

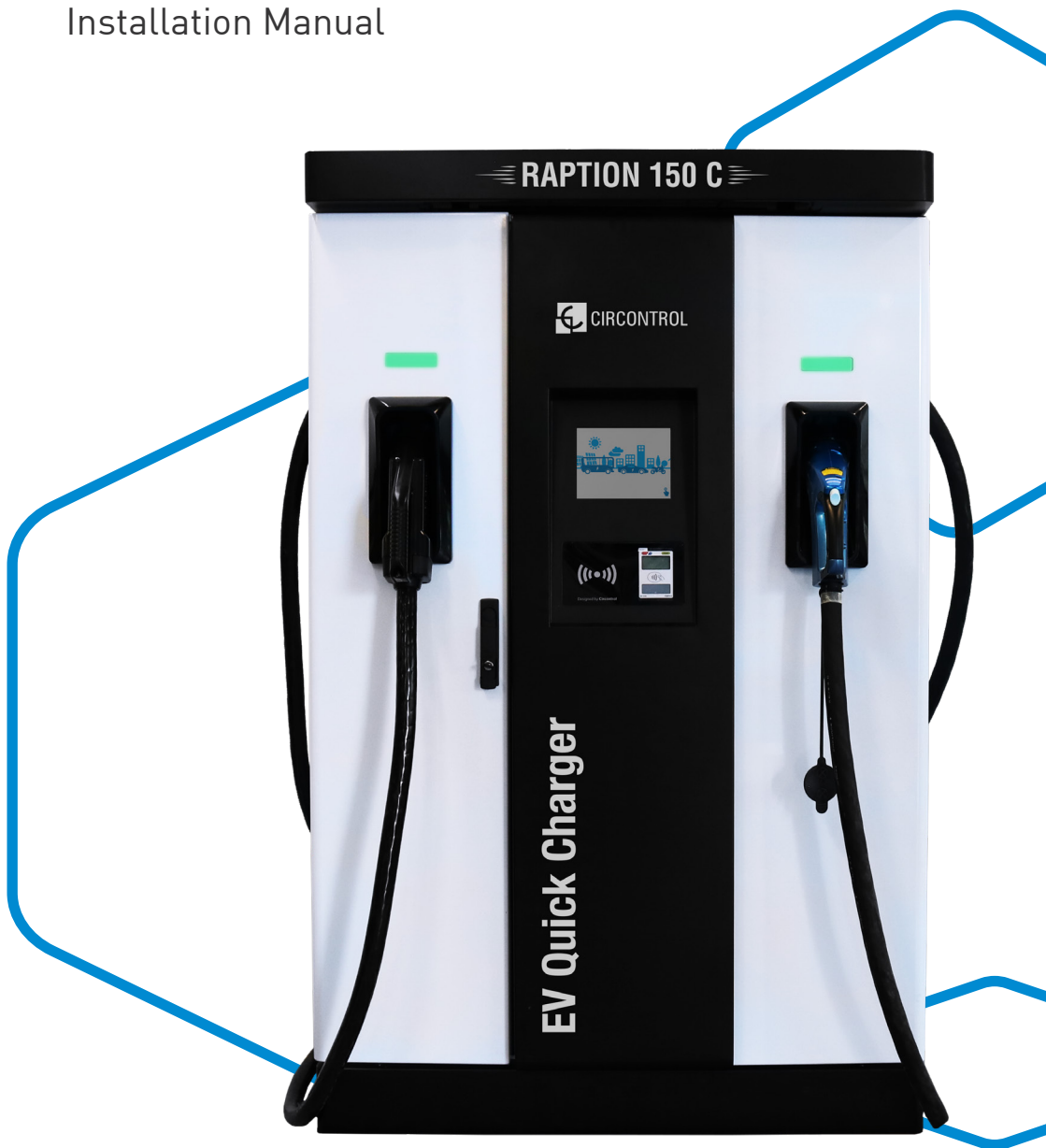


**CIRCONTROL**

*Mobility & eMobility*

# Raption 150 Compact

Installation Manual





# **Raption 150 Compact Installation Manual**

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# Here's your guide to install Raption 150 Compact

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# 1

This manual provides information for installing the Charge Point, which has been designed and tested to allow charging electric vehicles, as specified at IEC 61851 standards.

This document has different sections describing electrical components inside the Charge Point and a step-by-step installation procedure.

It is mandatory to follow the basic security information supplied in this manual to ensure safe and proper installation.

Failure to follow safety instructions may involve personal injury, equipment damage and danger of death. CIRCONTROL is not responsible for events arising from such breach.

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

### ELECTRIC RISK



- This symbol indicates a potentially hazardous situation which, if not avoided may result in a risk of fire, serious injury or death.

- The Charge Point must be disconnected from any power source before performing any maintenance, repair or electrical manipulation inside.

### ATTENTION!



- Follow the instructions preceded by this symbol, if not respect them or perform them correctly, may result in minor or moderate injury to the user, damage to equipment, damage to facilities or other property.

- Handling the equipment can cause injuries as result of the dimension and weight. Persons handling the unit must wear safety shoes and gloves.

# So, hello!

- Compliant with IEC 61851; Electric vehicle conductive charging system (IEC 61851-1, IEC 61851-21-2 and IEC 61851-23).
- Compliant with IEC 62196, Plugs, sockets-outlets, vehicle connectors and vehicles inlets, Conductive charging of electric vehicles (IEC 62196-1 and IEC 62196-3).
- Compatible with CHAdeMO.
- Compliant with IEC 61851-24, Digital communication between a DC EV charging station and an electric vehicle for control of DC charging. Meets the CCS specification, DIN 70121. ISO 15118 ready.
- Directives: 2014/53/EU, Radio and Telecommunication Terminal equipment; 2014/30/EU, Electromagnetic Compatibility (EMC); 2014/35/EU, Low Voltage directive.
- RFID complies with ISO 14443A/B/ MIFARE Classic/ DESFire EV1/ ISO 18092/ ECMA-340/ NFC 13.56MHz
- Meter complies with 2014/32/EU, Measuring Instruments Directive.
- Modem 4G complies with CE/RED.
- Compliant with RoHS 2011/65/EU-2017/2102, Restriction of Hazardous Substances.

## 2

### A

## Important safety instructions



Read carefully all the instructions before starting in order to ensure properly installation of the Charge Point.

The Charge Point is designed for installation at indoor and outdoor areas. For each of the different conditions of installation, the unit must be installed safely and ensure adequate protection.

