

INSTRUCTION & INSTALLATION MANUAL

MODELS:

CCL-eHOME T1C16

CCL-eHOME T1C32

CCL-eHOME T2C16

CCL-eHOME T2C32

WALLBOX eHOME SERIES



CIRCONTROL
Mobility & eMobility

WALLBOX eHOME Instruction and Installation manual

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1 INTRODUCTION

This manual contains all the necessary information for the safe use of the **Wallbox eHOME** electrical vehicle (EV) charging system and it will help you to get the best performance results from the system.

This equipment incorporates the latest technology and offers the most advanced service in the EV charging market.

1.1 IMPORTANT SAFETY INFORMATION



Read carefully all the instructions before starting, to ensure the proper installation of the charging point.

The charging point is designed for installation in indoor and outdoor areas. Whatever is the case, the unit must be installed safely and with the adequate electrical protections.

- The charging point must not be installed in areas where there is a potential risk of explosions.
- Do not install the charging point where falling objects may damage the equipment.
- The wall surface where the charging point is placed must withstand the mechanical forces.
- Do not use this unit for anything other than electric vehicle charging modes which are expected in IEC 61851.
- Do not modify this unit. If modified, CIRCONTROL will reject all responsibility and the warranty will be void.
- Comply strictly with electrical safety regulations according to your country.
- Do not make repairs or manipulations with the unit energised.
- Only trained and qualified personnel should have access to low-voltage electrical parts inside the device.
- Check the installation annually by qualified technician.
- Remove from service any item that has a fault that could be dangerous for users (broken plugs, caps that don't close...).
- Use only Circontrol supplied spare parts.

- Do not use this product if the enclosure or the EV connector is broken, cracked, open, or shows any other indication of damage.

1.2 SHORT DESCRIPTION

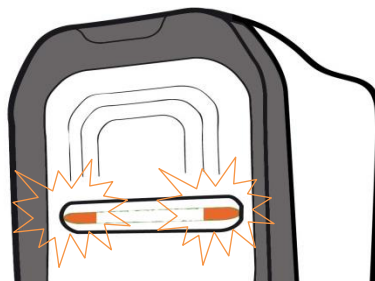
The **Wallbox eHOME** charging system is specially designed to be easily installed both in outdoor and indoor private car parks, in order to charge all the EV brands of the market in MODE 3 (according to European standard IEC 61851-1), by just connecting either its tethered cable with a type 1 or type 2 connector.

2 MAIN FEATURES

- **Remote control input:** Allows to start/stop the EV recharge by means of a dedicated logic input.
- **Plug & Play:** It is possible to start charging by just plugging the **Wallbox eHOME** connector into the car.
- **Current limitation:** By means of an on-board rotative dipswitch, the maximum current delivered by the unit is setup.
- **Status RGB LED bar:** It shows the status of the unit when it is either available or charging. Also some specific blinking error sequences are shown when there is a faulty operation.
- **Housing:** Designed for outdoor and indoor operation.

3 FIRMWARE VERSION

When the unit is booting, the LED bar will show the firmware version in orange. The first digit of the version will be shown as a certain number of blinkings of the the first LED, as many times as the digit indicates, and the second digit will be displayed by the last LED blinking accordingly to what the second digit indicates (i.e. for version 1.6, you will see one blink at the first LED and six at the last LED).



4 OPERATING INSTRUCTIONS

4.1 CHARGING PROCEDURE

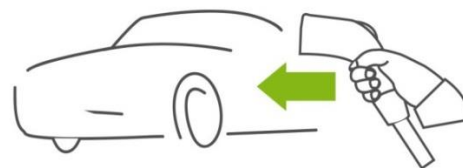
1

- The **Wallbox eHOME** has a status LED bar. When it is in green colour, it means that the unit is available and ready to start a recharge (A status)*.



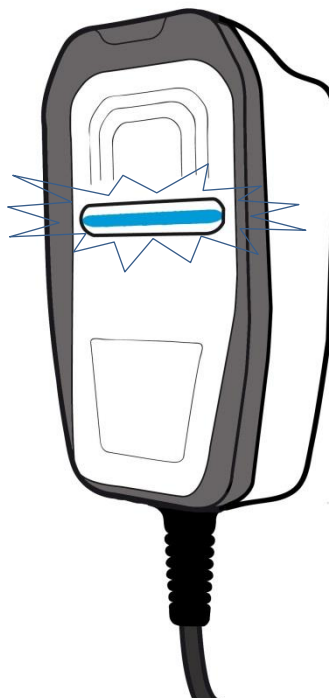
2

- To start a new recharge, plug the **Wallbox eHOME** cable into your car.



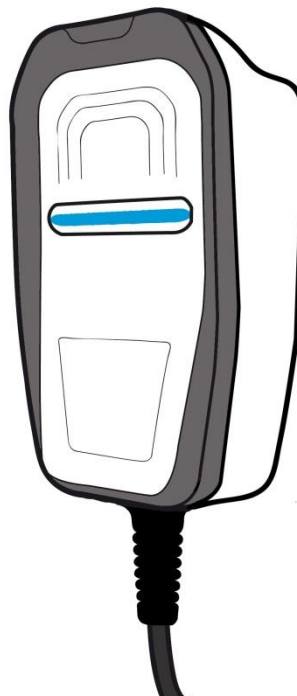
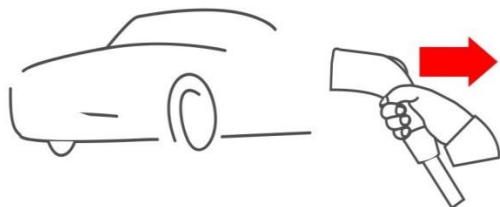
3

- The status LED bar turns into blue.
- The **WallBox eHOME** starts the charging process.
- While charging the EV, the LED bar will be flashing continuously (status C)*.



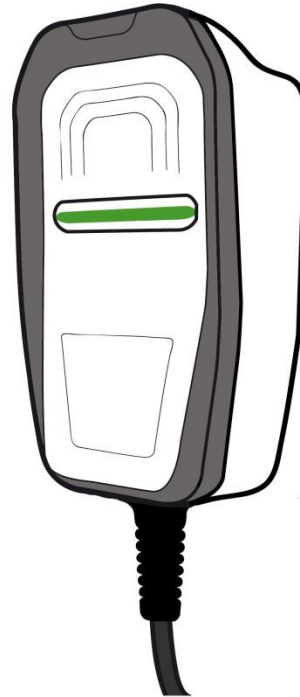
4

- When the EV is fully charged, the charging process ends up and the status LED bar stops flashing and keeps fix in blue (B status)*.
- Then you can unplug the cable from the EV.



5

- Once the cable is disconnected from the EV, the LED status bar turns back into green (A status)*.
- In this status, the unit is available to start a new charging process, whenever it is required.



* According to IEC 61851

4.2 STATUS LED BAR ERROR SEQUENCES

The **Wallbox eHOME** is capable to detect the following operating errors:

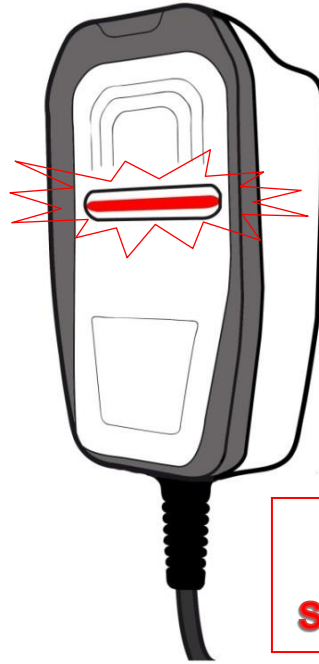
- Ventilation required error
- Pilot error
- Proximity error
- Negative PWM error
- Maximum output current MiniDips error
- Temperature error

Whatever the error case is, the unit will stop charging and technical assistance will be required, except from the temperature error. In this last case, the unit starts charging when the operating temperature is reached again.

In the following sections it will be explained how the **Wallbox eHOME** shows the above mentioned errors and the actions taken by the unit.

4.2.1 VENTILATION REQUIRED ERROR (D STATUS)*

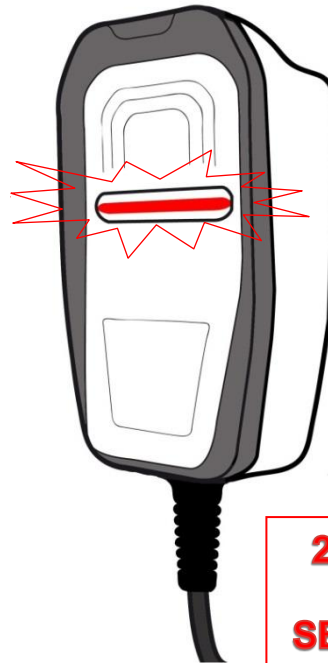
- In some old EVs, this state means that there are some gases coming out from the batteries. So, an external ventilation in the car park might be required.
- If it was the case, the status LED bar would turn into red and keep flashing permanently.



**1 BLINK
SEQUENCE**

4.2.2 PILOT ERROR (E STATUS)*

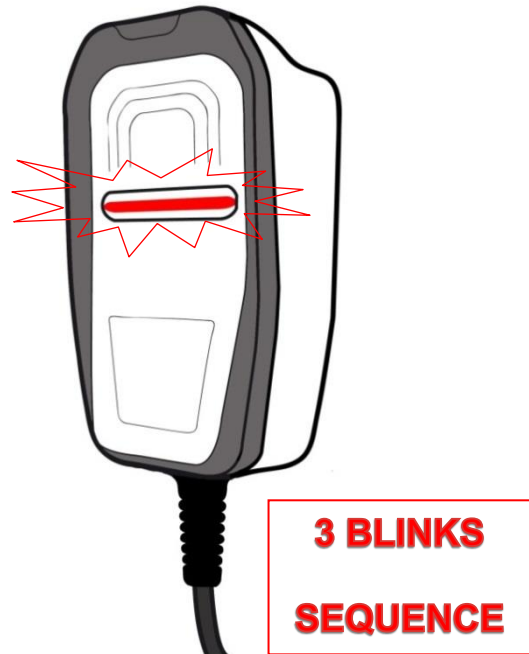
- When the unit is connected to the EV, a Pilot short-circuit to earth may occur.
- Then, the status LED bar turns into red and flashes in a sequence of two blinks.



