

**FIMER**




Installation manual


# **FIMER ELECTRA DC Station**

60-150 kW


## SAFETY INSTRUCTION

 **ATTENTION** – This manual contains important safety instructions that must be followed during the installation and maintenance of the equipment.

## KEEP THIS MANUAL

 **READ THE MANUAL** – Keep this document in a safe place for easy access during installation and maintenance.


## THE INSTALLER SHOULD READ THIS DOCUMENT IN ITS ENTIRETY BEFORE INSTALLING THE EQUIPMENT

 **READ THE MANUAL** – Operators are required to read this manual and adhere to the instructions contained therein.

FIMER cannot be held liable for damages caused to persons and/or property, or to the equipment, if the conditions described below have not been met.

The purpose of this document is to support qualified technicians, who have received adequate training and/or have demonstrated adequate skills and knowledge in the construction, installation, operation and maintenance of electrical equipment.

The warranty requirements are contained in the Terms and Conditions of Sale section included in the purchase order for this product.


 **NOTE** – Any modification not approved by FIMER will immediately void the product guarantee.

## WARRANTY AND DELIVERY CONDITIONS

The warranty conditions are considered valid if the customer complies with the instructions contained in this manual; any deviation from the warranty conditions, with respect to what is described below, must be expressly indicated in the purchase order.

FIMER declares that the equipment complies with the legal provisions currently in force in the country of installation and has issued a relevant declaration of conformity.

FIMER assumes no responsibility for any failure to comply with the instructions for correct installation and may not be held responsible for systems upstream or downstream of the equipment supplied.

 **FORBIDDEN** – Modifications to the equipment are strictly forbidden. Any modification, manipulation or alteration to the hardware or software not expressly agreed with the manufacturer will result in the immediate cancellation of the guarantee.


Given the extensive combinations of system configurations and possible installation settings, it is essential to check the following before proceeding with installing the product: adequate space for housing the equipment, airborne noise produced by the environment and possible conditions for flammability.

FIMER cannot be held responsible for defects or malfunctions deriving from: improper use of the equipment; deterioration due to transport or particular environmental conditions; incorrect or missing maintenance; tampering or unsafe repairs; use or installation by unqualified persons.

FIMER is not responsible for any loss of the equipment, or part of it, that is not used according to the regulations and laws in force in the country of installation.


## PURPOSE AND STRUCTURE OF THE DOCUMENT


This use and maintenance manual is a guide that will allow you to work safely and perform the necessary operations to keep the equipment in good working order.

 **ATTENTION** – If the equipment is used in a manner not specified in this manual, the protection provided by the equipment may be compromised.


The document was originally written in Italian; therefore, in case of inconsistencies or doubt, please ask FIMER S.p.A. for the original document.


## LIST OF DOCUMENTS IN APPENDIX


 **READ THE MANUAL** – In addition to this user manual, you can consult and download the product documentation by visiting [www.fimer.com](http://www.fimer.com).


 **READ THE MANUAL** – This document contains only the information deemed necessary for the routine use and maintenance of the equipment.

## SKILLS AND REQUIREMENTS FOR THE OPERATOR AND MAINTENANCE PERSONNEL

 **READ THE MANUAL** – The personnel assigned to use, maintain and install the equipment must be qualified by FIMER (by means of a letter attesting to their qualification) for the activities described and must reliably demonstrate their ability to correctly interpret the contents of this manual.

 **ATTENTION** – Installation must be carried out by FIMER qualified installers and/or FIMER authorized electricians in compliance with the regulations in force in the country of installation and in accordance with all the safety standards for carrying out electrical work.

 **FORBIDDEN** – The installation or maintenance of the product may not be entrusted to unqualified persons or persons in an altered physical or mental state.

 **ATTENTION** – The customer bears civil responsibility for the qualifications and mental or physical state of personnel interacting with the equipment. Such personnel must always use the personal protective equipment (PPE) required by the laws of the country of destination and by their employer's instructions.

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# 1. General informations

1

FIMER ELECTRA DC Station is the DC charging station for powering electric vehicles ideal for public and semi-public applications: it is available in configurations which integrate the 2 charging modes: DC (Mode 4 in accordance with IEC 61851-23-24 standard) and AC (Mode 3 in accordance with IEC 61851-1 standard).

Equipped with 3 charging points 1 AC with Type 2 plug (in accordance with IEC 61851-1 standard) and 2 DC with Type CCS plug (in accordance with IEC 61851-23 and 24 standard) and CHAdeMO (in accordance with IEC 61851-24 standard) according to the chosen configuration.

Characterized by significant robustness and ease of use, this device allows the simultaneous charging of three electric vehicles with a maximum power range between 103 kW and 193 kW according to the product version:

- 103 kW (60 kW for DC and 43 kW for AC)
- 133 kW (90 kW for DC and 43 kW for AC)
- 163 kW (120 kW for DC and 43 kW for AC)
- 193 kW (150 kW for DC and 43 kW for AC)

**⚠ ATTENTION** – Prepare and size the entire power supply circuit in accordance with the local and international standards in force, according to the product configuration and the chosen power.