- Charge point must not be installed in areas where there is potential risk of explosion or any salinity level.
- Charge point must not be installed in industrial areas with high level of humidity or pollutants.
- Do not install the Charge Point where falling objects may damage the equipment.
- The surface where the Charge Point is placed must withstand the mechanical forces.
- Do not use this unit for anything other than electric vehicle charging modes expected in IEC 61851-1.
- 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 energized.
- Only trained and qualified personnel should have access to the electrical parts inside the Charge Point.
- 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 unit if the enclosure or the EV connector is broken, cracked, open, or shows any other indication of damage.



# Before the installation

## Electrical wiring considerations



Take into consideration this section before start wiring connections of the Charge Point.

### 1 - INPUT POWER SUPPLY

The input power supply line for the Charge Point must be hardwired from a dedicated power transformer or generator and not by LV overhead power lines. It has to be done under electrical safety regulations according to your country.

### 2 - POWER SUPPLY LINE DIMENSIONING

The dimensioning of the input power supply line of the Charge Point must be checked by a qualified electrician. Note that various factors, such as, cable length between distribution board and the Charge Point; maximum input current of the Charge Point; the installation way, may have influence of the selected cable. In such cases, increasing the cable cross-section can be necessary. The installation company will be responsible for dimensioning the wires cross section and the electrical protections, taking into account the conditions above.

### 3 - MAXIMUM OUTPUT POWER

Depending on the input power line, you can carry out the charging sessions to the electric vehicle with different output power, it is possible to limit the maximum output power by software so as not to exceed the available input power. In order to implement this limitation by software, refer to the User Manual.

**Note:** In Chapter 4, you are going to find more electrical instructions so as to implement a secure POWER SUPPLY LINE.

## **Important Electrical Safety Instructions**



Read carefully all the instructions before starting in order to ensure properly handling of electrical parts.

A safe work environment is not enough to control all potential electrical hazards. It is recommended to be very cautious and work safely. So, the safety rules shown below could help to control risks of injury or death from workplace hazards.

- Avoid contact with energized electrical circuits.
- Disconnect the power source before servicing or repairing electrical equipment.
- Use only tools and equipment with non-conducting handles when working on electrical devices.
- Never use metallic pencils or rulers, or wear rings or metal watchbands when working with electrical equipment.
- Enclose all electric contacts and conductors so that no one can accidentally come into contact.
- When it is necessary to handle equipment that is plugged in, be sure hands are dry and, when possible, wear nonconductive gloves, protective clothes and shoes with insulated soles.
- Never handle electrical equipment when hands, feet, or body are wet or perspiring, or when standing on a wet floor.

## **EVSE Classification**

Classification of the unit according to the IEC 61851-1:2017:

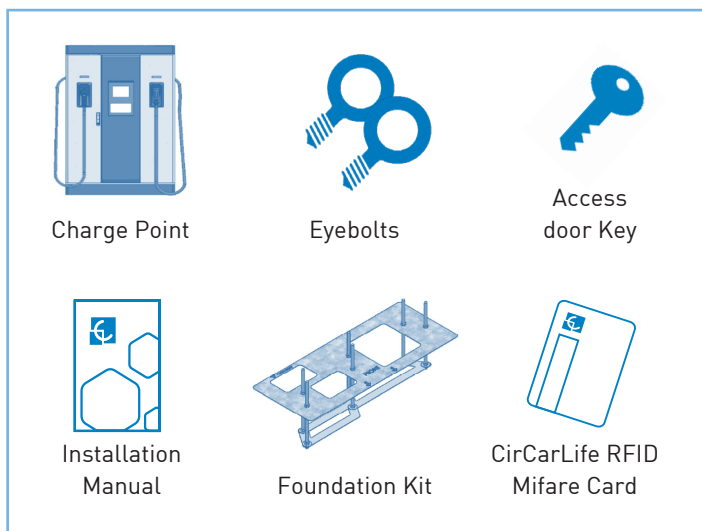
1 — Power supply Input	<ul style="list-style-type: none"><li>• EV supply equipment connected to AC supply network</li><li>• Permanently connected</li></ul>
2 — Power supply Output	<ul style="list-style-type: none"><li>• DC EV supply equipment</li></ul>
3 — Environmental conditions	<ul style="list-style-type: none"><li>• Indoor and outdoor</li></ul>
4 — Access	<ul style="list-style-type: none"><li>• Equipment for locations with restricted access and;</li><li>• Equipment for locations with non-restricted access.</li></ul>
5 — Mounting method	<ul style="list-style-type: none"><li>• Stationary equipment - Ground mounted; floor mounted</li></ul>
6 — Protection against electric shock	<ul style="list-style-type: none"><li>• Class I</li></ul>
7 — Charging models	<ul style="list-style-type: none"><li>• Mode 4</li></ul>

## Storage

Whenever possible, the Charge point must be unloaded in their place of installation and operation. In case of unloaded to a temporary location for storage, it is convenient to not remove the packaging and store them meeting the following minimum requirements:

- **Safety:** Charge Point must be protected against negative elements such as heat radiation, direct solar radiation, mechanical damage, organic dissolvent impacts, etc.
- **Temperature:** for temperatures below -20 °C and over +60° C special attention must be paid to the storage and handling.
- **Environment:** Charge Point must be stored in a dry and dust-free location. The distance from a heat source must be 1 m away. Outdoor storage of the unit has to be avoided.

What's included:



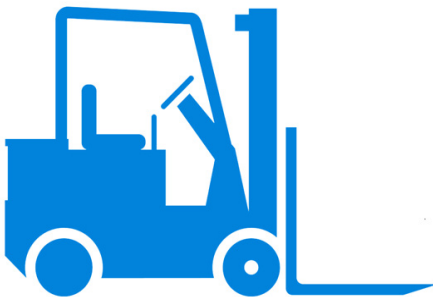
## Unloading and handling

All processes of unloading and handling of the Charge Point must be executed and monitored by qualified personnel attending to the significant weight of the unit, complying with safety rules and using the appropriate points of support.

Important notes:

- The delivery truck only unloads the pallet carrying the Charge Point.
- The delivery truck does not have the lifting facilities to move the Charge Point to its final location.
- The placement of the Charge Point to its final location is the responsibility of the contractor.

Once the Charge Point is already unloaded from the truck, move it to its final location with a forklift.