**2 BLINKS
SEQUENCE**

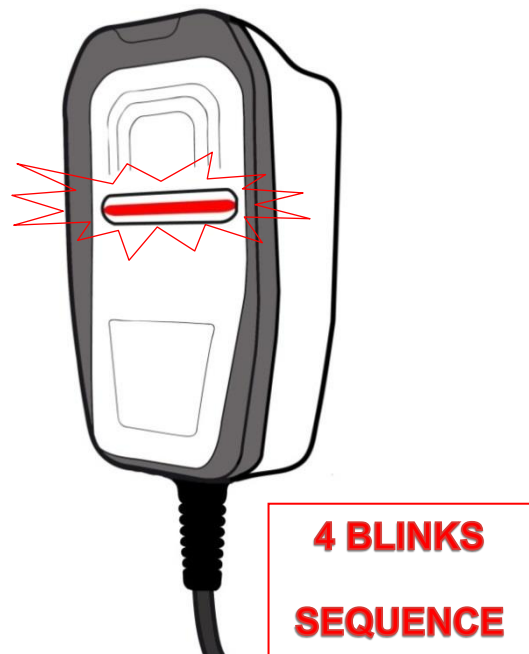
4.2.3 PROXIMITY ERROR

- When the unit is connected to the EV, a Proximity short-circuit to earth may occur.
- Then, the status LED bar turns into red and flashes in a sequence of three blinks.



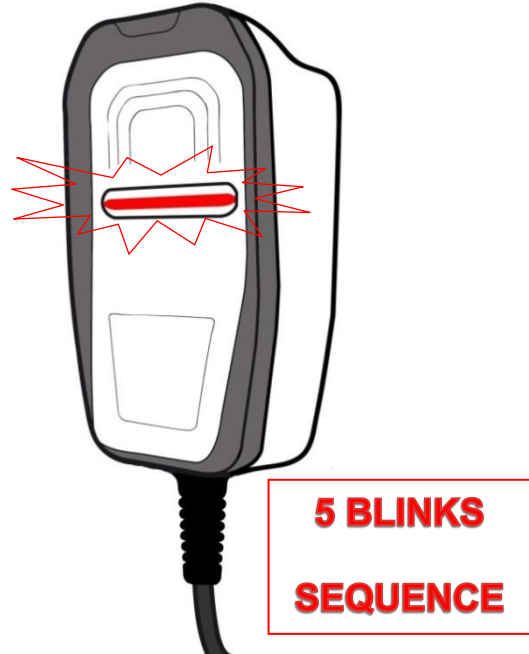
4.2.4 NEGATIVE PWM VOLTAGE ERROR

- When the unit is connected to the EV, the PWM signal, used to communicate the unit with the EV, can be negative.
- Then, the status LED bar turns into red and flashes in a sequence of four blinks.



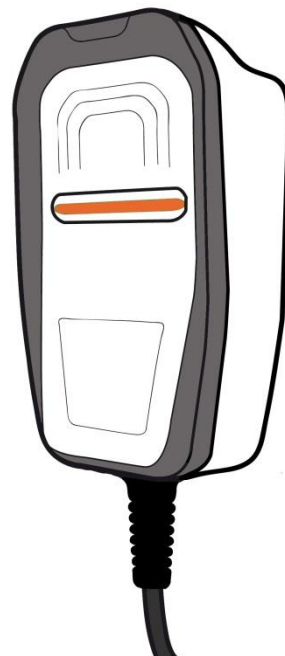
4.2.5 MAXIMUM OUTPUT CURRENT MINIDIPS ERROR

- If this on board current limit selection is not setup according to the hardware features, the unit detects it and shows this error.
- In this case, the status LED bar turns into red and flashes in a sequence of five blinks.



4.2.6 TEMPERATURE ERROR

- When the unit temperature is below a certain value, it is detected by the unit.
- In this situation, the status LED bar turns into orange and keeps fix.
- In the meantime, if the unit is supplied with heater (optional), it starts heating the inside components until the operating temperature is reached. Then the unit starts charging again.



* According to IEC 61851

5 INSTALLATION GUIDELINES

5.1 PREFACE

THE FOLLOWING SYMBOLS ARE USED FOR IMPORTANT SAFETY INFORMATION IN THIS DOCUMENT



ELECTRIC RISK!

Take precautions to make the electrical connection inside the unit.

The unit must be disconnected from any power supply during the commissioning.



ATTENTION!

Damage to the property can occur if appropriate precautions are not taken.

This section provides the commissioning information for **Wallbox eHOME** series, where is described the electrical components inside the charging station and a step-by-step installation procedure.

Standards & directives

- Complies with IEC 61851, Electric vehicle conductive charging system (IEC 61851-1, IEC 61851-22).
- Complies with IEC 62196, Plugs, socket-outlets, vehicle couplers and vehicle inlets (IEC 62196-1 and IEC 62196-2).
- Directives: 2004/108/EC, EMC; 2006/95/EC, Low voltage directive.

5.2 ELECTRICAL WIRING CONSIDERATIONS



Before starting with the wiring connection of the charging station, you must take into consideration this section.

1. Charging point power supply

The charging point does not include elements for electrical protection.

The power supply line which comes from the distribution board to the charging point, must meet the electrical safety standards, according to your country regulations. The minimum safety required protections are as follows:

- RCD: Type A. $I_{\Delta N}=0.03A$.
- MCB: Its gauge must be chosen depending on the maximum output current of the charging point.

NOTE: For further information, please refer to the *TECHNICAL DATA* section.

2. Power supply - Line dimensioning

The dimensioning of the charging station power supply line must be checked by a qualified electrician. Note that various factors such as the cable length between the distribution board and the unit, its maximum output current or ambient temperature may have influence of the selected cable.

So, it is important to select the appropriate cable cross-section in agreement with the local regulations and the power supply cable type that it is used.

3. Charging point maximum output current

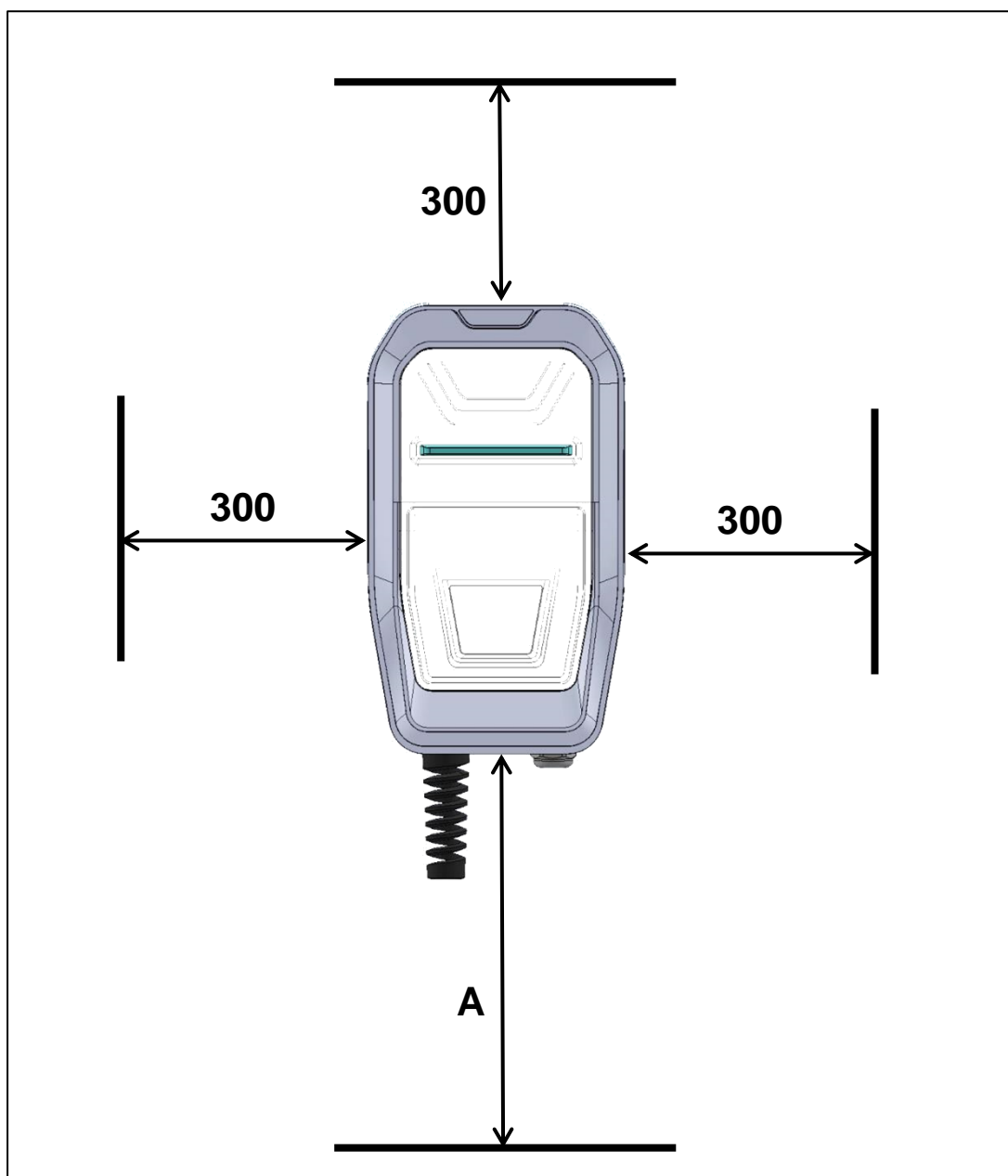
If the installed charging point power supply is less than the maximum output current of the charge point, an adjustment to a lower nominal current must be performed using the on-board rotative dipswitch.

