ENSTO

Ensto Wallbox
EVB203E - series

ENG

Installation Instructions
Operation Instructions

CE

Contents

1. Ensto Wallbox, EVB203E-series

This installation instruction and user guide is for the EVB203E-series. Even if the features and appearance of the different charger versions varies, the installation and usage of the product always follow the principles described in this guide.

EVB203E-series chargers have an extension box equipped with a combined residual current protection device and a circuit breaker (RCD / MCB) as well as with a MID approved energy meter. Available features depend on the charger model.

Ambient light

Plastic front cover

3-color LED indicates the charging point's status

RFID reader

Painted steel frame

Front cover lock

1-2 x Mode 3/ Type 2 socket outlet

Extension box lock

Extension box

2. Safety Instructions

- *The charger must be installed by a qualified person.*
- *Read this manual before installation and usage of the charger.*
- *This manual must be stored in a safe location and be available for future installation and service.*
- *Follow the guidelines in this manual when installing and using the charger.*
- *The installation must be done according to the local safety regulations, restrictions, dimensioning, rules and standards.*
- *The information provided in this manual in no way exempts the user of responsibility to follow all applicable rules and safety standards.*

3. Delivery Contains

- Wallbox
- Installation and Operation instructions

4. Accessories

Flange KOT21715

Included in the delivery.

Note! Cable glands are not included in the delivery.

Please order suitable cable glands separately according to the used supply cable sizes, for example Ensto KTM... cable gland series (polyamide or brass).
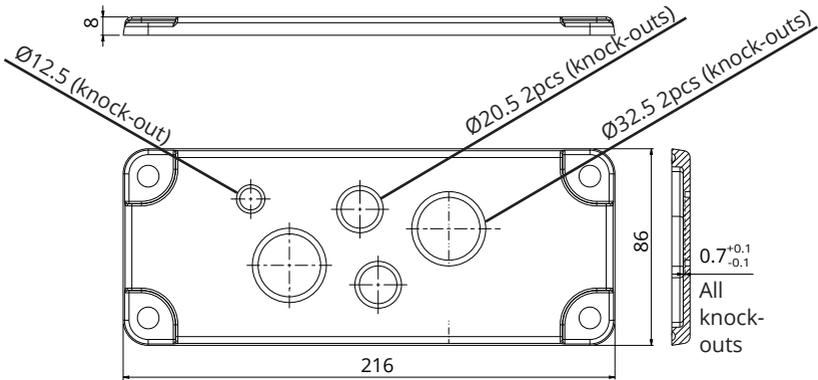
EVTL40.00

Wall bracket

The wall bracket is pre-installed to the charging station.
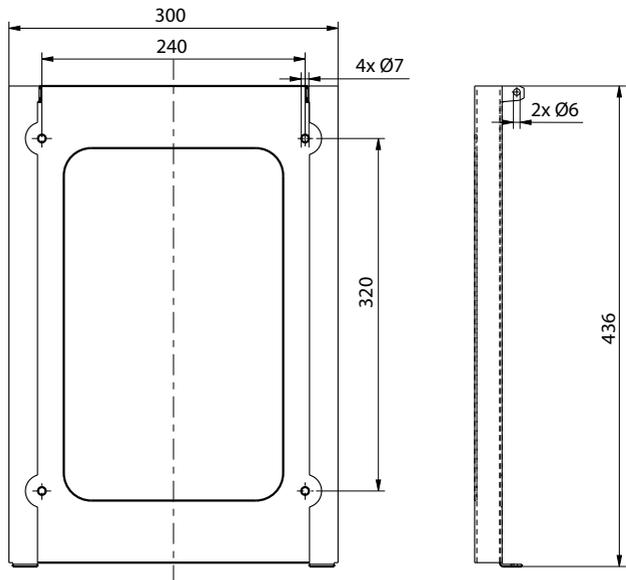
EVTL43.0E

Ground / Floor mounting pole

(4 x Ø9,5)