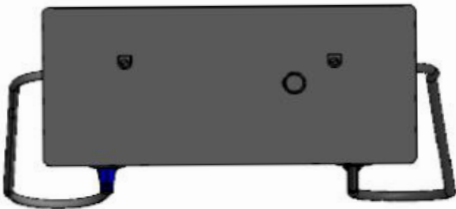
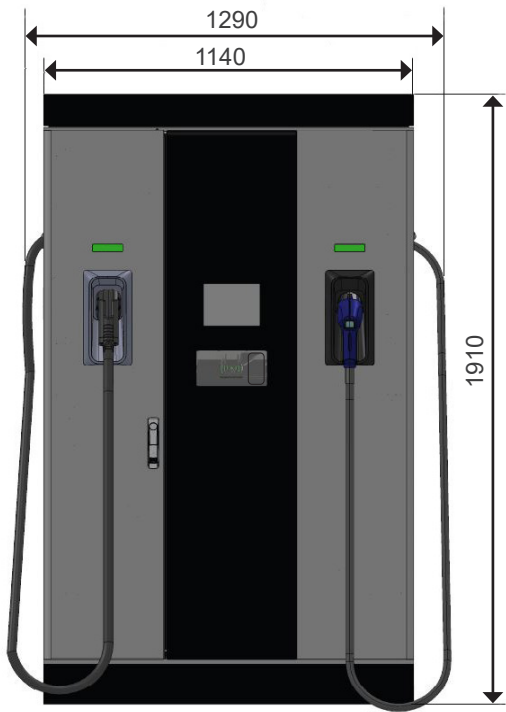


3

A

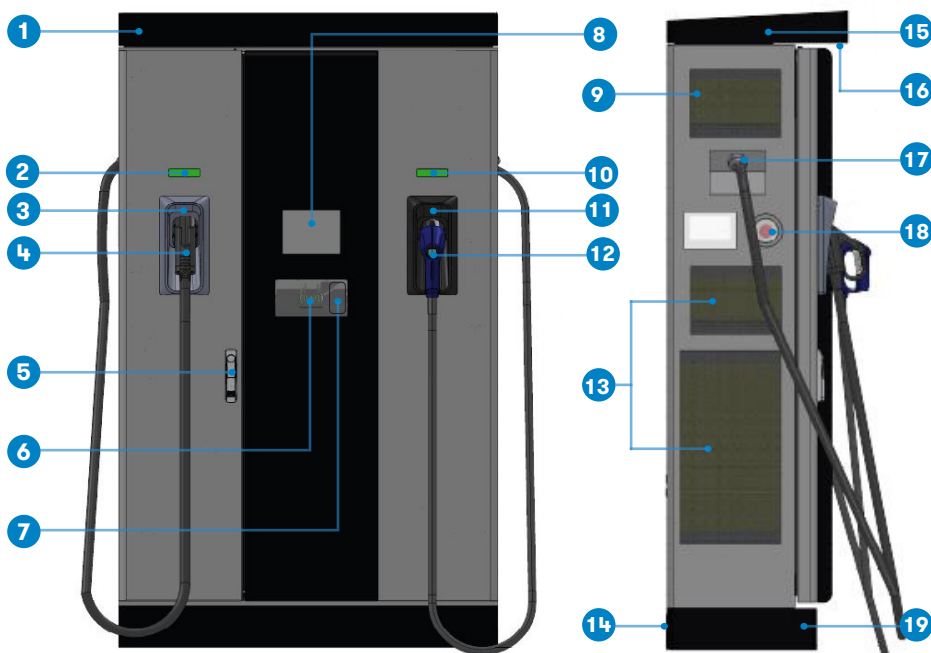
Dimensions

- Units specified in millimeters:



# Dimensions and Overview

## B Overview



1- Cover	2- CCS light beacon	3- CCS holder	4- CCS connector
5- Handle	6- RFID reader	7- Card payment	8- Touch screen
9- Air inlet Unit	10- CHAdeMO light beacon	11- CHAdeMO holder	12- CHAdeMO connector
13- Power M. air inlet	14- Decorative rear panel	15- 4G Antenna	16- Courtesy light
17- Exit cable	18- Emergency button	19- Decorative front panel	

**Note:** Depending on the model, the components can vary.

# 4

## A

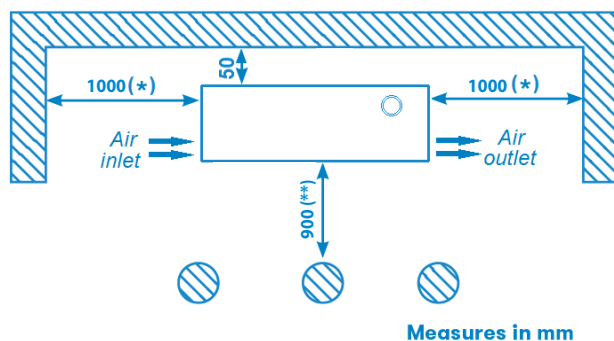
## Minimum distances

When installing the Charge Point, respect the minimum distances for maintenance and safety reasons.

Please comply accordingly to your country specifications.

The next picture shows how it should be installed.

- Do not install near areas where water or fluids can penetrate into the unit.
- Do not install the Charge Point on unstable terrain.



(\*) Respect the minimum lateral distance to allow proper circulation of air flow. This unit has forced ventilation.

(\*\*) If Bollard Impact Protector is installed, keep **900 mm** as a minimum distance in order to give enough space to open the frontal door of the Charge Point for maintenance tasks.

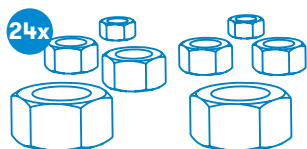


# Installation

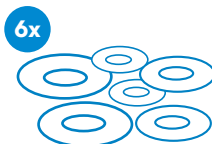
## **B** Foundation

The purpose of this chapter is the technical definition and basic requirements for implementing the base and fixing the Charge Point.

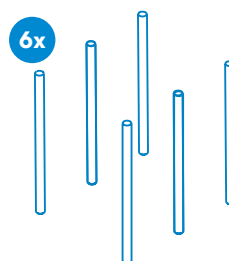
- The unit is adequate for indoor and outdoor installation
- A foundation kit with a mounting template is provided to ensure the distances between the foundation bolts.