**⚠ ATTENTION** – This document describes how to install, configure and maintain the product.

**⚠ ATTENTION** – A description of the equipment features is provided to help identify its main components and specify the technical terminology used in the manual.

**📖 READ THE MANUAL** – This chapter contains information on the model, equipment details, technical characteristics and data, dimensions and the identification of the equipment.

## 1.1 Field of use

FIMER is not liable for damages of any kind that may arise from incorrect or reckless operations.

**🚫 FORBIDDEN** – The equipment may not be used for a purpose that does not conform to that envisaged in the field of use. The equipment must not be installed by inexperienced personnel, or even by experienced personnel if operations are performed on the equipment that are not in accordance with this manual and the accompanying documentation.

This equipment is a charging station for electric vehicles; the following classification (according to IEC 61851-1, 23 and 24) identifies its features:

- Power supply: permanently connected to the AC power supply
- Output: AC and DC current
- Environmental conditions: Non-restricted access
- Device for places with free access
- Fixed installation ground-mounted

- Protection against electric shock: Class I
- Charging type: Mode 3 according to IEC 61851-1 and Mode 4 according to IEC 61851-23 and IEC 61851-24.

**⚠ ATTENTION** – When installing in TN-earthing systems, there may be additional specific local regulations regarding system safety and failure protection that the installer must understand and implement.






**⚠ ATTENTION** – The device may only be connected to the mains in countries for which it has been certified/approved.

#### **IT IS STRICTLY FORBIDDEN:**

- ⊘ **FORBIDDEN** – Installing the equipment in particularly flammable environments or in adverse or non-authorized environmental conditions.
- ⊘ **FORBIDDEN** – Using the equipment with faulty or disabled safety devices.
- ⊘ **FORBIDDEN** – Using the equipment or parts of the equipment by connecting it to other machines or equipment, unless expressly allowed.
- ⊘ **FORBIDDEN** – Modifying operating parameters not accessible to the operator and/or parts of the equipment to adjust its performance or change its isolation status.
- ⊘ **FORBIDDEN** – Cleaning the product with corrosive products that could damage parts of the equipment or generate electrostatic charges.
- ⊘ **FORBIDDEN** – Using or installing the appliance or parts thereof without having read and understood the contents of the use and maintenance manual.

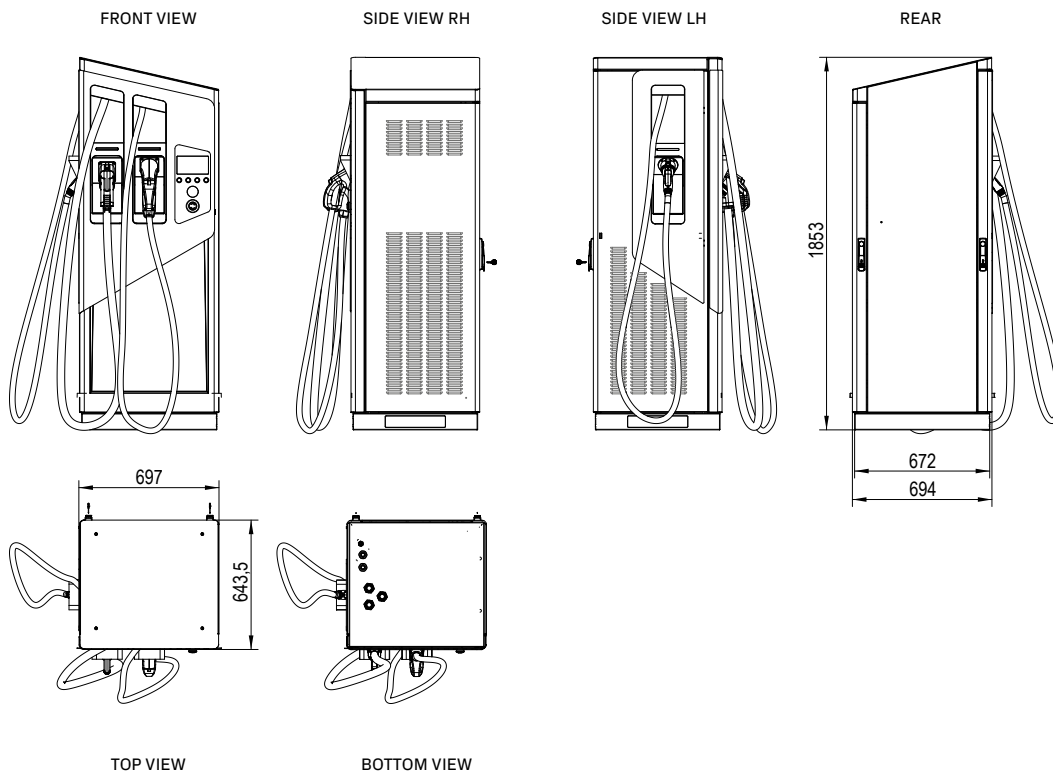
## 1.2 Symbols and definitions

In this manual and/or in some cases on the equipment, dangerous zones/components are indicated by signs, labels, symbols or icons.