781,5

4 x Ø14

100

150

200

250
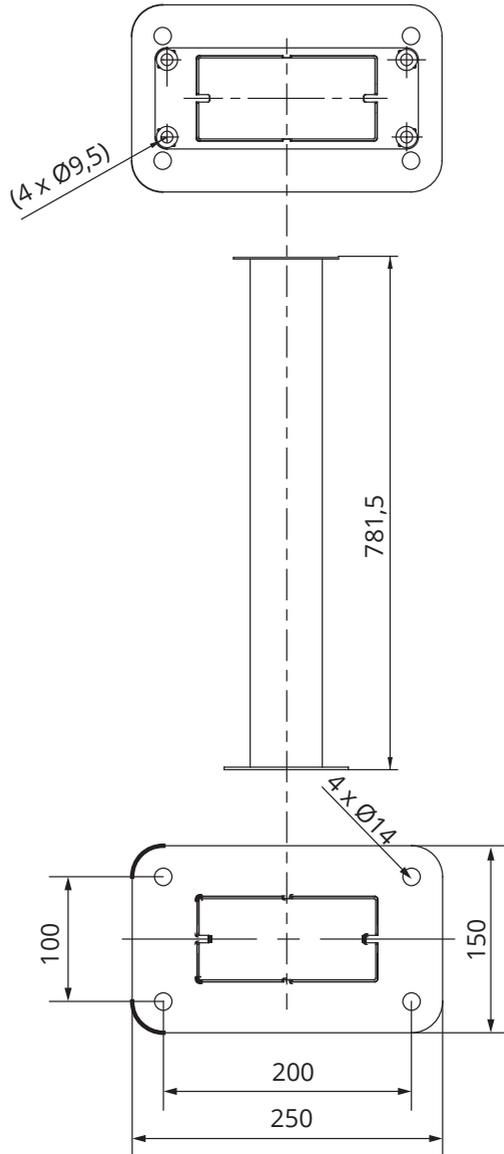
EVTL44.00

Adapter for ground mounting

Ø54,5

Ø60,3

408 ± 1

8

4 x M12

100

150

200

250
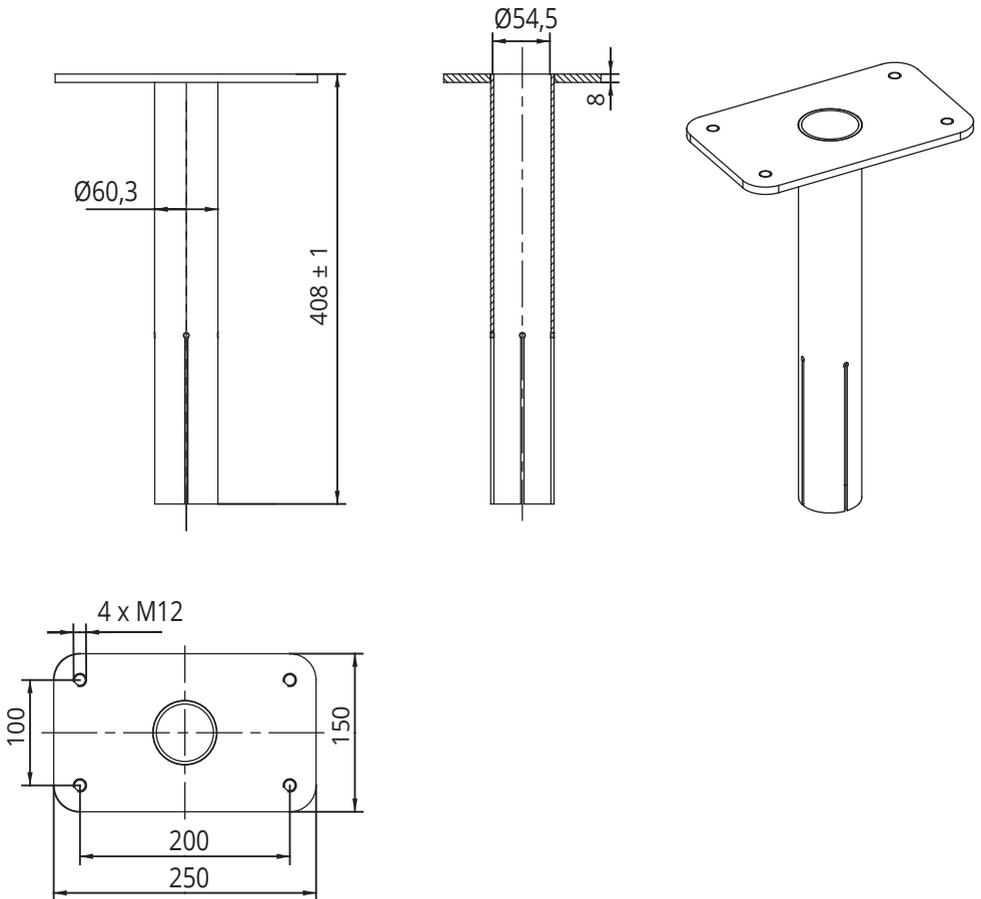
5. Mounting instructions

5.1. Before Installation

Remove the Wallbox from its package. Do not scratch the surface of the Wallbox after removal from the package.

When selecting installation site, take into account the following:
- The minimum space needed for operating and maintenance.
- Make sure that the mounting foundation is suitable and robust.
- In order to ensure the optimal charging performance, the charging station should not be exposed to direct sunlight.
- If the charging station is installed in conditions where there is a risk of rusting, visible metal surfaces must be protected with anti-corrosion agent.

min. 400 mm

min. 200 mm

Recommendation
1200 mm

Follow always national regulations and
site requirements
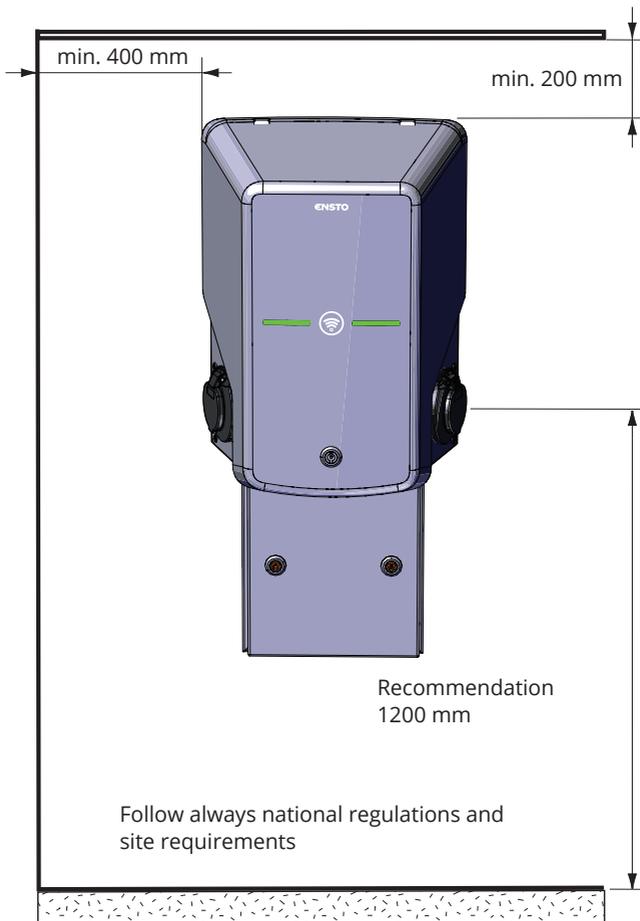
5.2. Wall Mounting with Wall Bracket