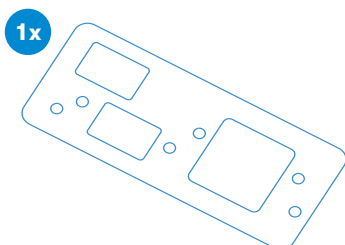
Nuts M16



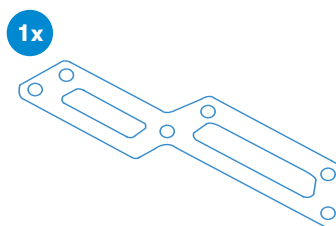
Washers M16



Foundation rod  
435 mm x M16

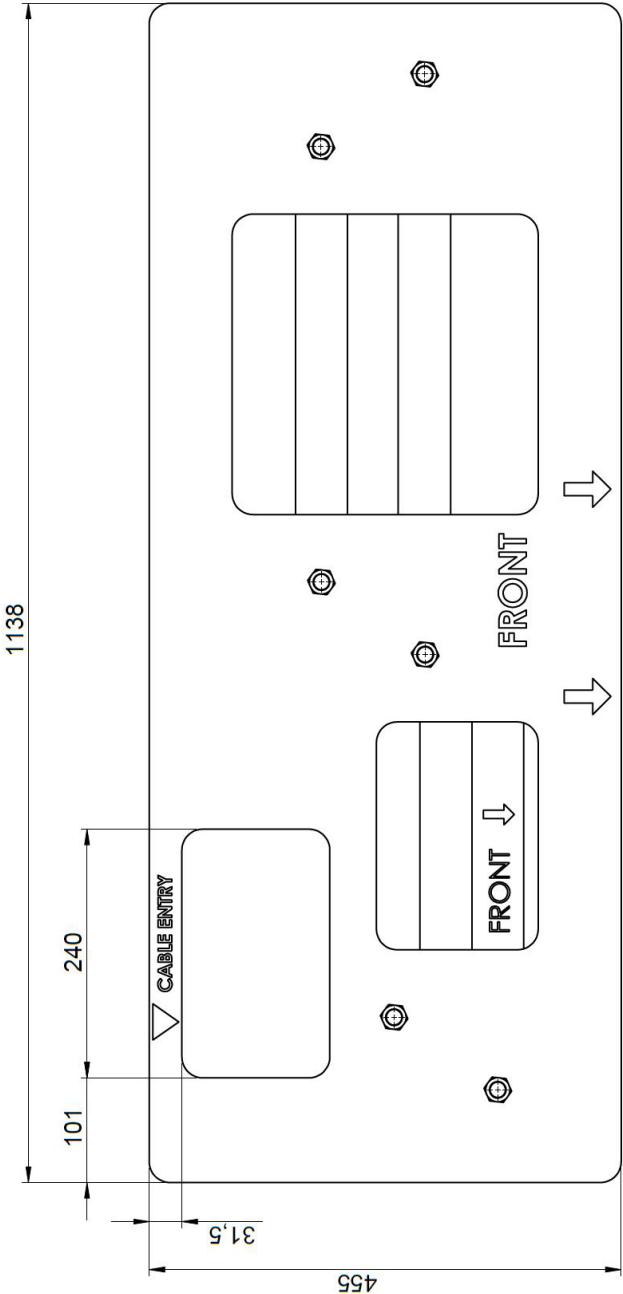


Template upper part

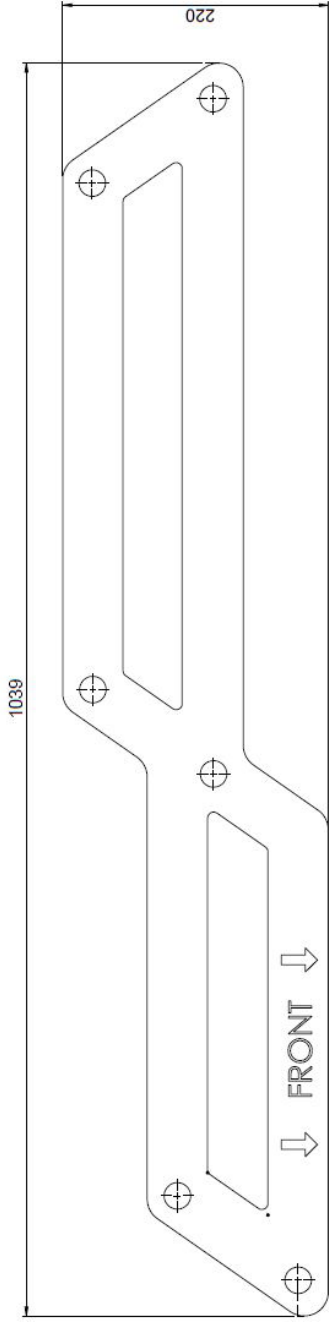


Template lower part

TEMPLATE UPPER PART DIMENSIONS

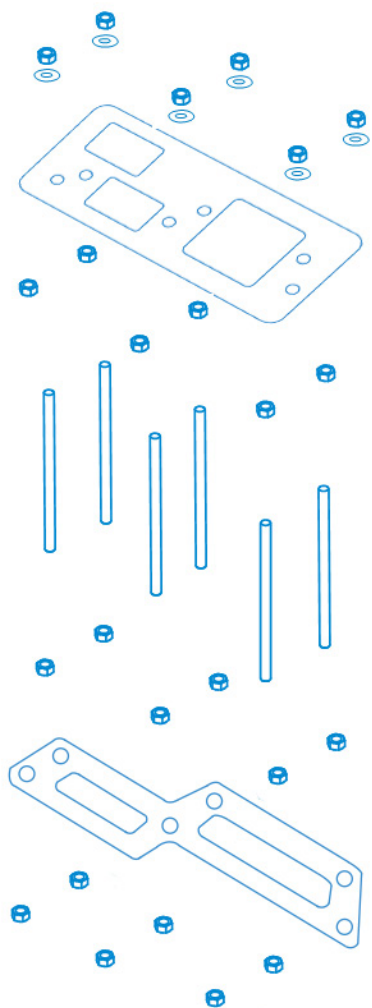


## TEMPLATE LOWER PART DIMENSIONS

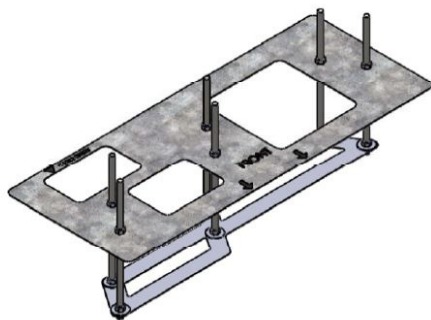


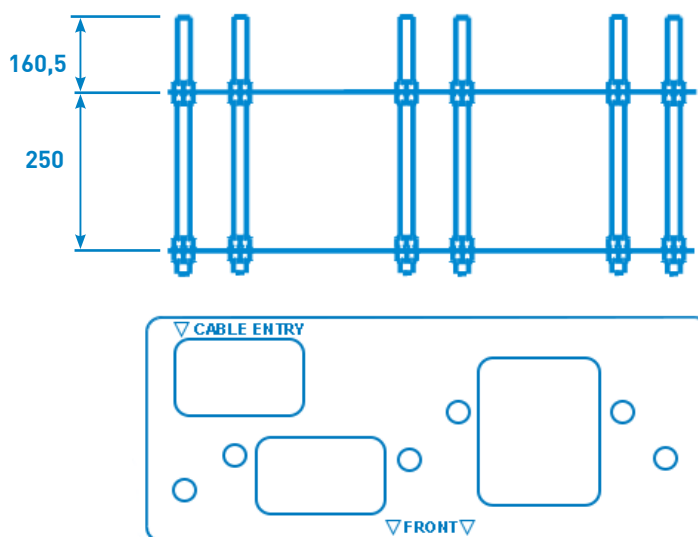
- Place the foundation bolts into the templates using provided nuts with the help of a **24mm open-end wrench**. Take into consideration the following measures.