NOTE: Please refer to the *CURRENT LIMIT SELECTOR* section in order to know how to change this value.

5.3 SPACE REQUIREMENTS

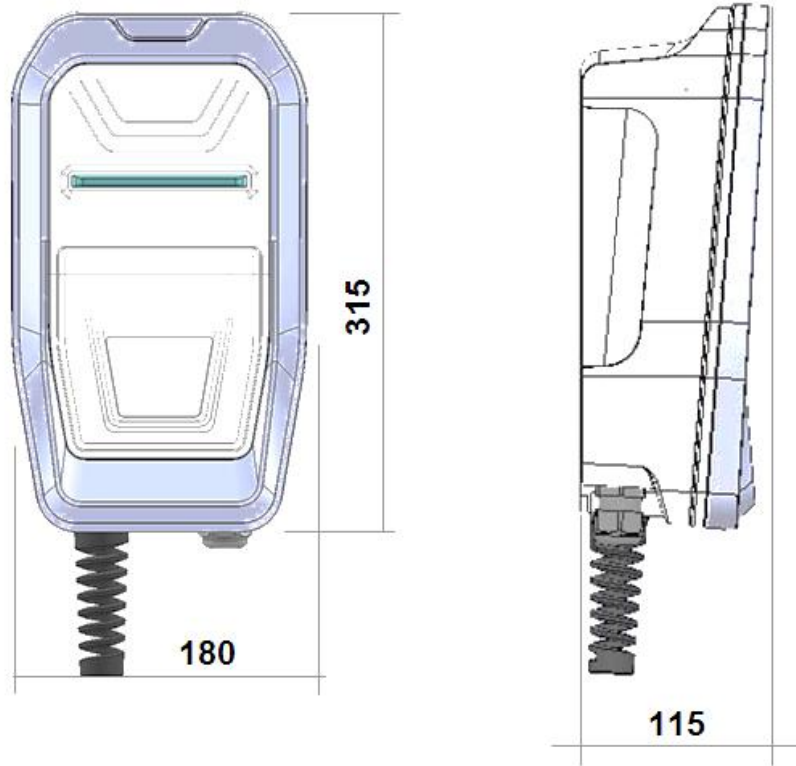
When installing the unit it is necessary to respect some minimum distances for maintenance and safety reasons.

The minimum recommended **A** height is 1.200 mm. Please comply accordingly to your country specifications.



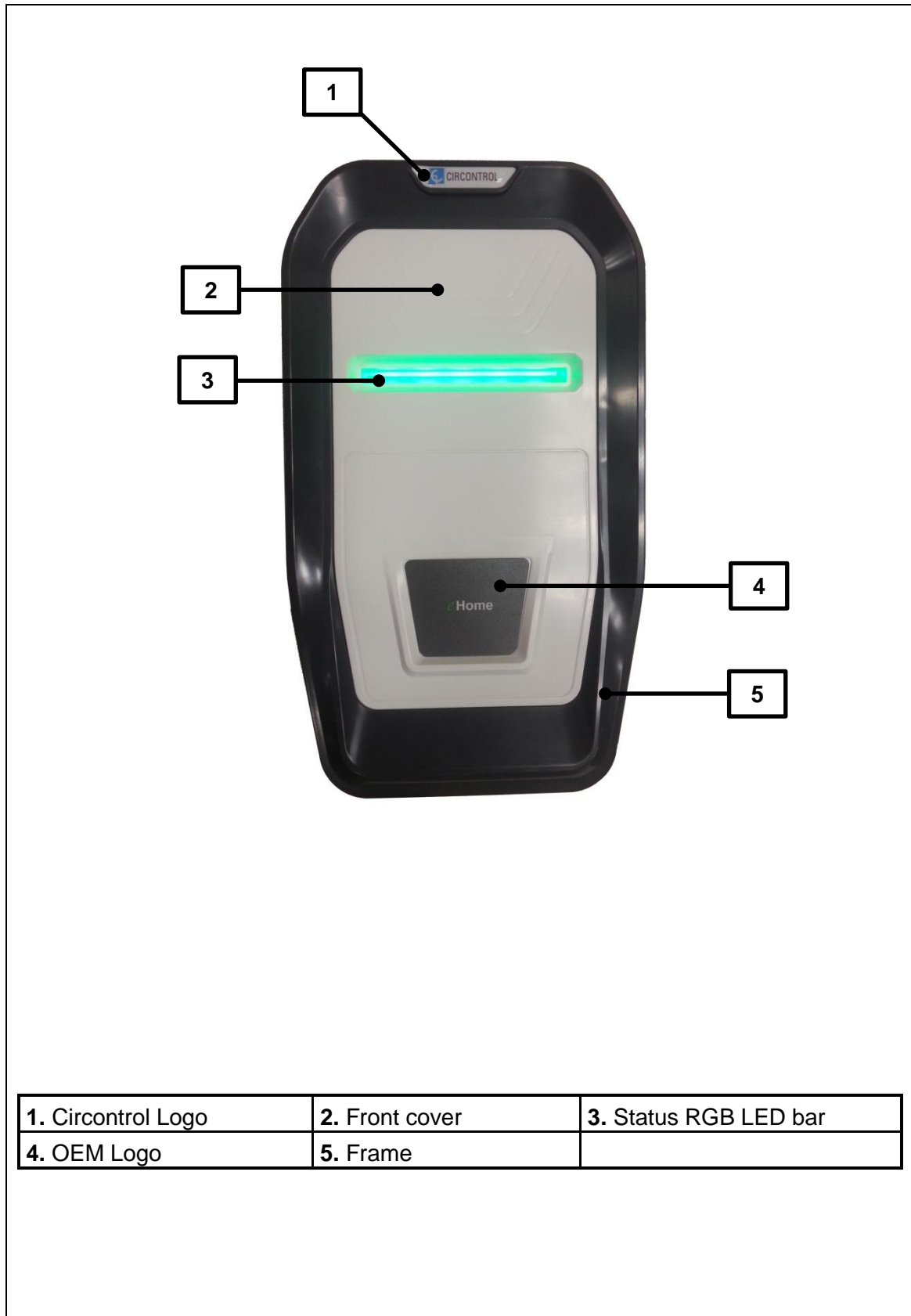
Units specified in mm

6 PRODUCT DIMENSIONS

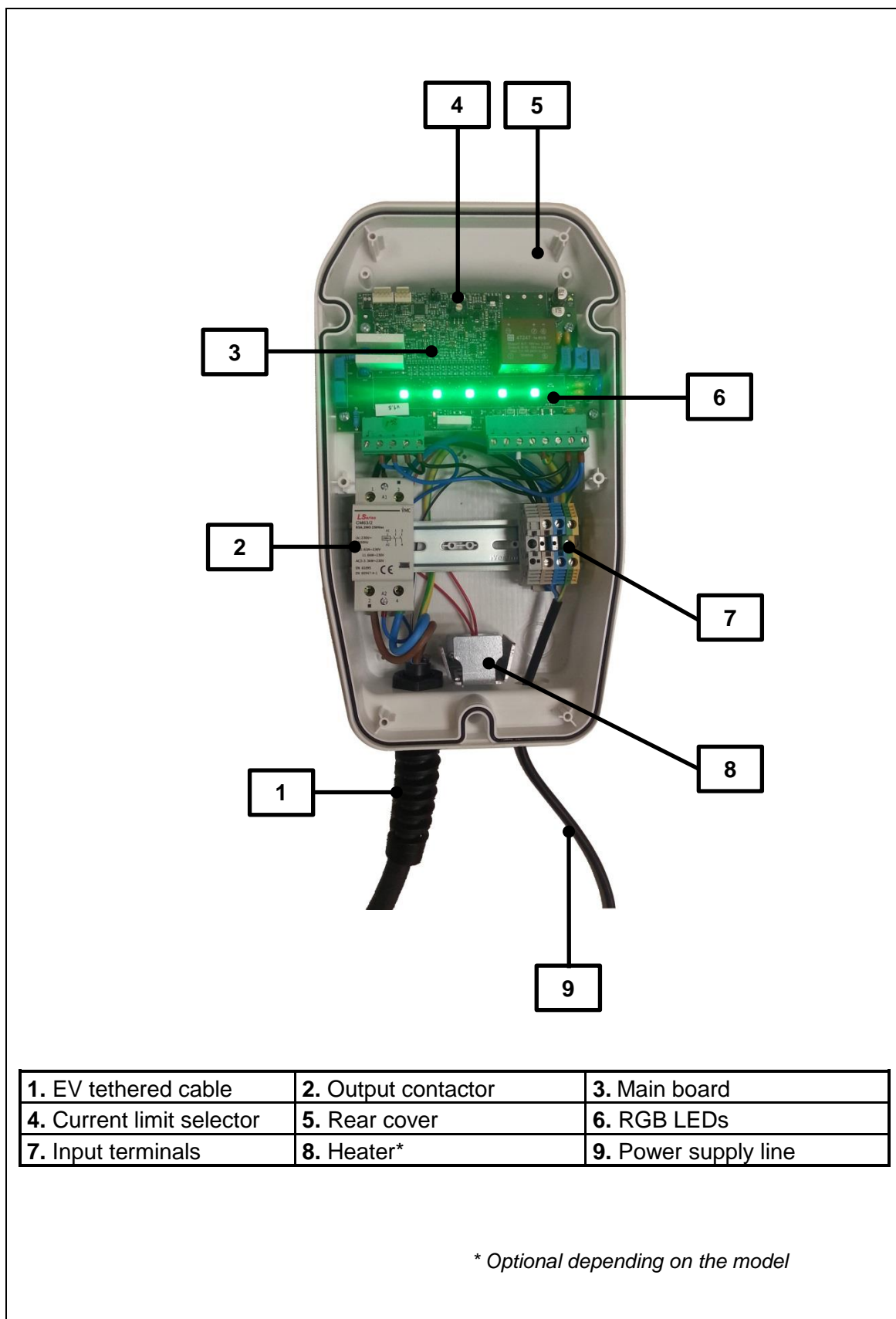


Units specified in mm

7 FRONT PRODUCT VIEW



8 INSIDE PRODUCT VIEW



1. EV tethered cable	2. Output contactor	3. Main board
4. Current limit selector	5. Rear cover	6. RGB LEDs
7. Input terminals	8. Heater*	9. Power supply line