Items needed: Wall bracket EVTL40.00   1 pcs
                 Screws   4 pcs

Installation steps
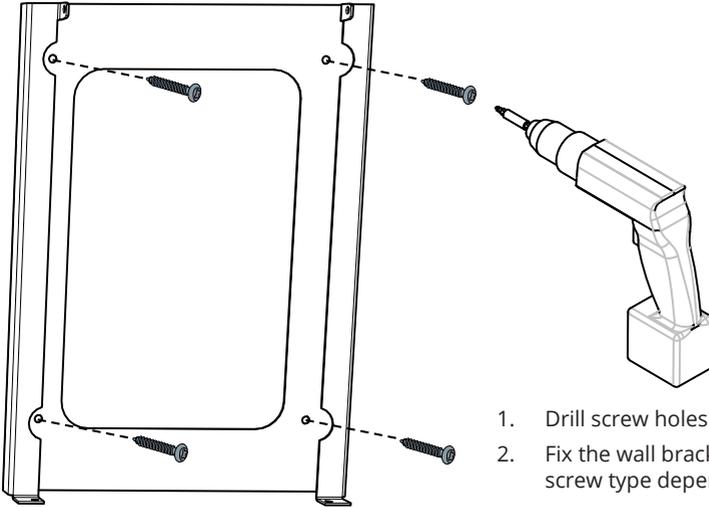
1. Drill screw holes for the wall bracket.
2. Fix the wall bracket on the wall. Use screw type depending on the wall type.
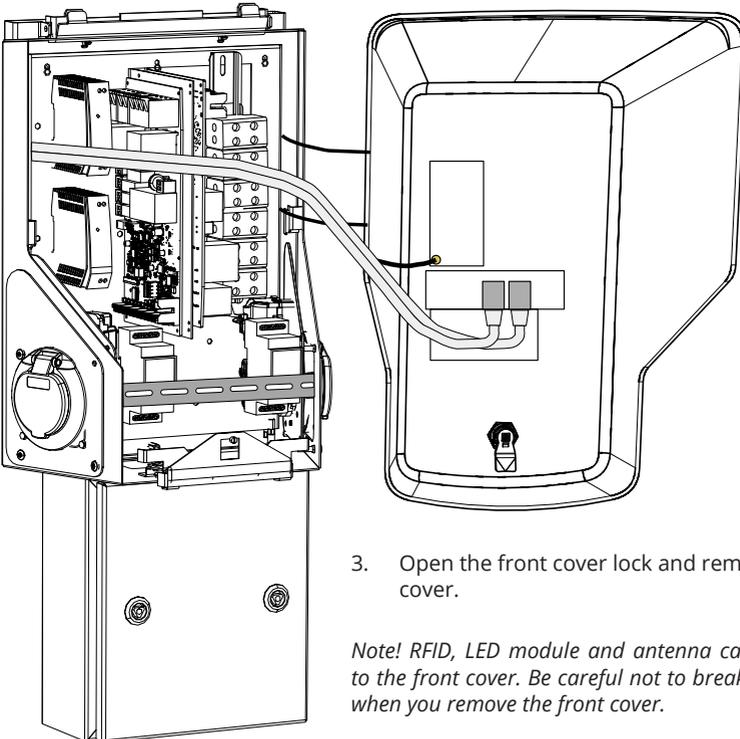
3. Open the front cover lock and remove the front cover.

Note! RFID, LED module and antenna cables are attached to the front cover. Be careful not to break any components when you remove the front cover.
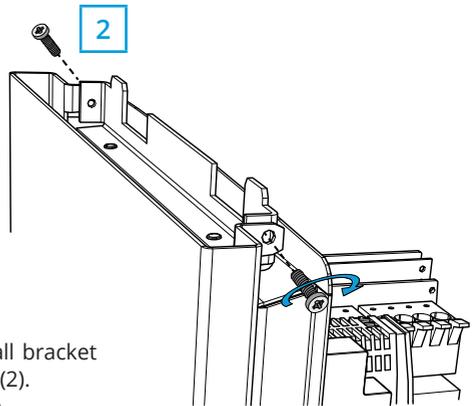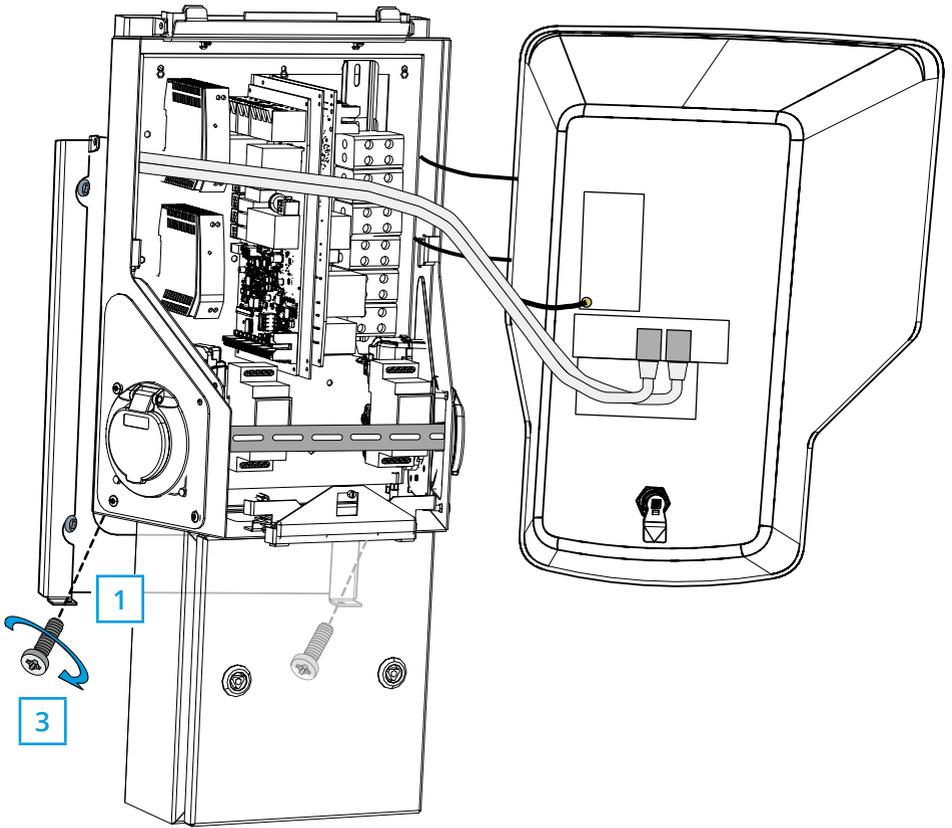
4. Place the Wallbox on the wall bracket (1).
5. Attach the top of the Wallbox on the wall bracket using the screws included in the delivery (2).
6. Secure the bottom of the Wallbox with the screws included in the delivery (3).