### Step 1



### Step 2

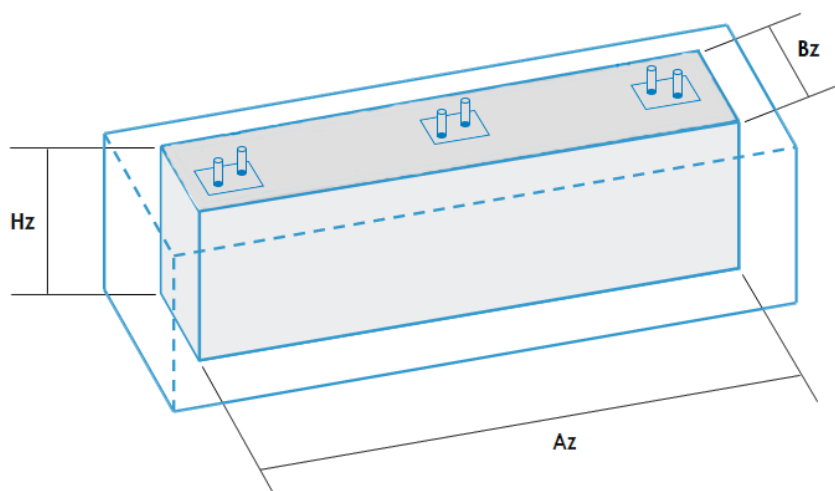




**Before fixing the template inside of the concrete basement make sure front mark must face with the front side of the charger**

- Once the kit is assembled, it must be placed in the ground. If the Charge Point has to be installed outside and there is no limitation of depth, is recommended to make a concrete base.
- The concrete base shall provide the passage of power cables, it must be done by corrugated tube placed inside the foundation through the mounting template.

## FOUNDATION MEASUREMENTS

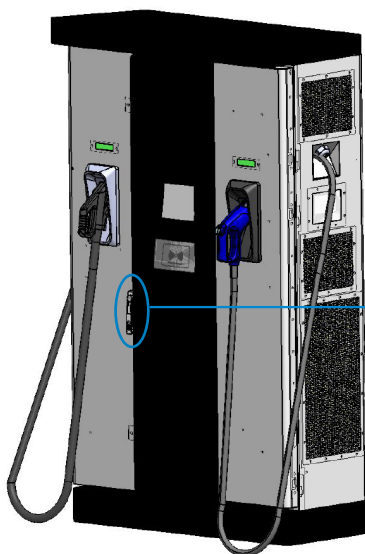


ORIENTATIONAL FOUNDATIONS FOR RAPTION 150 COMPACT			
TYPE OF TERRAIN	Ck (kg/cm <sup>2</sup> )	FOUNDATION SIZE (Az x Bz x Hz) cm	COMMENTS
SOFT	5	130 x 65 x 65	For example vegetal not compact terrain
COMPACT	12	130 x 60 x 55	For example mix vegetable land with engraved compactors
VERY COMPACT	20	130 x 60 x 45	For example mix sand ground with very compacted and paved gravel asphalt
VERY COMPACT AND CONCRETE SLAB	20	130 x 60 x 40	Minimum slab edge 10cm of concrete HM - 100

**Note:** The figures in this table are for reference use only. The mechanical characteristics of the soil (Ck) and the final dimensioning of the concrete base must be performed by qualified personnel and in compliance with the local regulations of civil engineering works.

## Opening

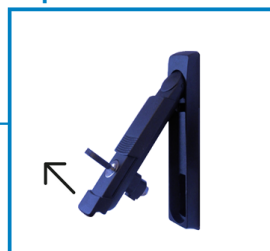
- Left door:



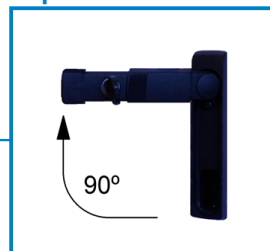
Step 1



Step 2



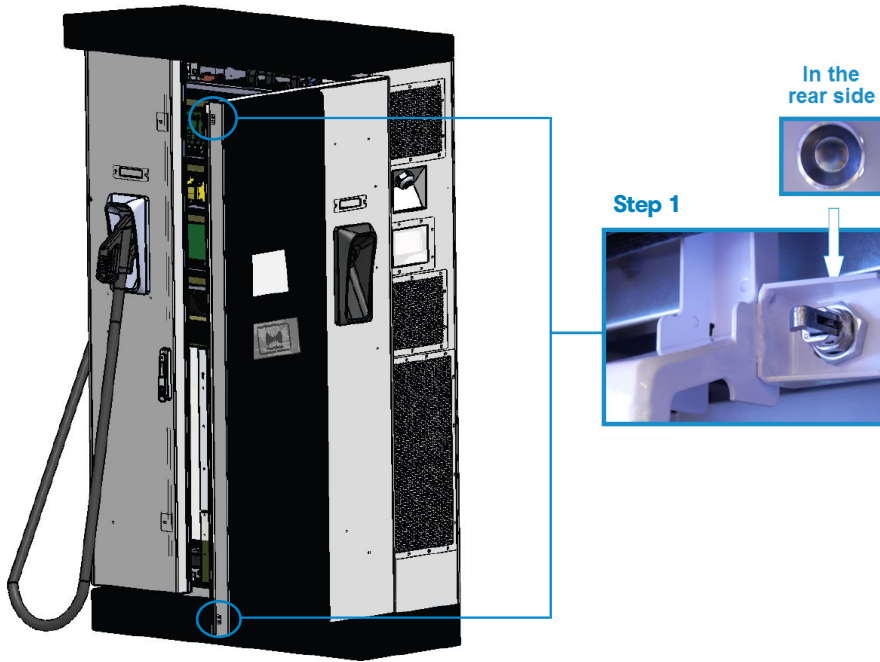
Step 3



### Steps:

- 1- Insert the key supplied in the lock and turn it 90 ° counterclockwise.
- 2- Pull back the handle.
- 3- Turn the handle 90 ° clockwise direction.

- Right door:



**Steps:**

1- Push on the round metallic button placed behind to the mechanic lock.