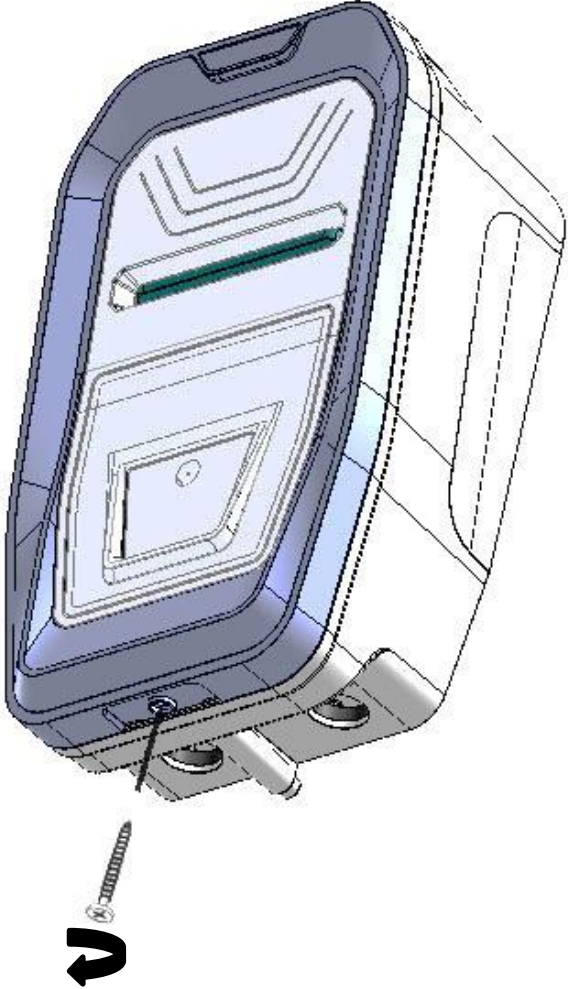
* Optional depending on the model

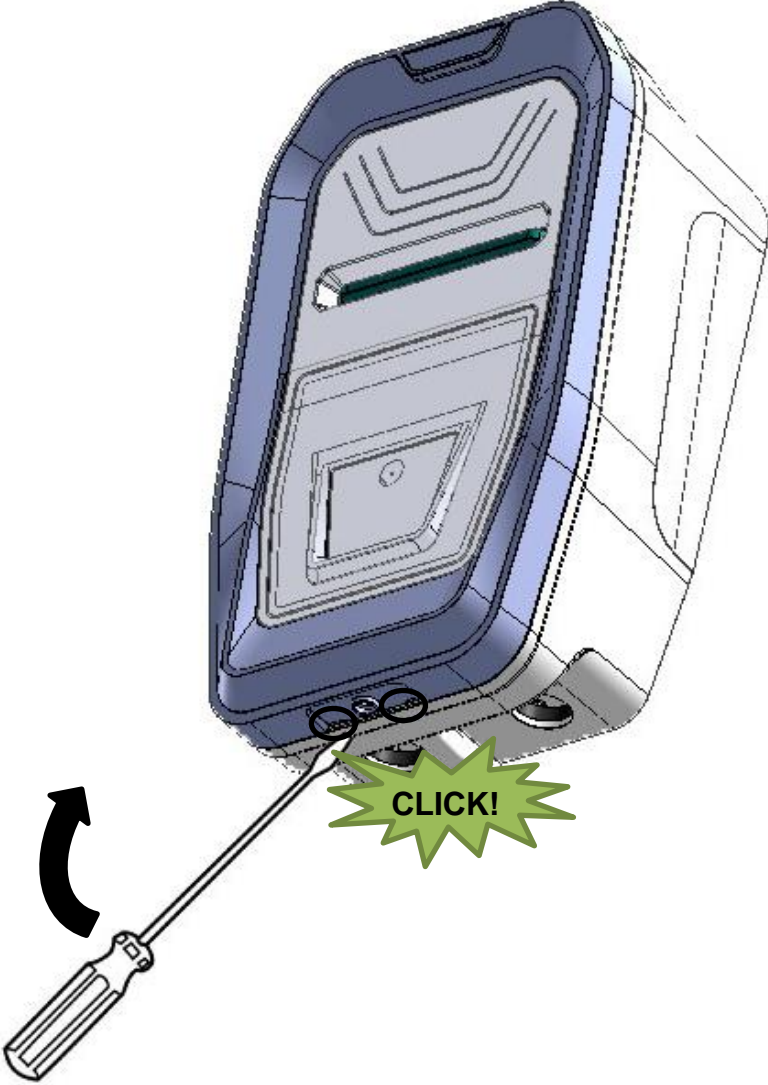

9 INSTALLATION

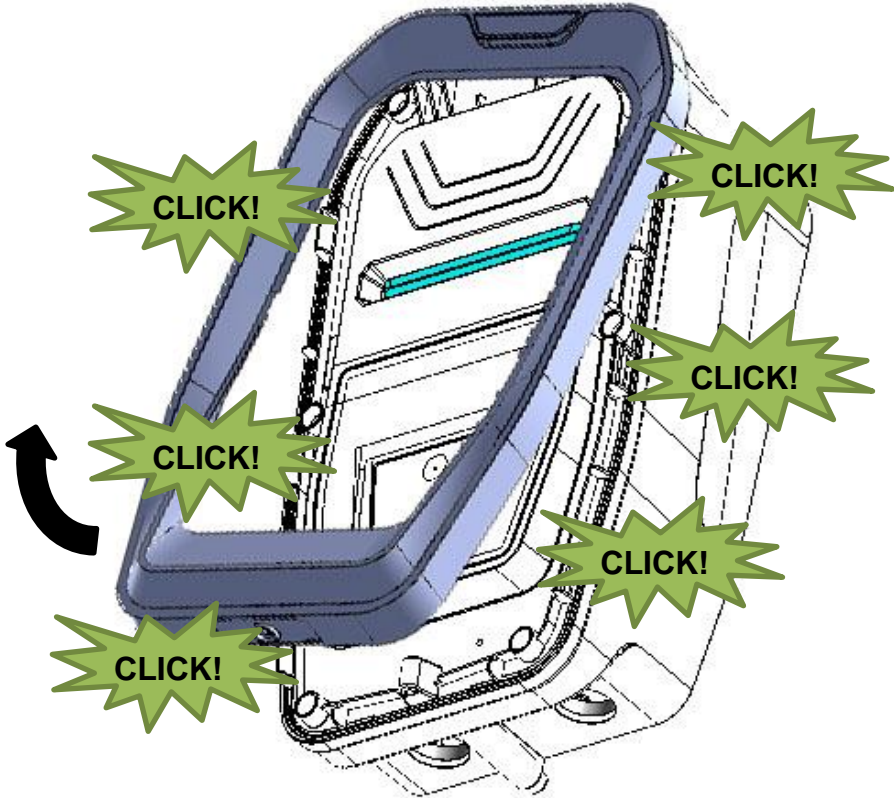

9.1 SUPPLIED MATERIAL

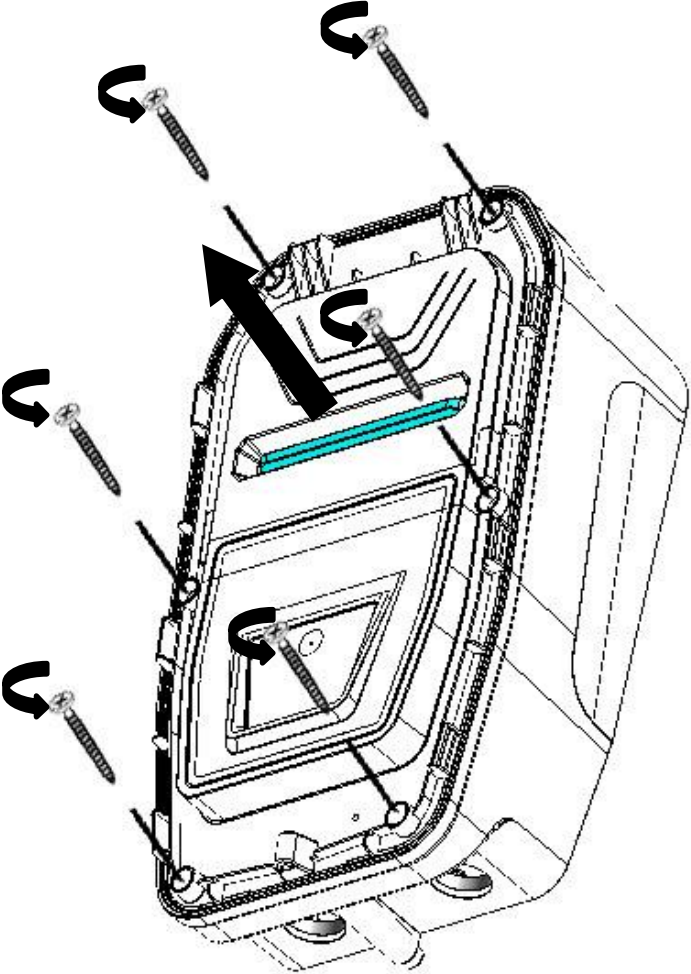

MATERIAL	Qty
Wallbox eHOME charging point	1
User manual	1
Cable gland M25x1.5	1

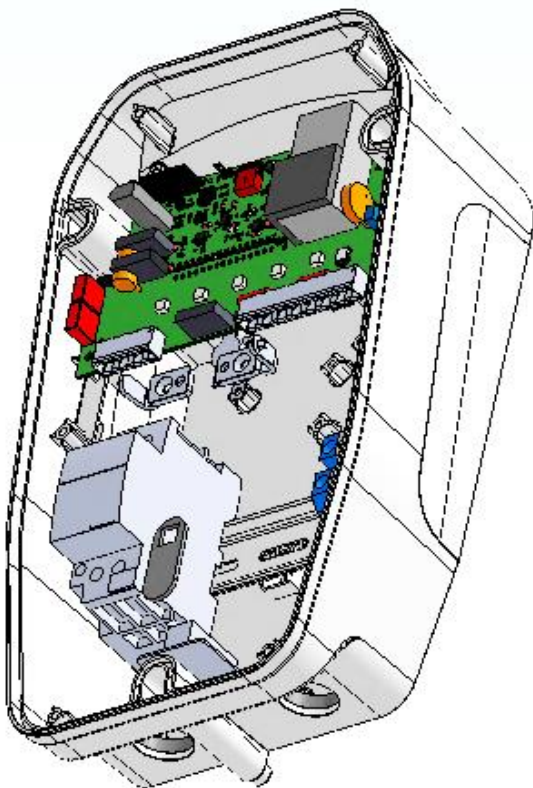

9.2 OPENING THE UNIT

STEP	ACTION
1.	<p data-bbox="341 383 911 412">Remove the screw at the bottom of the box.</p> 