5.3. Ground Mounting on Concrete Casting with Ground Mounting Pole

Items needed: Ground mounting pole EVTL43.0E   1 pcs
Anchor bolts M12   4 pcs
Washers (not included)
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 pit for the concrete casting. The pit floor should be trampled and horizontal.
- Put cable and possible drain pipes in place.
- Fill the pit with concrete.
- Let the concrete solidify, make sure that the surface stays solid and level during the process.

Installation steps

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

4. Pull the electric cables approx. 1500 mm measured from the concrete surface.
5. Fix the ground mounting pole on the anchor bolts with washers and nuts.
6. Pull the electric cables through the ground mounting pole.
7. Attach the Wallbox on the mounting pole. See instructions on page 14.

5.4. Ground Mounting on Concrete Foundation with Ground Mounting Pole

Items needed: Ground mounting pole EVTL43.0E   1 pcs
Adapter for ground mounting EVTL44.00   1 pcs
Concrete foundation (from different manufacturers) 1 pcs
Bolts (not included)
Washers (not included)
Nuts (not included)

Installation steps

1. Dig holes for cable conduits and the concrete foundation to necessary depths.

2. Add gravel to the bottom of the trench, to such thickness that the top of the foundation will reach desired level when lifted into the hole. Note! Consider the possible paving materials when setting the level.

3. Lift the concrete foundation into the installation hole. For more information, please see the concrete foundation mounting instructions.

4. Put cable and possible drain conduits in place.

5. Lift the adapter EVTL44.00 into the concrete foundation. Cut the adapter, if necessary. Adjust the adapter in such a manner, that the adapter is perpendicular. 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. Fix the ground mounting pole on the adapter with bolts, washers and nuts.

9. Pull the electric cables through the ground mounting pole.

10. Attach the Wallbox on the mounting pole. See instructions on page 14.

x 4

x 8

x 4
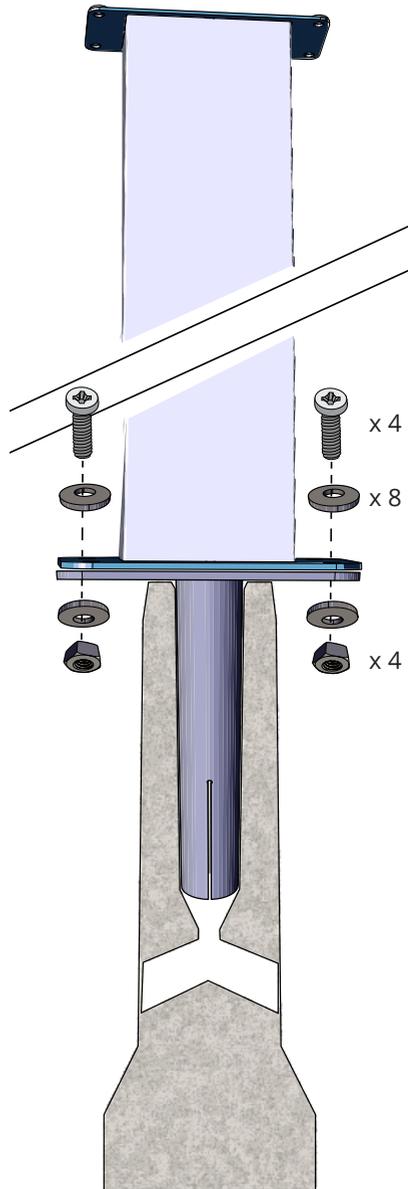
5.5. Ground Mounting on Unimi Concrete Foundation

This installation example describes the installation procedure using a concrete foundation supplied by Unimi - Solutions.
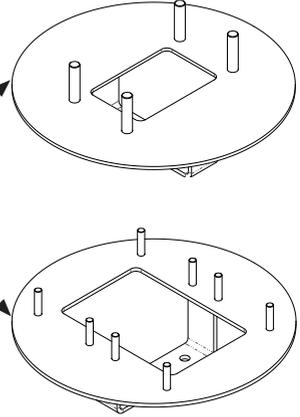
Items needed:
Ground mounting pole EVTL43.0E   1 pcs (1 x EVB) /
                                             2 pcs (2 x EVB)

Please order the following items from www.unimi.se

Concrete foundation	1 pcs
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 Wallboxes (US27657), you can get up to four charging outlets.

