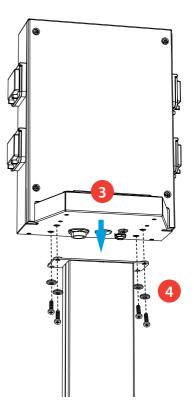


Precondition

- The mounting pole is mounted on site properly.
- The cable glands are moved from top to the bottom of the extension box. See chapter 6.2 Cable entries.
- The electrical cables are installed and routed to the extension box. See chapter 7.1 Wiring instructions, steps 1 - 11.



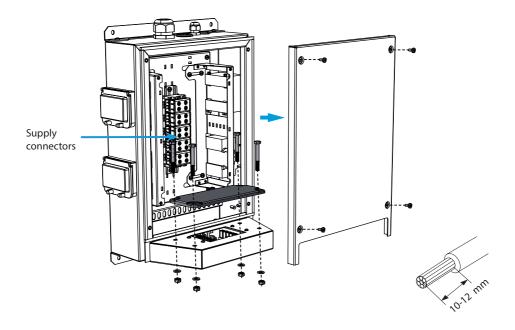
- 1. Remove the wall brackets 2 pcs from the rear side of the extension box [1]. Both brackets are attached with two screws. (This step is not necessary.)
- 2. Remove the four M8 screws and washers from the bottom [2].
- 3. Lift the extension box on the mounting pole [3].
- 4. Attach the extension box to the mounting pole with the the screws and washers you removed in the step 2 [4].



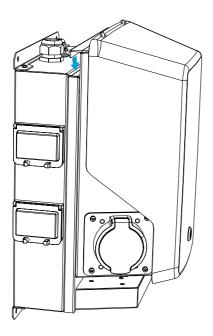
7. Electrical connections

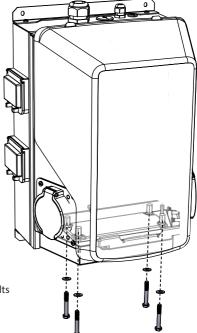
7.1. Wiring instructions

- 1. Remove the front plate from the extension box.
- 2. Remove the bolts, nuts and washers from the flange on the extension box. You need the bolts and washers when you attach the charger to the extension box.
- 3. Remove the flange from the extension box.

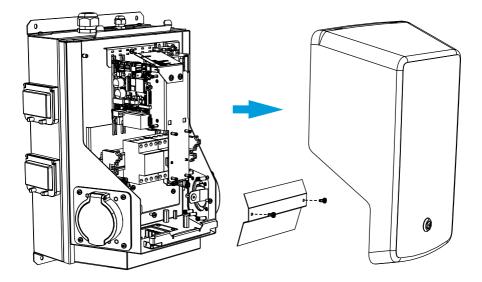


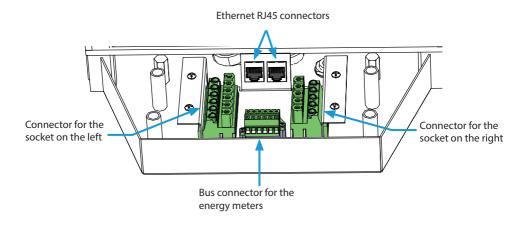
- 4. Pull the supply cable through the cable gland M32.
- 5. Remove the cable sheath approx. 200 mm.
- 6. Cut the supply cable conductors to applicable lengths. The earth conductor must be long enough, so that if a fault occurs it is the last one that comes loose.
- 7. Strip the conductors 10 12 mm and connect to the supply connectors.
- 8. Pull the data cable through the cable gland M16.
- 9. Connect the data conductors to the Ethernet RJ45 connectors (2 pcs included).
- 10. Put the Ethernet RJ45 connectors in place.
- 11. Attach the front plate to the extension box.



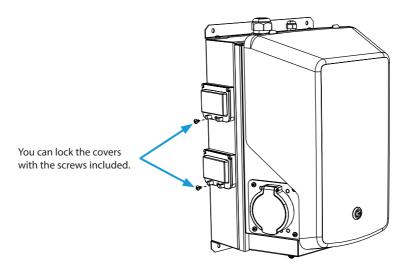


- 12. Lift the charger on the extension box.
- 13. Attach the charger to the extension box with the bolts and washers you removed in the step 2.
- 14. Remove the front cover from the charger.
- 15. Remove the plastic shield.