STEP	ACTION
2.	<p data-bbox="339 293 1437 371">Using a screw driver, put it into the indicated marks, at the bottom of the box, and start removing the frame doing click at the bottom.</p>  <p data-bbox="491 1585 624 1704"></p> <p data-bbox="668 1599 1307 1682"><i>Beware of not breaking the plastic of the frame with the screw driver.</i></p>

STEP	ACTION
3.	<p>Grabbing the frame with the hand by the lower part, pull and take it off totally, from the bottom to the top.</p>  <hr/>  <p><i>To make it easier help yourself with the screw driver while pulling the frame off.</i></p> <hr/>

STEP	ACTION
4.	<p data-bbox="325 293 1444 371">Remove the six screws of the front part by using a screw driver and take out the front part of the enclosure.</p>  <p data-bbox="483 1608 616 1720"></p> <p data-bbox="659 1621 1310 1704"><i>Be sure that the unit is not energised before going forward with the opening procedure.</i></p>

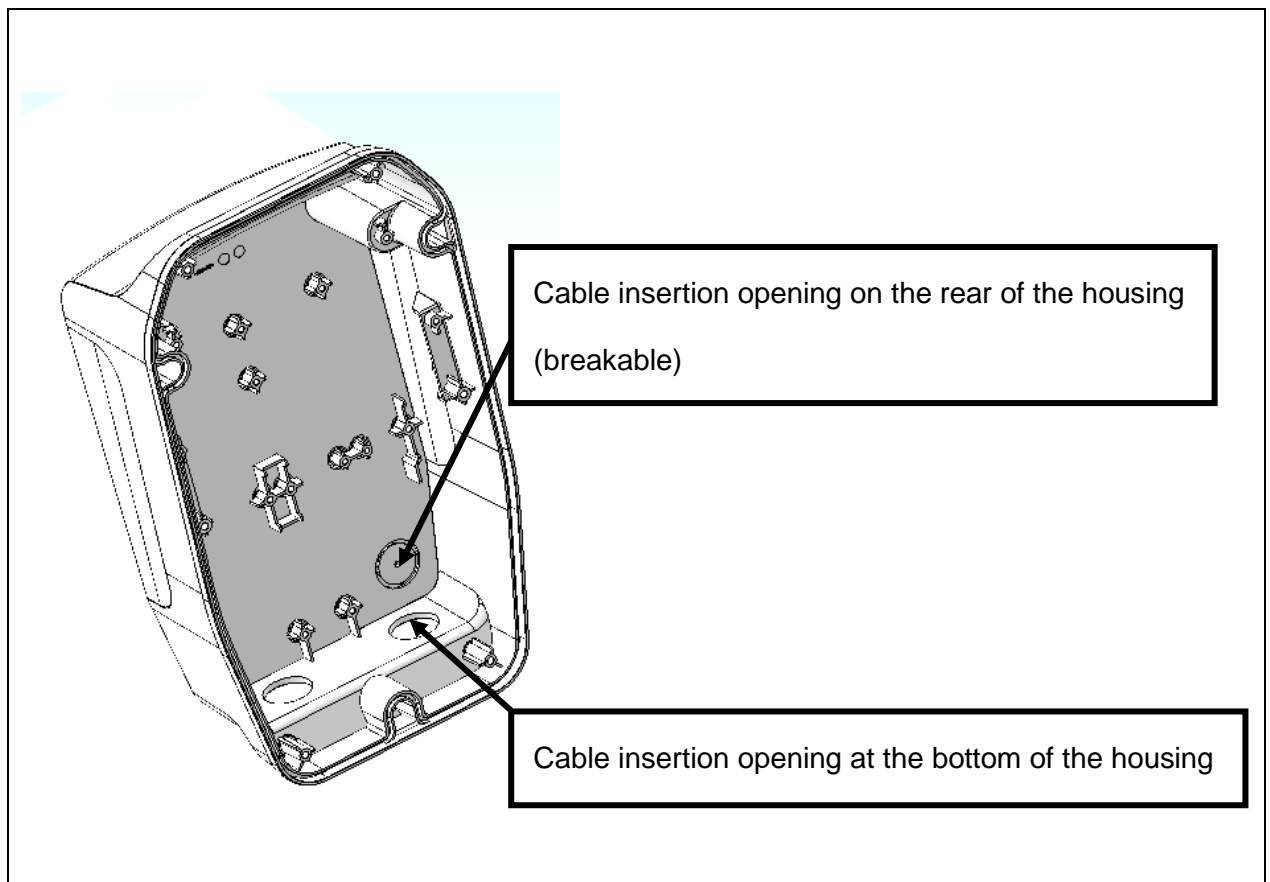
STEP	ACTION
5.	<p>When the front part of the enclosure is off, you can access to the inside components of the unit.</p>  <hr/> <div style="display: flex; align-items: center;">  <p><i>Only the authorised and qualified staff can manipulate the electrical and electronic components of the unit.</i></p> </div> <hr/>

9.3 POWER SUPPLY LINE CABLE INSERTION

There are two possibilities to insert the electric wires or electric pipe:

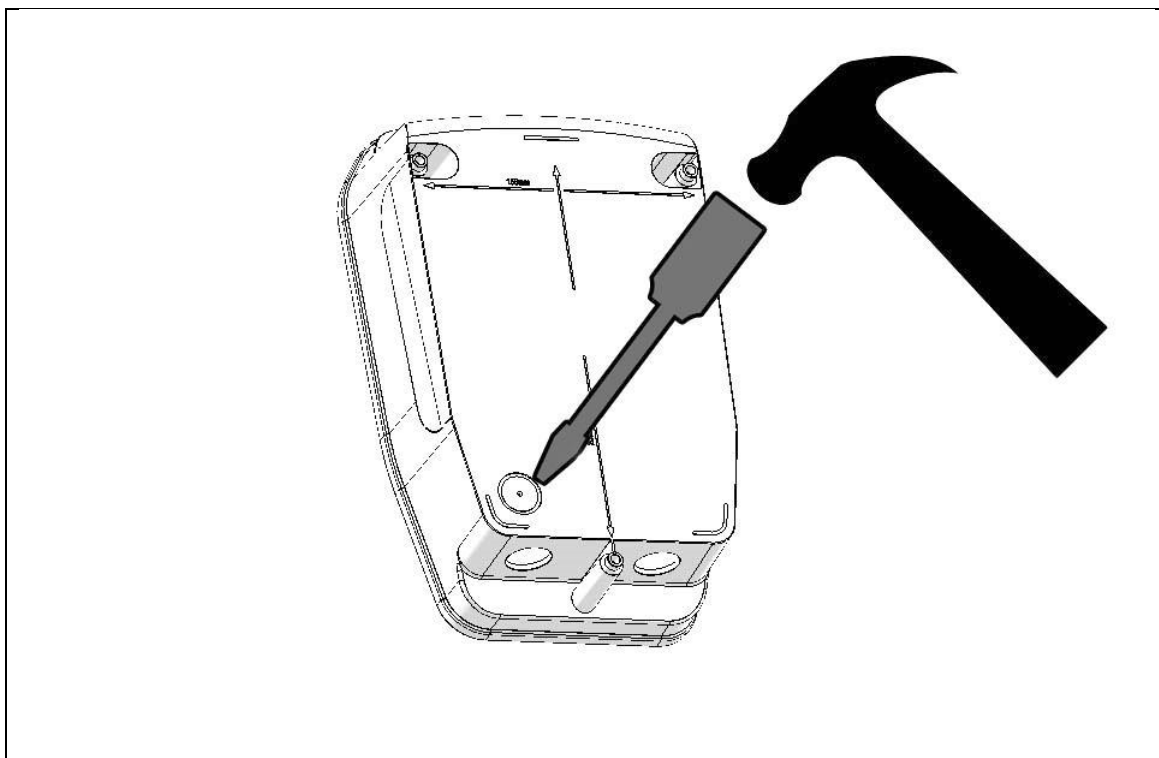
- a) Breaking out the cable insertion opening on the rear of the housing.
- b) Using the cable insertion opening at the bottom of the housing.

In all cases it is required to install a cable gland to ensure properly installation and preserve the IP of the unit.



9.3.1 USING THE REAR CABLE INSERTION OPENING

Use a hammer and a flathead screwdriver carefully in order to break out the cable insertion opening, as shown in the picture below.



Do not make any other holes on the enclosure. Use only the marked cable insertion openings to install the required electric pipes.

Install always double membrane seals to ensure IP protection of the charging point.