Installation steps

1. Dig holes for cable conduits and the concrete foundation to necessary depths.
2. Adjust the depth of the hole so that the top of the foundation will be in level with the surrounding ground surface. Note! Consider the possible paving materials when setting the level.
3. Cover the unused conduit openings with plugs, which are included in the foundation delivery.
4. Lift the foundation into the installation hole, the attachment bar embedded in the foundation can be used as a lifting point. The attachment bar should be oriented to allow attachment of the Wallbox into desired position.
5. Lay the cable conduits into the trenches and install conduits to relevant inlets.
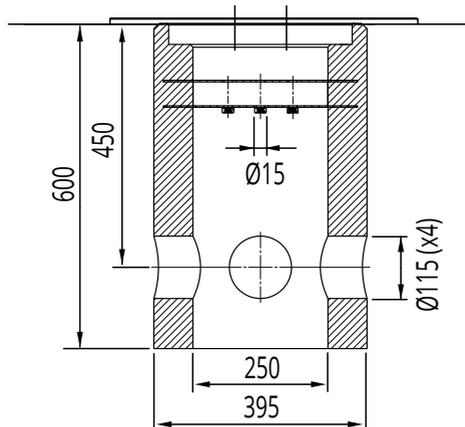
6. Pull electric cables through the conduits into the foundation approx. 1500mm measured from the top of the foundation.
7. Tighten the foundation to its place by filling the excess space outside the foundation with gravel.
8. Set the final layer of gravel so that the top of the foundation will be in level with ground or the final paving material.
9. Always place a cover plate on the foundation, if the Wallbox is installed in a separate session than the foundation.
10. When you start the installation of the Wallbox, remove the cover plate.
11. Put the adapter element on the foundation.
12. Attach the adapter on the foundation attachment bar with bolts included in the delivery.
13. Fit the mounting pole to the threaded bolts on the adapter. Secure with the nuts included in the delivery.
14. Pull the electric cables through the mounting pole.
15. Attach the Wallbox on the mounting pole. See instructions on page 14.
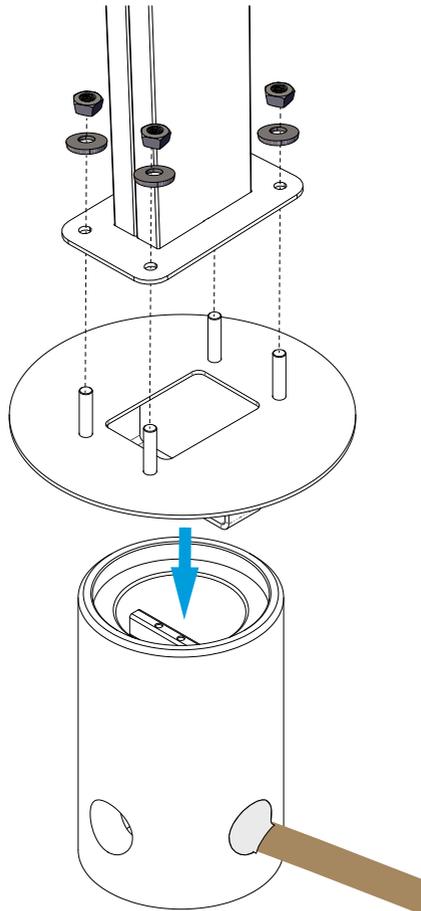
5.6. Fixing Wallbox on Mounting Pole EVTL43.0E
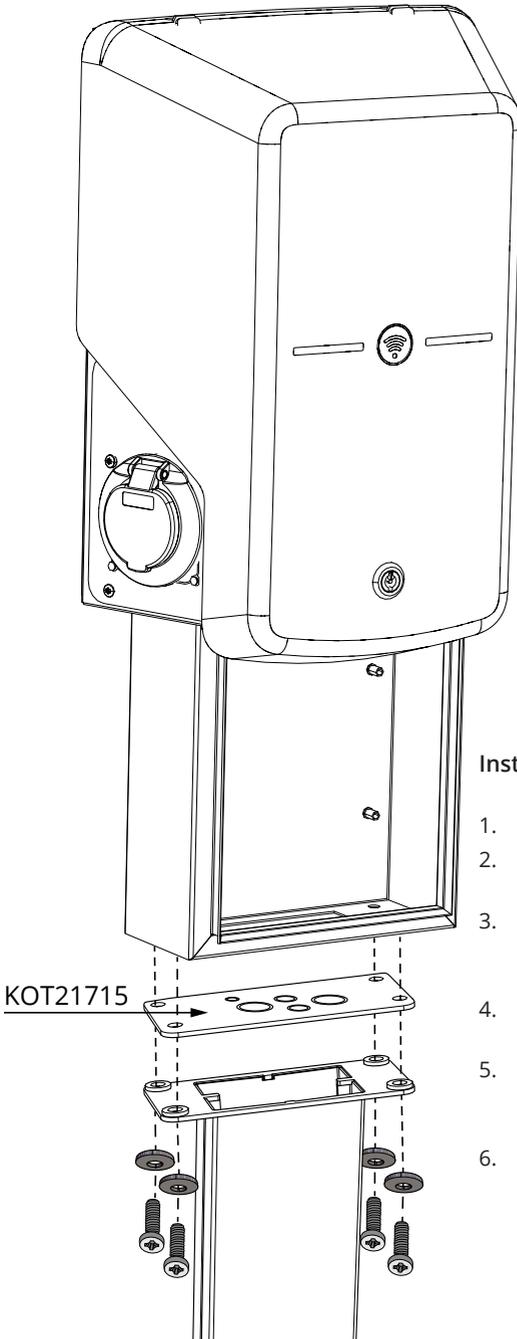
KOT21715

Installation steps

1. Open the extension box hatch.
2. Remove the flange at the bottom of the extension box.
3. Open the knock-outs and insert the cable glands needed for electric cables on flange KOT21715.
4. Pull the electric cables through the gable glands.
5. Fix the Wallbox and flange KOT21715 on the mounting pole using the screws included in the delivery.
6. Close the extension box hatch, if electrical connections are done in a separate session.