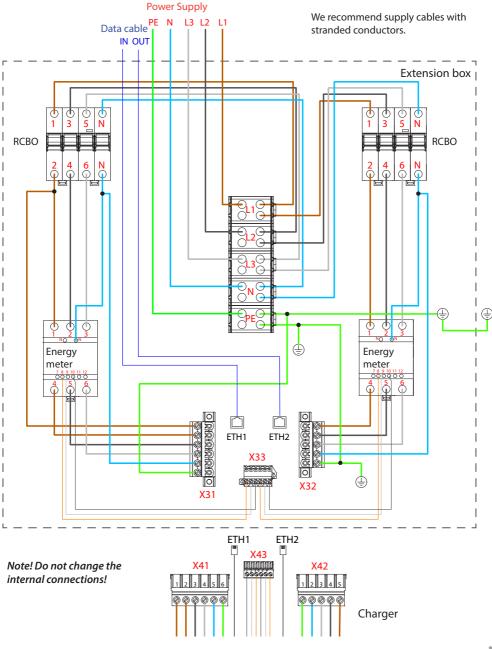
- 16. Connect the plug-in couplers from the charger to the respective couplers in the extension box.
- 17. Attach the plastic shield in place.
- 18. Close the front cover.
- 19. A label set of RCBO testing instructions is included in the delivery. Attach a language specific label on the extension box on a position where it can be seen.



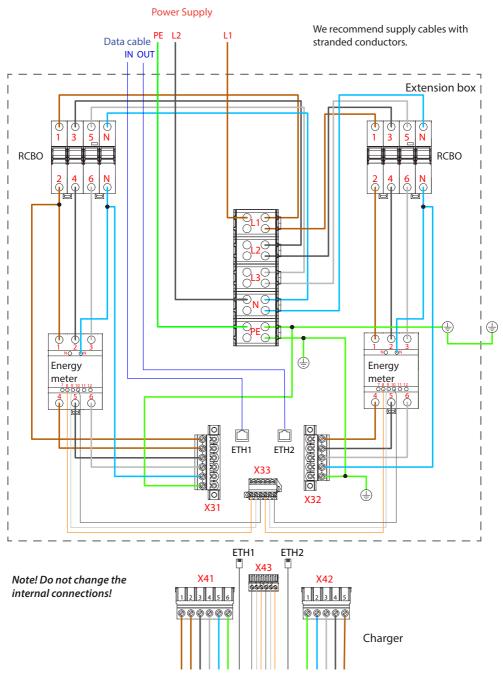
7.2. Power supply

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

TN network



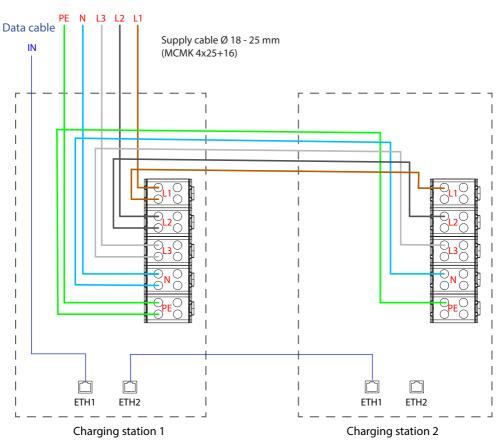
If you connect the charging station to an IT network, you must set the energy meter to 2-phase mode from the energy meter settings.



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Parallel connection of charging stations

The maximum quantity of connected charging stations depends on the system dimensioning made by qualified professional.



Power Supply

Alternative cable entry from bottom See chapter **6.2. Cable entries**

8. Commissioning

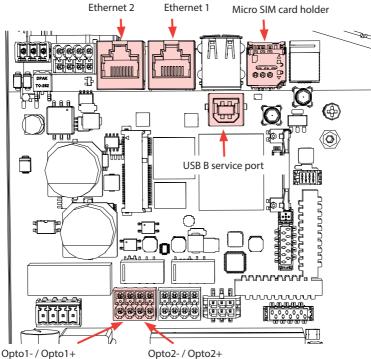
Before commissioning the charging station must be installed according to the installation instructions.

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.

8.1. 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 config- ured on charging station settings. Please ask your Ensto representative for details.

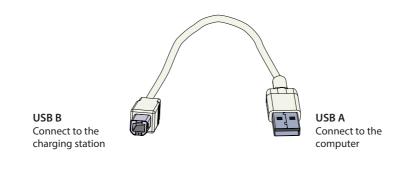
Control unit on the left side



Optocoupler input 12V

8.2. 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.



8.3. WiFi coverage area

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



max. 10 m in free space

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/

9. Technical data

Electrical connections		
Nominal supply voltage *	3-ph, 400 VAC	
Charging current (nominal)	3 x 32A	
Charging power (nominal)	2 x 22kW	
Supply connections and terminals	L1, L2, L3, N, PE Cu 2.5–50 mm ² (according to supply current and local regulations) Tightening torque: 4 Nm (2.5 - 4 mm ²), 10 Nm (6 - 50 mm ²)	
Grid connections	TN (3-ph) / IT (2-ph, 230Vp-p)	

* Supply voltage range 208 ... 264 V.

Please note that typically electric vehicles do not tolerate more than 7 volts of fluctuation in the main voltage.