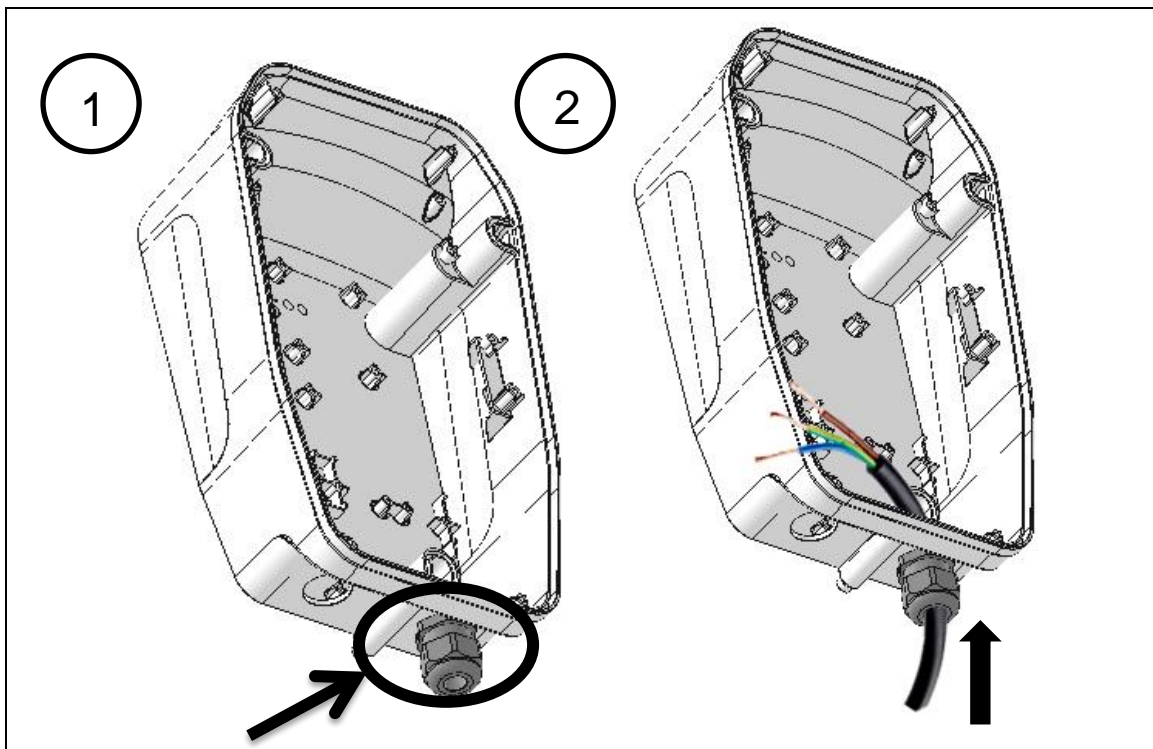
Be careful of not damaging any of the inside components when breaking out the rear cable insertion opening.

9.3.2 USING THE BOTTOM CABLE INSERTION OPENING

Please follow these steps to use this opening:

- Introduce the cable through the opening and fix it properly by means of the supplied M25 cable gland.

NOTE: The power supply cable must be 3x4mm² (for the 16 A models) and 3x6mm² (for the 32 A models) to meet the supplied cable gland.



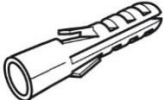

Do not make any other holes on the enclosure. Use only the named cable insertion opening to install the required electric pipes.

Install always either cable glands or double membrane seals to ensure IP protection of the charging point.

9.4 WALL FIXATION PROCEDURE

9.4.1 NEEDED MATERIAL

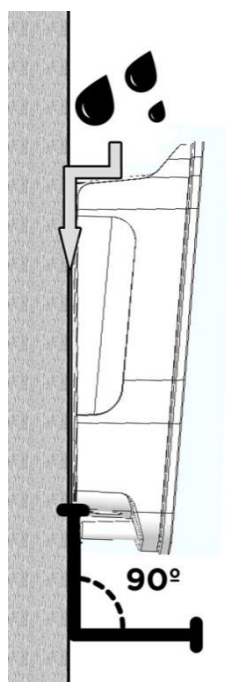
Below, it is shown the list of materials (**not included**) that are necessary to fix the unit on the wall:

MATERIAL	Qty	PICTURE	DIMENSIONS
Wall plug	3		Ø 6mm
Screws	3		4x45mm



All materials shown in the above table may vary depending on the wall surface type.

9.4.2 CONSIDERATIONS

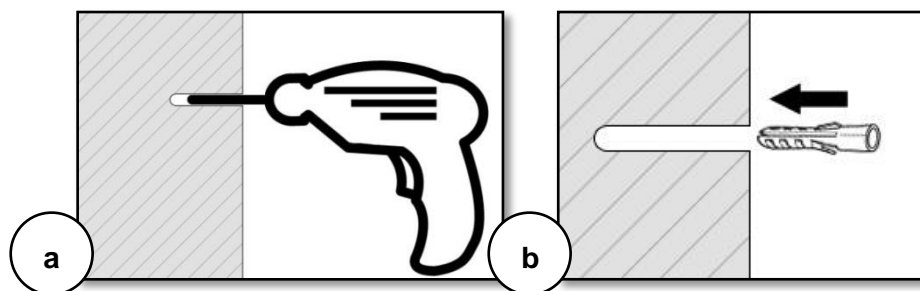


- The unit is designed to drain the water properly from the upper side down.
- The charging point must be installed vertically (use a level tool to ensure its installation at an angle of 90°)
- Please ensure that the installation surface is flat.

9.4.3 INSTALLATION

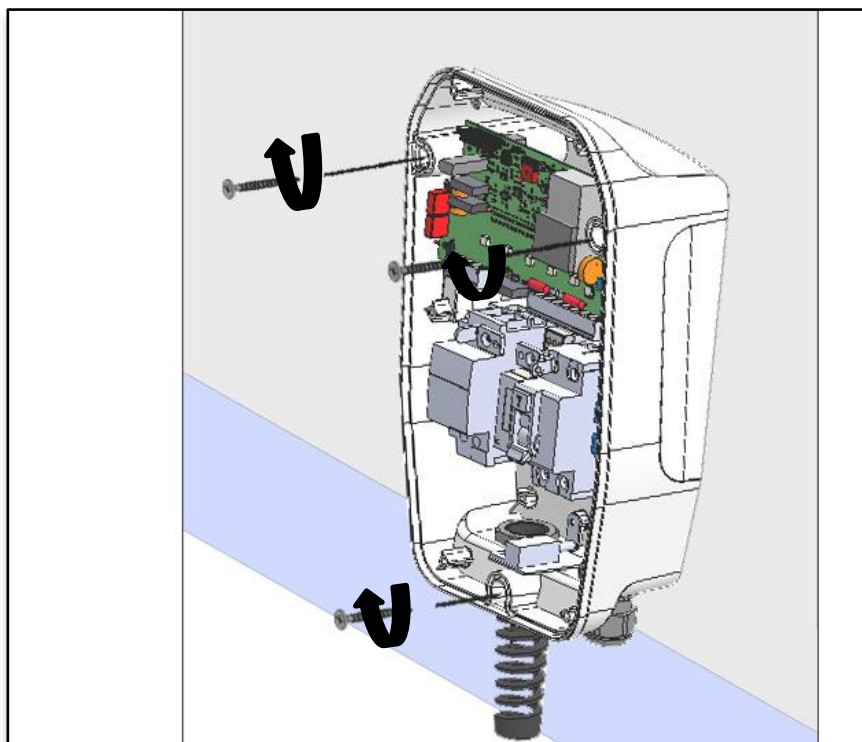
STEP	ACTION
1.	<p>Adjust the vertical position of the charging point to ensure the correct vision and management for the end user.</p> <div data-bbox="660 591 1050 1025" data-label="Image"> </div> <p>Minimum recommended height: 120cm</p> <p>Please comply to your country specifications.</p>
2.	<div data-bbox="395 1272 842 1908" data-label="Image"> </div> <ol data-bbox="922 1263 1295 1899" style="list-style-type: none"> 1. Mark 3 holes taking into account the picture measurements (also written on the rear face of the box). 2. Place the enclosure on a flat surface. 3. Use 3x45mm screws to fix the unit to the wall. 4. Check whether the box has any inclination using a level tool.

3.



- a) Use $\varnothing 6$ drill size to make the 3 holes into the wall.
- b) Install the anchor according to the surface material.

4.



- Use a screw driver to fix the unit on the wall (recommended screw dimensions: 3x45mm)
- Use only the unit holes indicated in the above picture to fix the unit on the wall. Do not make any other holes on the housing; otherwise the water can enter the unit when it rains.