6. Electrical Connections

6.1. Wiring Instructions

1. Open the extension box hatch.
2. Pull the the supply cable through the cable gland.
3. Remove the cable sheath at a sufficient length.
4. Cut the supply cable leads in different lengths. Leave the ground lead long enough so that if a fault occurs it is the last one that comes loose.
5. Strip the leads and connect to the supply connectors.
6. Close the extension box hatch.

6.2. Power Supply

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.

Supply connection

Stranded cables are recommended in Wallbox installations.

A combined residual current protection device and a circuit breaker (RCD / MCB) for each charging outlet are integrated in the charger extension box.


max. 50mm² Cu/Al

Supply

Cu16

7. Commissioning

Before commissioning the Wallbox must be installed according to the installation instructions.

By default all Wallboxes are operating in free charging mode (Standalone operation). In this free charging mode external communication (Ethernet, 2G/3G/4G) is not active. If the Wallbox is going to be connected to some back-office (Online mode), first make sure that the basic functionality is working before establishing communication.

7.1. Connecting to Wallbox

If you want to change the default settings, you must connect to Wallbox via web configuration tool to be able to proceed with the commissioning settings. Use Firefox or Windows Explorer web-browser for configuring.
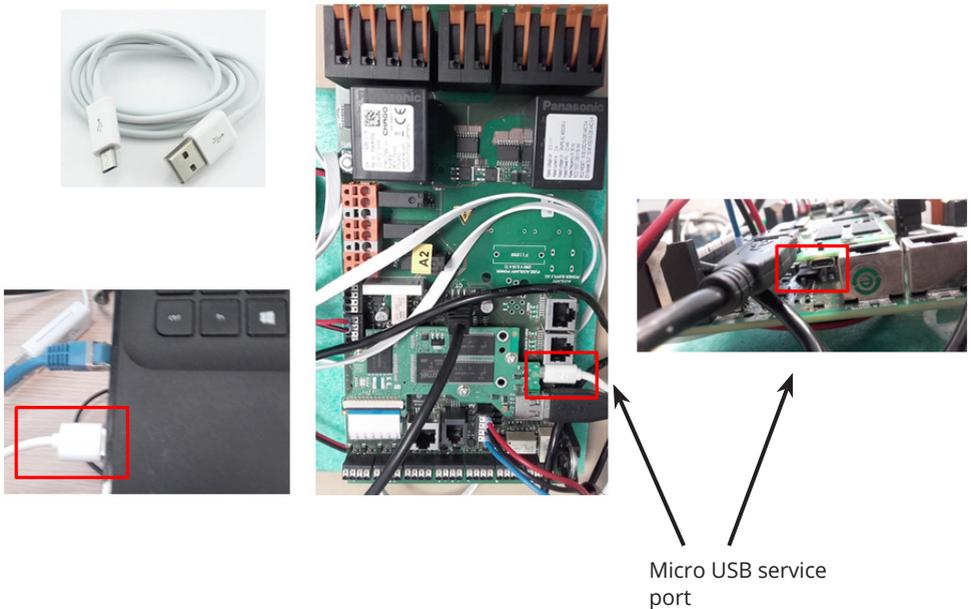
Micro USB service port

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

8. User Instructions

8.1. User Interfaces

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

Charging point status	LED light	LED operation
Charging point is free and ready to use	Green	Stable
RFID read, user login ongoing	Green	Flashing
User login fail, access denied	Red	Stable
User login passed, charging allowed	Green	Waving
While connecting the cable	Green	Flashing twice
Vehicle connected, charging not started	Green	Waving
Vehicle connected, starts charging	Blue	Waving
Charging ongoing	Blue	Stable
Error state	Red	Stable

8.2. Charging

Free charging
- Plug in your electric vehicle to start charging.
- Unplug your electric vehicle to stop charging.