On the top and the bottom part of the Right door.

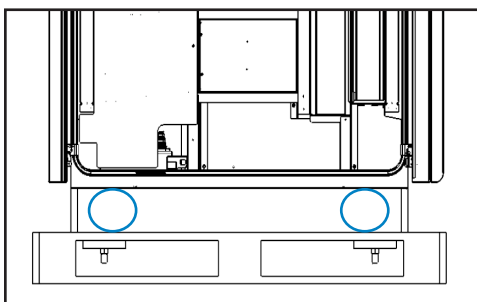


## Placing

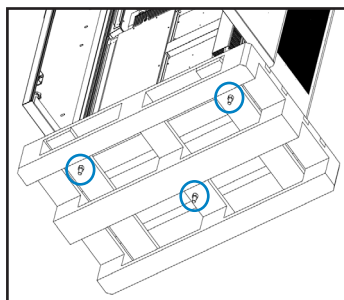
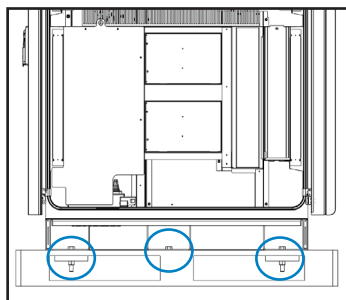
In order to place the Charge Point in its final location, please follow the next steps:

### 1 – REMOVING THE CHARGE POINT FROM PALLET

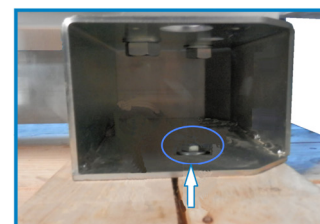
The Charge Point is mounted on a pallet so as to do a safe transport. It has to be removed before to installation.



#### Step 1



#### Step 2



#### Steps:

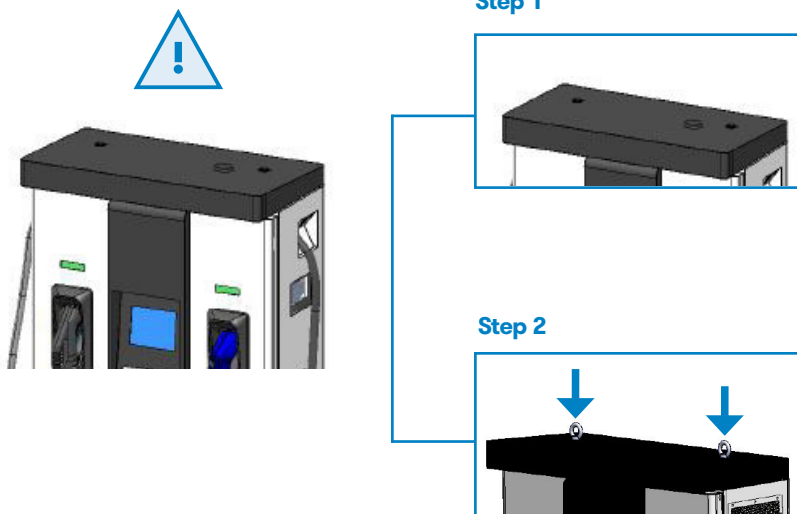
1- Remove the screws from the decorative front panel (on both sides) and pull it outwards.

2- Once the Decorative front panel is removed, locate the screws that are fixing the pallet. Remove the screws with a 19 mm spanner tool.

## 2 — PLACING THE CHARGE POINT TO THE FINAL LOCATION

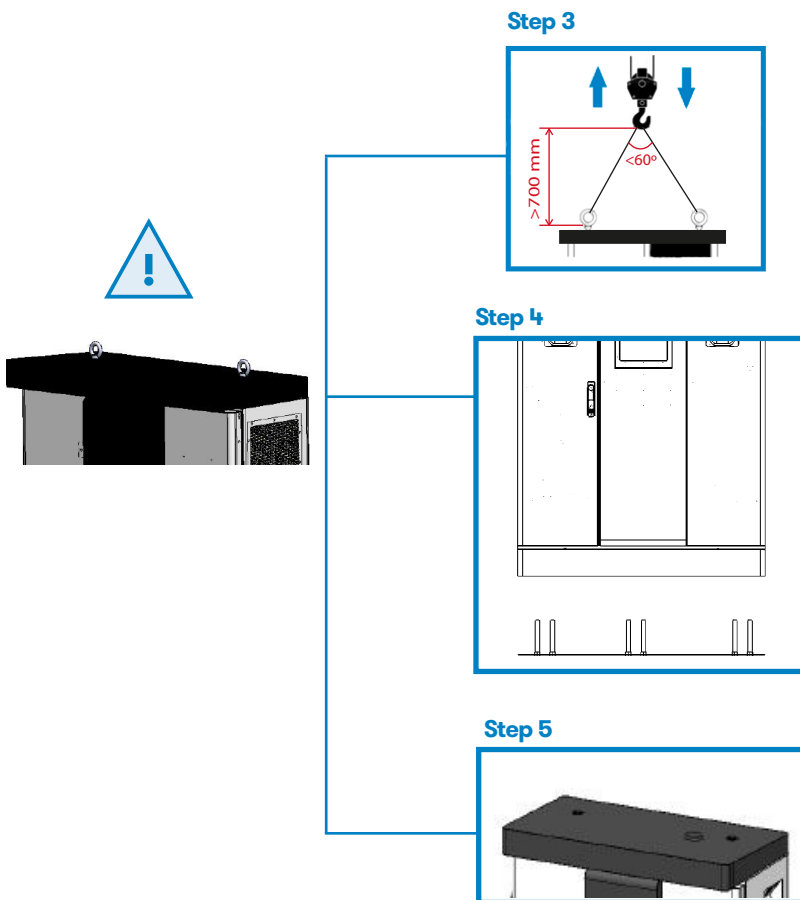
Once the Charge Point is free from the pallet, there are two options to move it to the final location.

### a) Move the Charge Point with eyebolts



#### Steps:

- 1- Remove totally the thread protection caps from the top of the Charge Point.
- 2- Locate and turn manually around 15 times to the eyebolts provided in order to assure that are strongly tight.