Design and mechanics	
Materials	Frame and extension box: Powder coated mild steel Cover: Plastic (PETG and ABS)
Color	Frame and extension box: RAL7021 "Anthracite" Cover: White and black tape
Weight	Total approx. 23 kg • charger: approx. 10 kg • extension box: approx. 13 kg
Ingress protection rating	IP54
Shock protection rate	IK10
Operating temperature	-25 °C +50 °C
Standard	IEC 61851-1, general requirements for electric vehicle conductive charging system
Approvals / markings	CE

User interface	
Socket outlet	Mode 3 / Type 2 (Shutter)
Charging status indication	3-color LED • Green / Ready • Blue / Charging • Red / Error
Use access	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

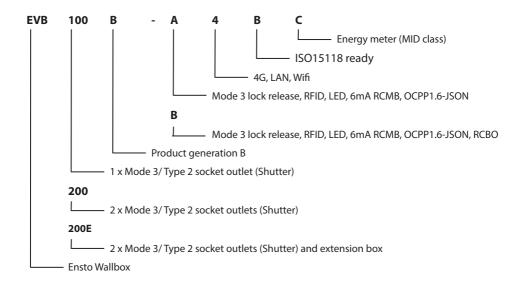
Safety features		
RCBO	Type A 30mA, class C, nominal current 32A	
Overvoltage and undervoltage protection	Configurable	
Control voltage	12 VDC	
Temperature control	High operating temperature, such as direct sunlight, can cause reduced charging current or temporary interruption in the charging procedure	

Cybersecurity

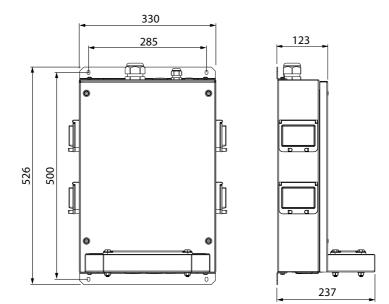
- Ensto charging stations are designed to be safe to use according to relevant cybersecurity requirements, where regular security penetration tests are done and all the known vulnerabilities are mitigated.
- The manufacturer provides regular firmware updates. The responsibility to update the charger 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.

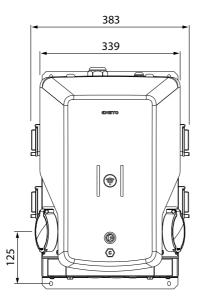
Control and communication		
Operation mode	Standalone / Online	
Wireless	4G/LTE WiFi 2.4 GHz (IEEE802.11b/g/n) 2 radio's (hotspot and client simultaneously)	
Wired	LAN / Ethernet	
Protocol	OCPP1.5-SOAP or OCPP1.6-JSON	

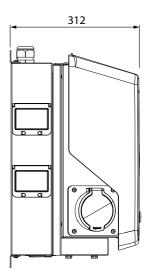
10. Code key



11. Dimensional drawing







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12. 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 unpowered.

CATEGORY	Х	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 station'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.	
		The PE conductor resistance is less than 3 Ω .	
Operational check		 All the LED states / colors (green, blue, red) and the RFID reader are functioning. Use a car simulator. Create fail and charge. Red at bootup, green at idle and blue while charging. 	
		Test the functionality of the electric protective device (RCBO).	
Ready for use		The correct SW is in use.	
		Correct operating mode Standalone Online 	
		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.	

13. 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.

Х	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. Use a car simulator. Create fail and charge. Red at bootup, green at idle and blue while charging 	
	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 Ω .	
	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 (RCBO) every six months.	

N	laintenance actions done by:	Date:

14. Testing instructions for the electric protective device (RCBO)

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

15. Troubleshooting

Charging station is off, no lights on

Issue	Corrective action
Mains voltage does not exist in the supply con- nectors (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 the power is on.	Turn off the power from the F0 and pull the charging cable out from the socket.
The power is off.	Open the front cover. Switch the Mode 3 lock into open position.

Configuration via web browser

Issue	Corrective action
The PC does not recognize the USB plug and a connection to the controller cannot be estab- lished 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.

16. Warranty

Warranty conditions, see www.ensto.com/building-systems

17. Declaration of Conformity

The EU declaration of conformity is available at the following internet address: https://evwiki.ensto.technology/display/CHWI/Certificates

18. 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

19. 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
User identification	Green	Flashing 💼 💼 💼
User authorization is rejected / Charging is not allowed	Red	Flashing 💻 💻 💻
User authorization is / Charging is 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 is ongoing	Blue	Stable
Error state	Red	Stable

20. Charging

20.1. Free charging

Start charging

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



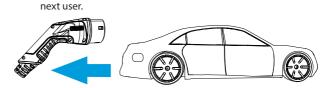
Plug the charging cable to your electric vehicle. Plug the charging cable to the charging point. The LED indicator turns to stable blue.



Stop charging



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



20.2. Charging with RFID

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

Start Charging with RFID



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





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.



Charging event starts.

The LED indicator turns to stable blue.

Stop Charging with RFID





Show the RFID tag to the RFID reading area. Charging event ends.

The LED indicator turns to waving green.



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



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