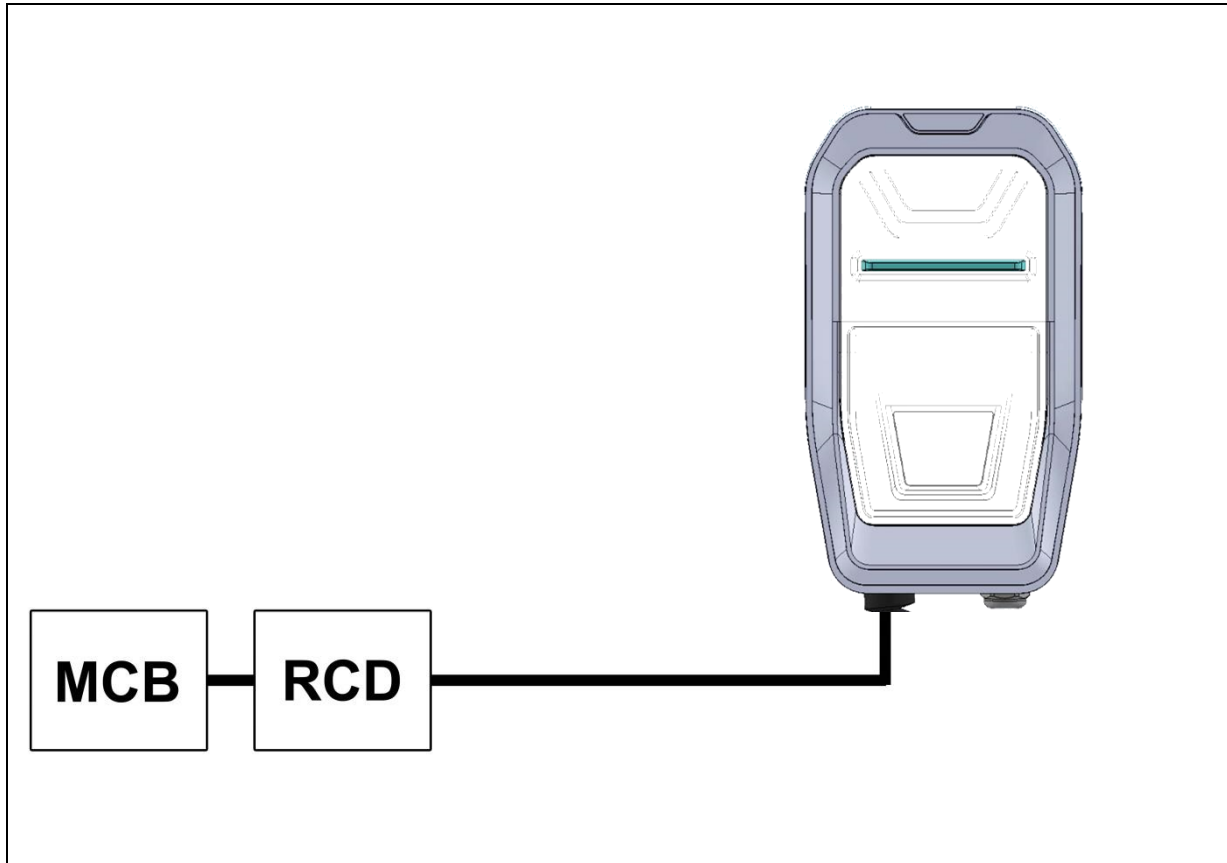
All screws and wall plugs needed to attach the unit to the wall are not included.

9.5 ELECTRICAL INSTALLATION

9.5.1 POWER SUPPLY LINE PROTECTIONS

On these series, the **Wallbox eHOME** doesn't include electrical protections.

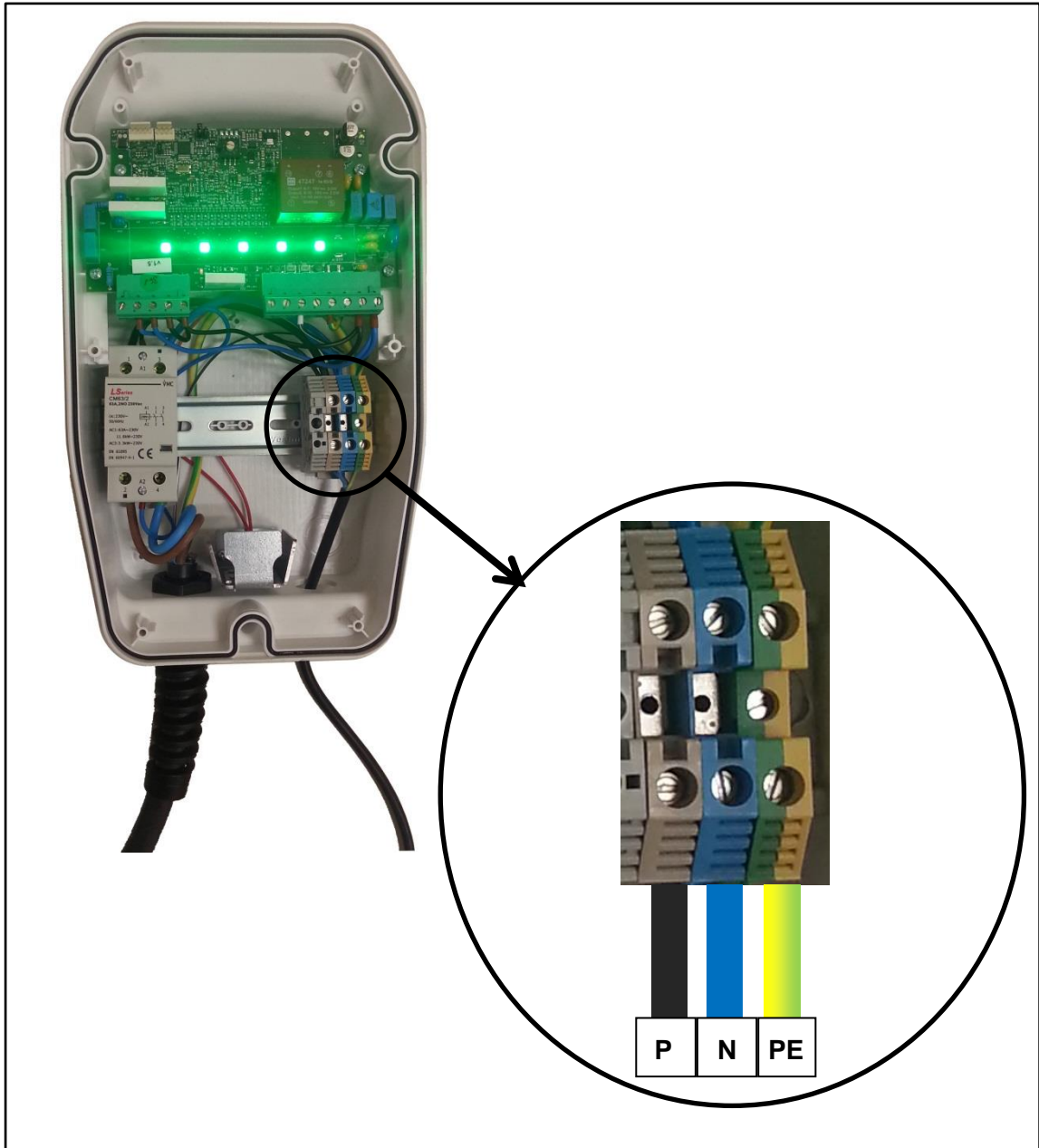
Therefore, please connect a Miniature Circuit Breaker (MCB) and a Residual Current Device (RCD) externally to protect the unit electrically, according to you country regulations.



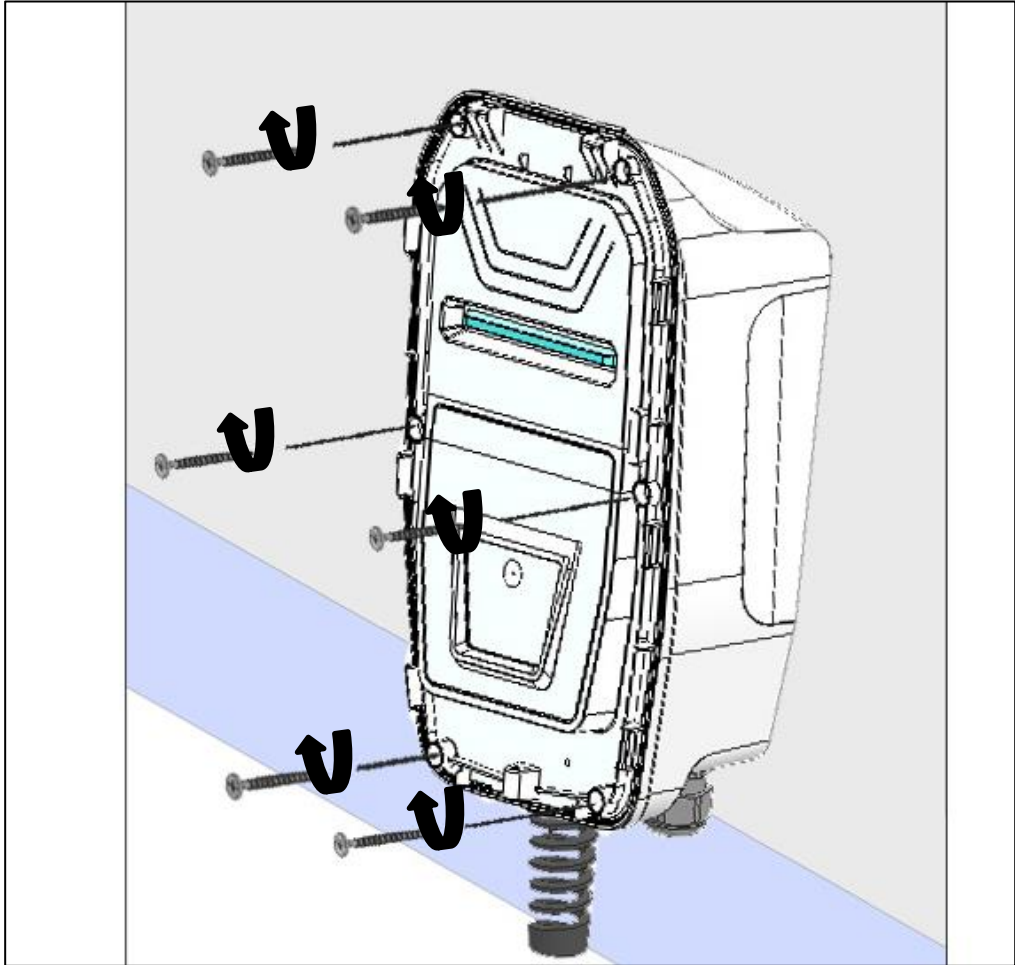

The charging point is set to 16A / 32A, depending on the model, from factory default settings.