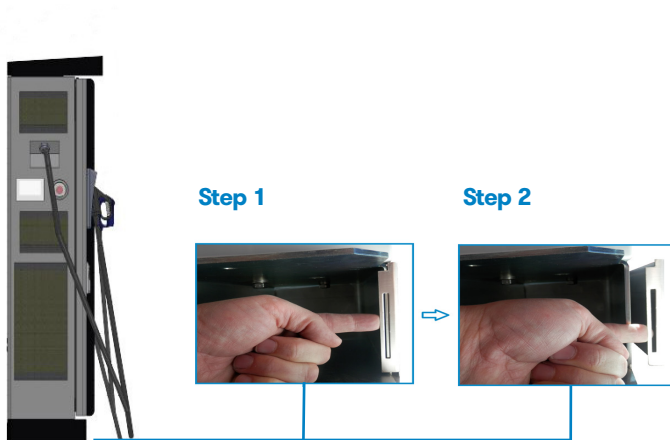
### Steps:

3- Hold the sling to the eyebolts, raise the Charge Point up and placed on the final location.

4- Screw the 6 x M16 nuts with washers on the threaded rods already installed on the base (on both sides), place again the decorative front panel.

5 - Remove the eyebolts from the Charge Point and put the thread protection caps in that place.

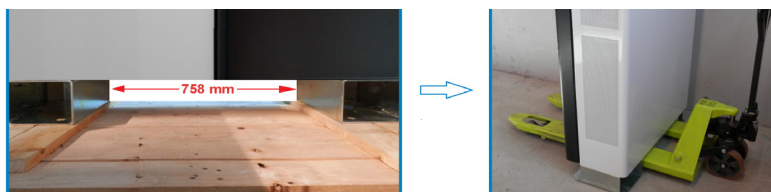
**b) Move the Charge Point with manual forklift or forklift truck .**



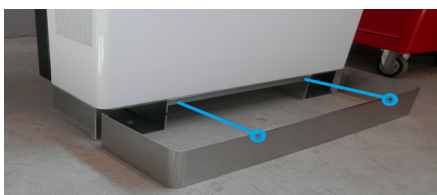
**Steps:**

- 1- Remove the decorative rear panel. Pull outward the metal flange (on both sides).
- 2- Move out the metal flange (on both sides) and remove the decorative rear panel.

**Once the decorative panels have been removed, it will be available enough space to introduce the forklift, 758 mm**



Once Charge Point installation has been finished, remember to install the Allen screws included in the decorative panel





## Wiring



Regardless of the electrical power line characteristics, be sure to supply the Charge Point with the necessary electrical features specified on the model-identification plate, such as supply voltage, grid frequency and required apparent power. In case of power line characteristics are different from those required, it is mandatory to adapt that in order to meet this requirement.

The Charge Point has internal electrical protections in each socket-outlet for the protection of the user against an electrical failure, according to the international standard IEC 61851-1:2017. In order to guarantee the total protection of the users and the installation (power supply line included) against any electrical hazard, it is mandatory to install a main circuit breaker (MCB) and a residual current device (RCD) upstream of the charger. These electrical protections and the rest of the installation have to be aligned with the local and national rules and the selectivity of the protections has to be guaranteed at all times.

The proper earthing system must be **TT or TN-S**. The ground loop impedance measurement for the entire installation is recommended to be as low as possible and must follow the requirements of the standard IEC 60364-4-41 and other applicable national or local regulations.

It is recommended to maintain these conditions over the years, therefore, qualified personnel must carry out the verification of the installation of grounding, at least once a year.

Before starting to wire the Charge Point, the following important elements should be checked:

- After unpacking the Charge Point, ensure that all electrical components are in good condition.
- It is recommended to strictly follow the local regulations to determine the appropriate section of the power cables to feed the Charge Point and at any time as a minimum comply with indicated in the Technical Data here below.
- Make sure to switch off the power properly before starting Charge Point installation and secure the main panel switches (MCCB or fuses) against inadvertent operation.
- After the installation, you must seal all holes inside the Charge Point to keep out dirt, foreign objects, animals, etc.

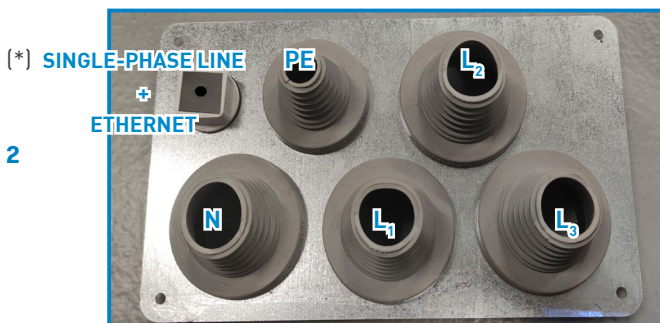
## Power input connection - Metal plate:

In order to make a secure cable installation it is necessary to use the metal plate provided. In the case of not using this metal plate and any damage to internal components arises due to the entry of dirt, animals or any other external element, Circontrol will reject any warranty claim against the unit:

### Step 1



### Step 2



### Steps:

- 1- Locate the power input entrance in the Charge Point bottom left part.
- 2- Cut the multi-range cable grommets in pyramid shape in accordance with the cable diameter to be used.

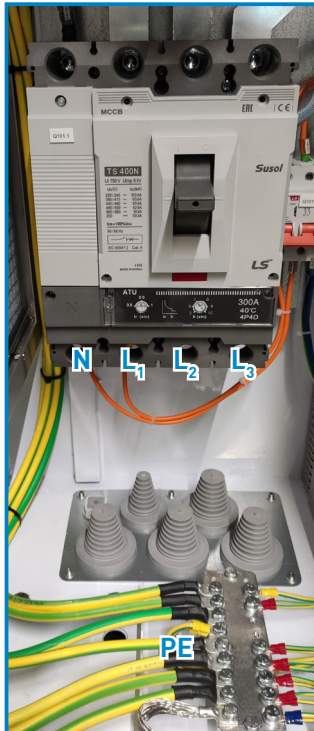
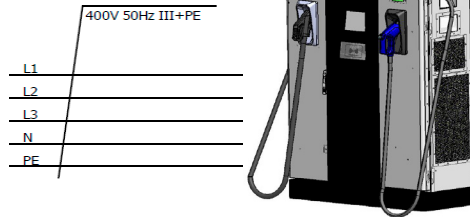
**Note:** In case of more than one single cable in each cable grommet, to ensure IP protection enclosure rating, it is needed to use foam insulation or another similar material.

(\*) Connect single-phase power source cable if connection cable Option B is chosen (see *Power input connection - Connecting cable* section).

## Power input connection - Connecting cable - OPTION A:

Charge Point must be supplied with:

1. Three phases + Neutral (400V 50Hz)
2. Earth cable



Orange cables are powered although MCCB is disconnected.