Charging with RFID
You must have an RFID tag which has a permission to access the charger.
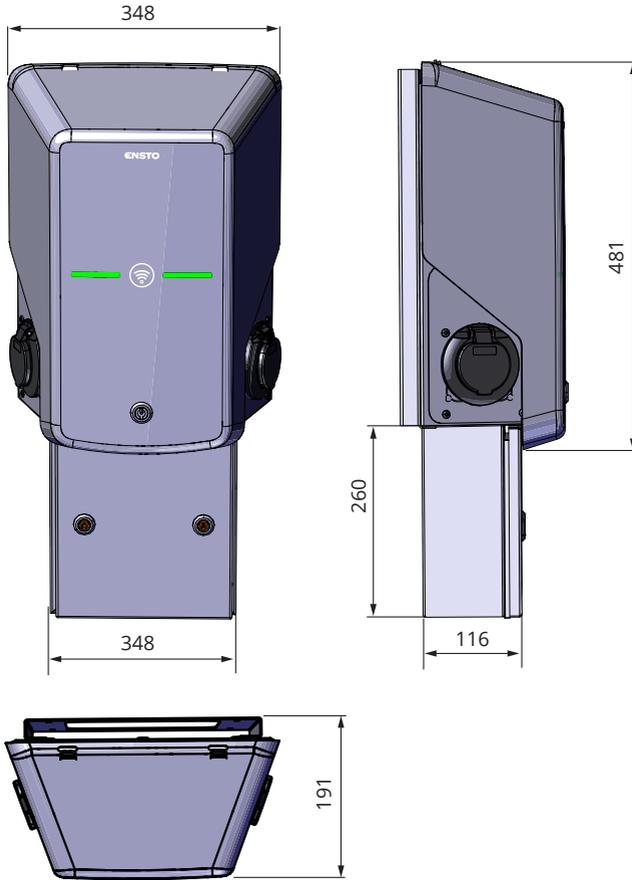
Start Charging with RFID
- When the charging point is free and the indicator light shows green, you can start a charging event.
- Show the RFID tag to the RFID reading area.
- When the RFID tag is read, the charging point will flash green and verify the user permission to charge. If the user login is failed, the indicator light turns to red. If the user login is passed, the indicator light turns to waving green.
- Now you are logged in to the charging point.
- Plug in the electric vehicle for charging. The indicator light turns to stable blue.

Stop Charging with RFID
- Show the RFID tag to the RFID reading area.
- When you stop the charging event, the indicator light turns to waving green and you are able to unplug the charging cable.
- After you have unplugged, you are logged out from the charging point and the charging point is free for the next user.

9. Dimension Drawing

10. Technical Information

Electrical Connections	
Nominal supply voltage	1-ph/3-ph, 230/400VAC, 50Hz
Charging current (nominal)	3x32A / 1x32A, configurable between 6A...32A
Charging power (nominal)	Max. 22kW per charging outlet Dynamic Load Management (DLM)
Supply connections and terminals	L1, L2, L3, N, PE Cu/Al 2.5–50 mm² Recommended 10 mm² at nominal power Tightening torque Nm: 4 Nm (2.5 - 4 mm²), 12 Nm (6 - 50 mm²)

Design and Mechanics	
Materials	Frame: Painted steel Cover: Plastic Extension box: Painted steel
Color	Frame: RAL7021 "Anthracite" Cover: White and black tape Extension box: RAL7021 "Anthracite"
Weight	approx. 10 kg, depends on product configuration
Enclosure class	IP54
Shock protection rate	IK10
Operating temperature	-30 °C ... +50 °C
Standard	IEC 61851-1
Approvals / markings	CE

User Interface	
Socket outlet	Mode 3 / Type 2
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
Current measurement	MID class kWh meter

Safety Features	
RCB / MCB	Type A 30mA, class C, nominal current 32A
Control voltage	12VDC
Temperature control	High operating temperature, such as direct sunlight, can cause reduced charging current or temporary interruption in the charging procedure

Control and Communication	
Operation mode	Standalone / Online
Wireless	2G / 3G / 4G
Wired	Ethernet
Protocol	OCPP1.5 or OCPP1.6

11. Installation / Commissioning Checklist

Introduction

This checklist is a guidance for ensuring both mechanical and electrical installation as well as commissioning of the Wallbox.

Checking the Installation

⚠️ *Go through the visual, mechanical and electrical installation when the charger is un-powered.*

CATEGORY	X	ITEM
Overall look		Ordered material has been received.
		Protective plastic wrapping have been removed.
		No scratches or damages may be seen.
Mechanical installation		Charging station is fixed properly on installation site.
Electrical installation		Charging station's power supply capacity meets electrical planning (cable size, MCB...). Review local electrical design plan.
		Gently push the charging station with a hand to create vibration to ensure no bad contact / connection exist (wire or PCB).
		Check tightness of the PE-cable screw.
		Power supply cables (L1, L2, L3, N and PE) are properly connected.
		Insulation of power supply cables is intact (L1, L2, L3, N and PE).
		Voltage between PE and N is less than 10 V.
		PE conductor resistance is less than 3 Ω.
Operational check		All the LED states / colors (green, blue, red) and the RFID reader are functioning. Create fail and charge with a RFID tag. Red at bootup, green at idle and blue while charging.
		Available electricity at the sockets. All the contacts (L1, L2, L3) must be tested. Use a Mode 3 tester.
		Verify that when charging point's LED is green, there is no power at the socket contact (L1, L2, L3, N).
		Test the functioning of Mode 3 (from green to blue). Use a Mode 3 tester.
		Test the function of the RCD / MCB.
Ready for use		Correct SW is in use.
		Correct operating mode is in use: • Standalone • Online

12. Maintenance / Preventive Maintenance Instructions

1 x per year

⚠️ **WARNING! Danger of electrical shock or injury.**
Disconnect power before working inside the device or removing any components.

X	MAINTENANCE ACTION
	Retighten all the screws on electric components.
	Check the Mode 3 socket for burn or damaged parts and if needed, change it (socket cost is not under warranty).
	Check the charging cable and if needed change it.
	Check the sealings.
	Gently push the charging station with a hand to create vibration to ensure no bad contact / connection exist (wire or PCB).
	All the LED states / colors (green, blue, red) and the RFID reader are functioning. Create fail and charge with a RFID tag. Red at bootup, green at idle and blue while charging.
	Available electricity at the sockets. All the contacts (L1, L2, L3) must be tested. Use a Mode 3 tester.
	Test the functioning of Mode 3 (from green to blue). Use a Mode 3 tester.
	Check tightness of the PE-cable screw.
	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.
	SW update if needed (if in service contract).
	Restart the station from F0, ensure it will restart properly.
	Check the visible metal parts for rust. Apply anti-corrosion agent, if needed.
	Test the function of the RCD / MCB twice a year.