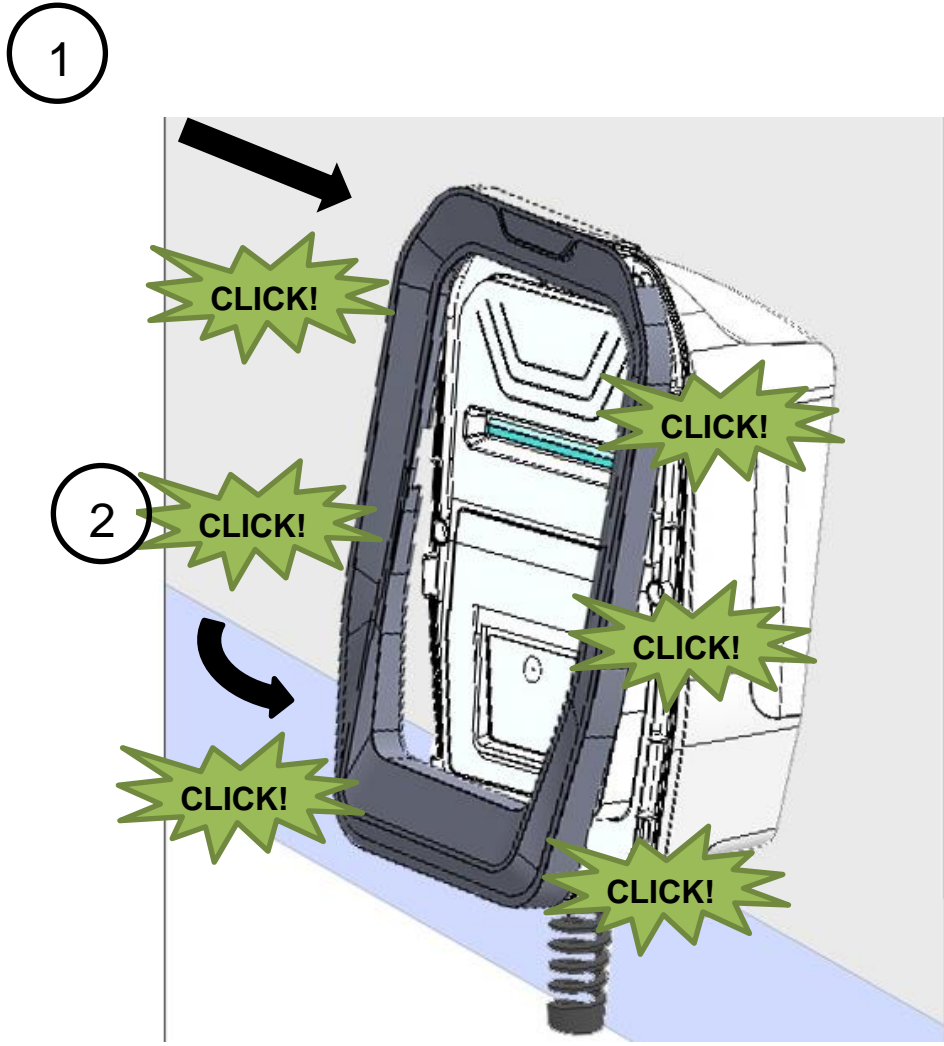
9.5.2 POWER SUPPLY LINE CONNECTION

- Perform the **230V AC Single-phase** connection as shown in the picture below.
- Do not forget to connect the ground cable (PE) to its corresponding terminal.



9.6 CLOSING THE UNIT

STEP	ACTION
1.	<p data-bbox="341 416 1252 450">Place back the 6 screws from the front cover in order to close the unit.</p>  <p data-bbox="491 1675 624 1798"></p> <p data-bbox="668 1697 1307 1778"><i>Beware of the cables between the cover and the base while closing the unit.</i></p>

STEP	ACTION
2.	<p>Put the frame back, from the top to the bottom of the box, ensuring it does click at the six points shown in the picture.</p>  <p>⚠ <i>Be sure that the frame is properly adjusted to the front cover in order to preserve the IP of the unit.</i></p>

10 CHECKING THE UNIT STATUS

Once all installation procedure has been performed, check the following points:

1. Check that the EV tethered cable and its connector are in proper conditions before starting the charging operation.
2. Check that no abnormal noise appears while the unit is charging.
3. Check the status LED bar to know the present operating status of the unit. Below you can see the table with the four possible LED bar operating colors:

PLUG STATE	LED BAR COLOR
Available	Green
Charging	Blue (flashing)
Charged	Blue
Fault	Red (flashing)
Heating	Orange

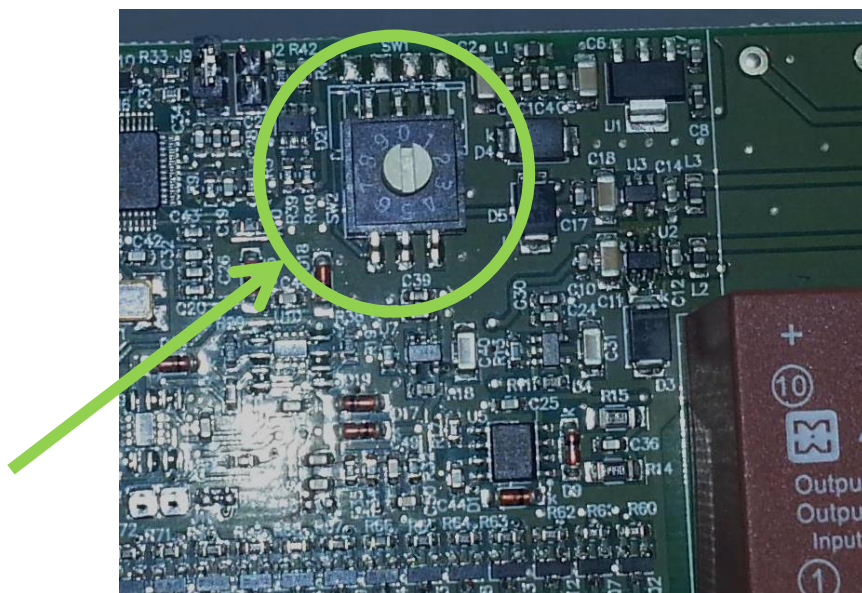
NOTE: For further information about the different status led bar sequences, please refer to **OPERATING INSTRUCTIONS** section.

11 CURRENT LIMIT SELECTOR

As commented at the beginning of this document, there is an onboard rotative dipswitch to configure the limit current of the unit, which has to be set up according to the model of **Wallbox eHOME** we are going to install.



Be sure that the position of the current limit selector is setup according to the output current of your unit.

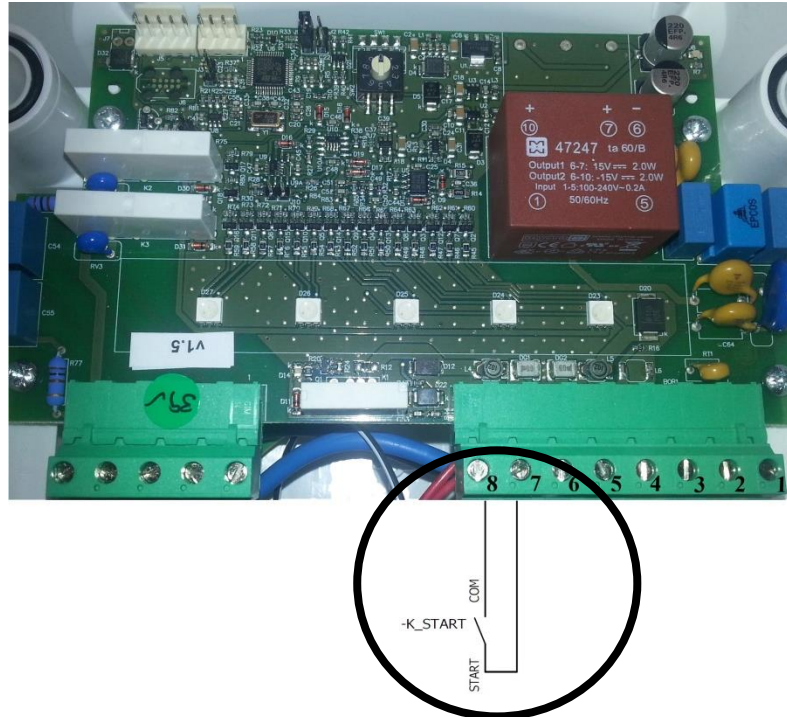


On the following table is shown the different values available for this current limit selector:

POSITION	LIMIT CURRENT
0	NOT USED
1	6 A
2	10 A
3	13 A
4	16 A
5	20 A
6	32 A
7	NOT USED
8	NOT USED
9	NOT USED

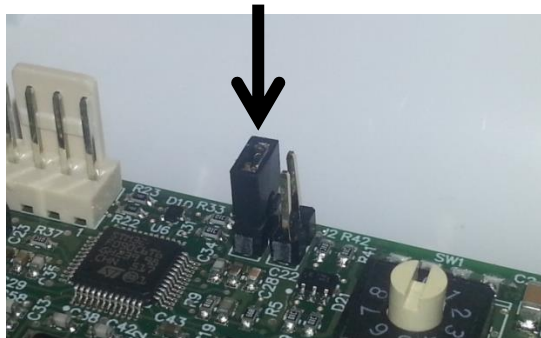
12 REMOTE CONTROL INPUT

The **Wallbox eHOME** series offer the possibility of enabling the charging process by connecting an external free-of-potential contact to a dedicated on-board input between pins 7 and 8 (see below picture).



This way, when the contact **START** is closed, if the EV is connected to the unit, it will start the recharge straight away.

This remote control input is enabled by default, by means of a jumper (as shown in the picture below). You must remove the jumper to use the input 7-8.



Be sure that the jumper is connected by default, otherwise the charging process cannot start.

13 TECHNICAL DATA

Wallbox eHOME	
AC INPUT	
AC Power supply	1P + N + PE
AC Voltage	230V _{AC} +/- 10%
Nominal input current	16 A / 32 A*
Nominal input power	3,7 kW / 7,4 kW*
Frequency	50 / 60 Hz
OUTPUT	
Charge system	Mode 3
Sockets/ Plugs	Type 1 / Type 2 tethered cable*
Cable length	5m
Lock system	No
Maximum output power	3,7 kW / 7,4 kW*
Maximum output current	16 A / 32 A*
Output voltage range	230V _{AC} (1P + N + PE)
GENERAL	
Enclosure rating	IP54 / IK10
Enclosure material	ABS-PCV0
Operating temperature	-5°C to +50°C
Operating humidity	To 95% RH Non-condensing
Net weight	4Kg
OPTIONAL FEATURES	
Extended operating temperature	(Optional Heater) -30°C...+50°C

* Depending on the model



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