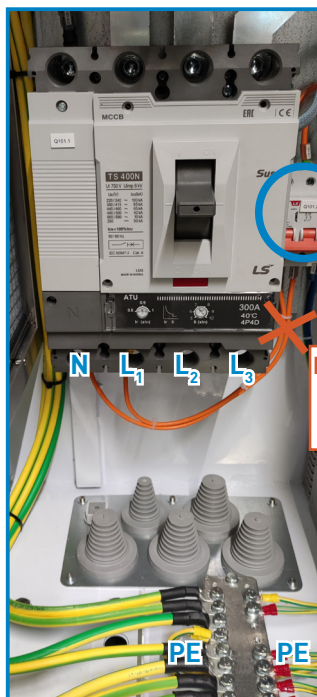
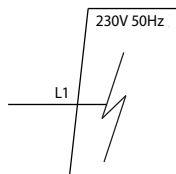
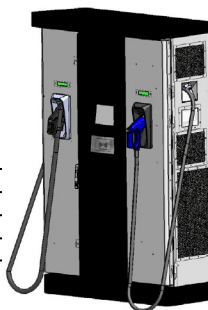
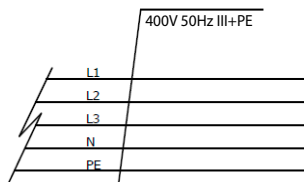
## Power input connection - Connecting cable - OPTION B:

Charge Point must be supplied with:

1. Three-phase power source
  - Three phases + Neutral (400V 50Hz)
  - Earth cable
2. Single-phase control source
  - 230V 50Hz



Power supply is separated from control supply.



Eliminate orange cables





## Power input connection - Wiring:

	PHASE	NEUTRAL	PE
Minimum recommended cable cross sectional area *	150 mm <sup>2</sup> **	95 mm <sup>2</sup>	95 mm <sup>2</sup>

(\*) This is the minimum recommended cable cross sectional area for the maximum AC input current (see datasheet) using multi-core copper cables with three loaded conductors for installations in conduit in a thermally insulated wall (A2 method according to IEC-60364-5-52).

The final cross section might be different if the installation method is another one, in any case, it has to be calculated by the installer, taking into account the cable materials, the conditions of installation and distances.

(\*\*) **300 mm<sup>2</sup>** is the maximum cable cross sectional area accepted by the Main circuit breaker.

## Verification

Once completed the entire installation procedure, check the following points:

- Complete the Wear checklist, available in Circontrol Expert Area.
- Check that all the MCB, RCD, Main Circuit Breaker and Disconnectors are powered on.
- Check that all safety labels are correctly placed.
- Close the Charge Point's doors. The Charge Point has a security switch (anti-tamper protection) installed that will avoid any charging session if the doors are opened.
- Check that all beacons are illuminated in green.
- Verify that each EV connector is in good condition.
- Make sure the ventilation air flow is correct and there is not any obstruction at the air inlets and outlets.
- Check for abnormal noise while charging a vehicle.

## How to use and configure

In order to use and configure the Charging Station there is an User Manual. To get it, download it from the Expert Area or send a mail to [support@circontrol.com](mailto:support@circontrol.com).

**Note:** Ask Circontrol Support Department in order to register in the Circontrol Expert Area.

It is mandatory that all technical employees wear the following Personal Protective Equipment. It must be used for any electrical task such as the service and maintenance of the Charging Station.



### **INSULATING SAFETY SHOES**

Class 0: 1000V

Dielectric boots recommended



### **INSULATING GLOVES**

Class 0: 1000V AC/1500V DC



### **HELMET AND FACE SHIELD**

Electrical insulation helmet EN397,  
EN50365, ANSI Z89.1 20kV



### **ANTISTATIC MAT**

Class 0: Low voltage 1000V  
High voltage 36kV

## 5

## GENERAL SPECIFICATIONS

AC Power Supply	3P + N + PE
AC Voltage	400V AC +/- 10%
Maximum AC input current	260A
Required power supply capacity	160kVA
Power Factor	0.98
Efficiency	95 % at nominal output power
Frequency	50 / 60 Hz
Electrical input protection	Main breaker disconnection
Overcurrent protections	MCB
Safety protection	RCD Type B
Network connection	Ethernet 10/100BaseTX
Interface protocol	OCPP 1.5 or OCPP 1.6J SM
Compliance	CE / Combo-2 (DIN 70121; ISO15118) IEC 61851-1; IEC 61851-23; IEC 61851-21-2  CHAdeMO compatible
Enclosure rating	IP54 / IK10
Enclosure material	Stainless steel
Operating temperature	-30 °C to +50 °C
Storage temperature	-40 °C to +60 °C
Maximum humidity	5 % to 95 % non-condensing
RFID system	ISO / IEC14443-1/2/3 MIFARE Classic
Display HMI	8" colour antivandal touch screen
Power limit control	By software
DC cable length CCS	4 m
DC cable length CHAdeMO	4 m
Lights for status indication	RGB colour indicator











# Technical Data

Dimensions (D x W x H)	550x1140x1910 mm (without cable engaged)
Weight	450 kg
Cooling system	Air cooling fans
Operational noise level	< 55 dBA
AC Meter	Compliant with the EN 50470-1 and EN 50470-3 (MID European standards) or IEC 62052-11
Wireless Communication EU	4G LTE/WiFi Hotspot/GPRS/GSM

## OPTIONAL DEVICES

Wireless Communication	LATAM/APAC/4G LTE/GPRS/GSM
Surge protection	Four-pole transient overvoltage protector IEC 61643-1 (class II)
Cable Length	5.5 m (all cables)
Anti-vandal connector protection	CHAdEMO, CCS (mechanical connector locking)
Network hub	Switch TCP ethernet 8 ports
RFID Extension	Legic Advant / Legic Prime ISO 15693/ISO 18092. Sony FeliCa
Contactless payment	Built-in credit card payment terminal
EMC class B protection	IEC 61000 EMC Filter

## Models Specifications

Rapton 150 Compact Models	CCS	CCS CHA	CCS CCS
Maximum output power	CCS: 150 kW	CCS: 150 kW CHA: 100 kW	CCS: 150 kW CCS: 150 kW
Output voltage range	CCS: 150-920V	CCS: 150-920V CHA: 150-500V	CCS: 150-920V CCS: 150-920V
Maximum output current	CCS: 375A	CCS: 375A CHA: 200A	CCS: 375A CCS: 375A
Connection	 	   	   



# Need help?

In case of any query or need further information, please contact our **Support Department:**



[support@circontrol.com](mailto:support@circontrol.com)



[circontrol.com](http://circontrol.com)



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(+34) 937 362 941



**CIRCONTROL**

*Mobility & eMobility*

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**Raption 150 Compact**

**INSTALLATION MANUAL**

A comprehensive guide on how to install and verify your Raption 150 Compact Charging Station.

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