13. RCD/MCB test instructions

- The RCD/MCB is in the extension box.
- Open the extension box hatch.
- Press the **TEST** button.
- The rocker turns to **0** position.
- Turn the rocker back to **I** position.
- If a fault occurs, contact an electrician.

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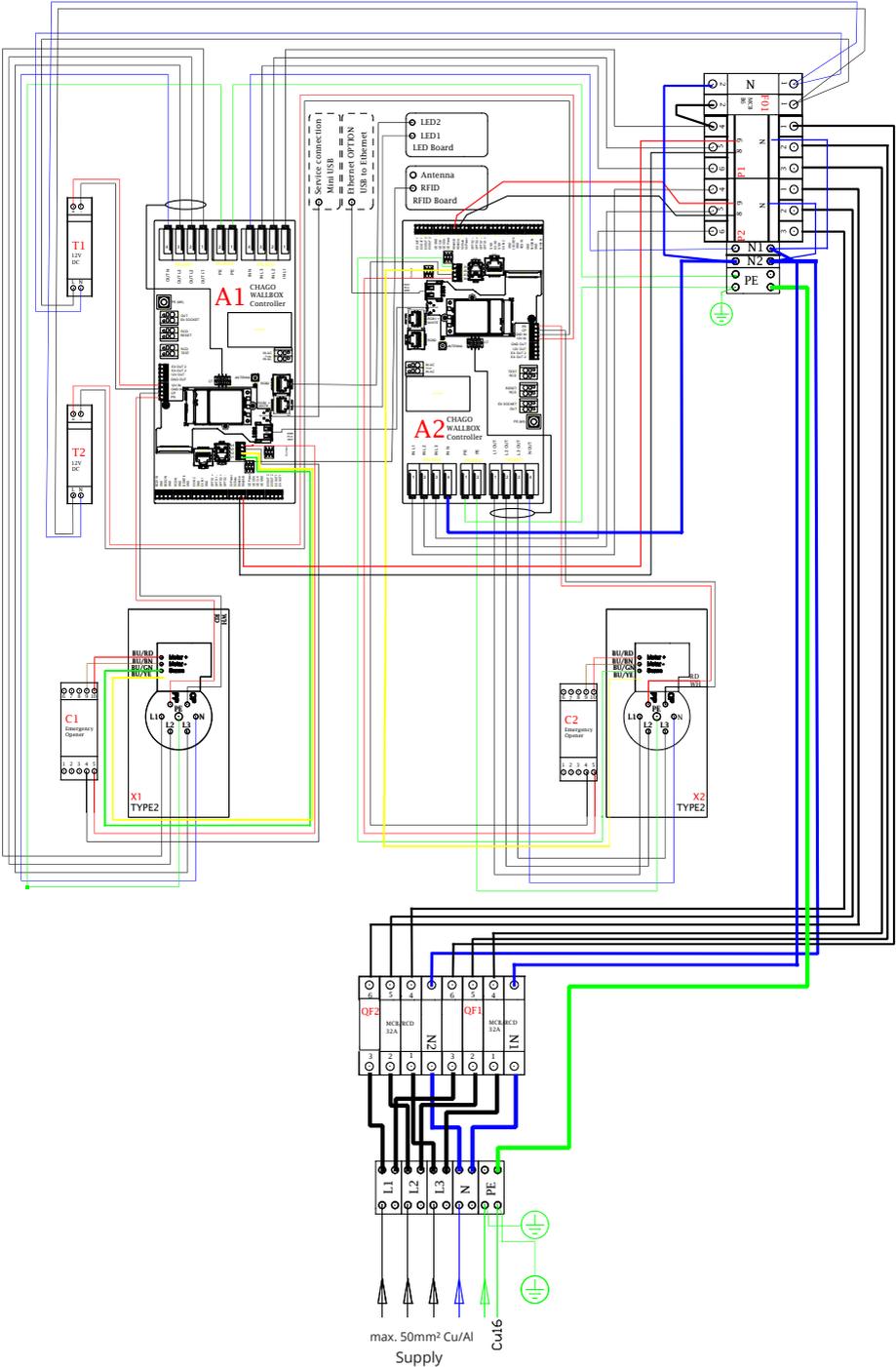
15. Troubleshooting

The charger is off, no lights on

Issue	Corrective action
Mains voltage does not exist in the supply connector L1.	Ensure proper power supply.
The circuit breaker F0 is off.	Turn the F0 on.
The 12V power unit has no LED on.	Ensure 230V power supply to the 12V power unit; if ok replace the power unit.
The controller has no PWR LED on.	Ensure power supply to the controller; if ok replace the controller.

The charging cable is locked in the Mode 3 socket outlet

Issue	Corrective action
An unexpected fault has occurred while the power is on.	Option 1: If equipped with a Mode 3 lock release functionality, turn off the power from F0 and pull the charging cable out from the socket. Option 2: Turn off the power. Switch the Mode 3 lock manually into open position.
The power is off.	Open the front cover. Switch the Mode 3 lock into open position. Note! If the charger has a Mode 3 Lock Release functionality, then during power cut the Mode 3 lock opens automatically.

Configuration via web browser

Issue	Corrective action
PC does not recognize the micro USB plug and connection to the controller cannot be established via web browser.	Check from the Windows 7 / 10 operating system settings via "Device Manager" that the RNDIS network adapter is available. If not, update the related Windows driver.

16. Warranty

Warranty conditions, see the product card on www.ensto.com.

Better life.
With electricity.

ENSTO

ensto.com