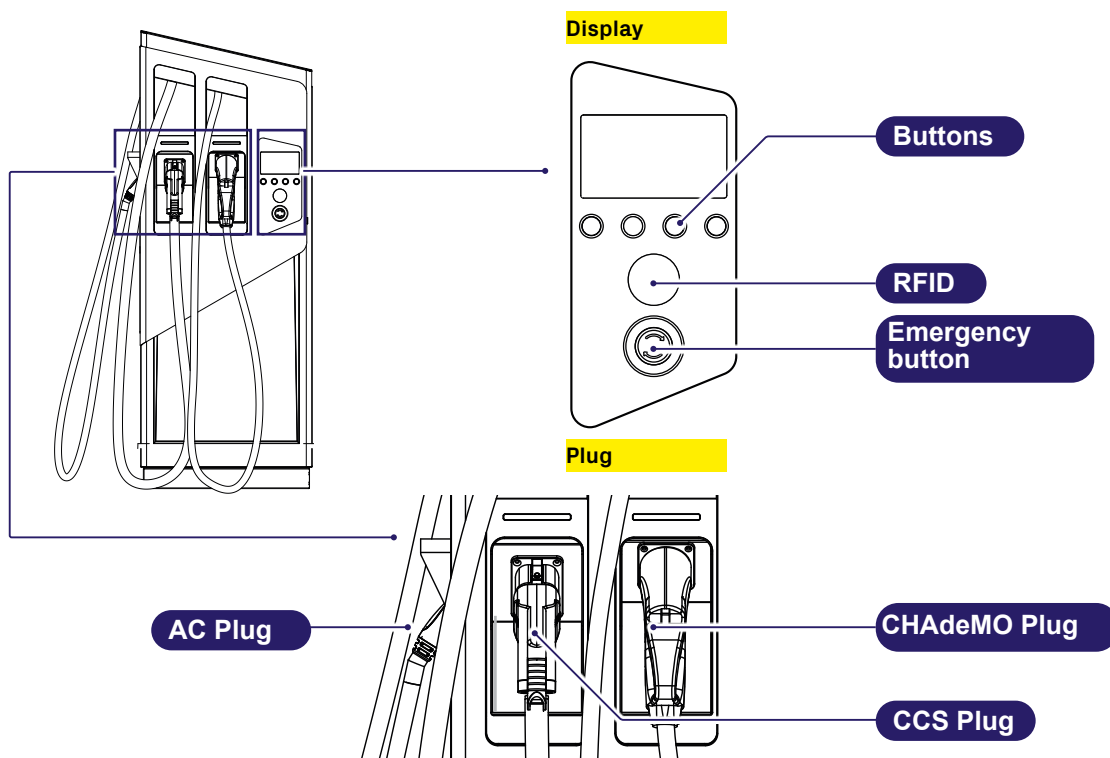
Symbol	Description
	GENERAL WARNING
	THE ORIGINAL MANUAL OR OTHER ADDITIONAL DOCUMENTATION MUST BE CONSULTED
	PROHIBITION OR RESTRICTIONS
	The operations described must be carried out using the clothing and/or protective equipment provided by the employer
	The products should not be disposed of with household waste, but collected in a different manner as, although not composed of materials harmful to health, they are made of recyclable materials
	Hazard-warning signal: presence of electrical voltage
	Obligation signal: read the instructions
	The installation of the electronic device should be performed only by qualified personnel



# 1.3 Product dimensions and characteristics



FIMER ELECTRA DC Station	60	90	120	150
Weight [kg]	333 kg	355 kg	378 kg	400 Kg
Dimensions LxHxW [mm]	697 x 1853 x 644 mm			
Dimensions with plug [mm]	740 x 1853 x 779 mm			



## 1.4 Support

For any further information or request for support, FIMER is available through the dedicated section of the website [www.fimer.com](http://www.fimer.com) or by writing to [service.emobility@FIMER.com](mailto:service.emobility@FIMER.com).

## 2. Safety and equipment

# 2

### 2.1 Safety warnings

**⚠ ATTENTION** – The installation and start-up phases of the device must be carried out exclusively by qualified personnel, able to identify hazards and act safely.

**⚠ ATTENTION** – The phases of maintenance, repair or subsequent repositioning must also be carried out only by qualified personnel: there are no components that can be repaired by the user or maintained independently.

**⚠ WARNING** – Children or persons not deemed capable of assessing the risks involved in the installation must not handle the product.

**⚠ WARNING** – Both domestic and non-domestic animals must be kept away from the equipment.

**⚠ WARNING** – Total or partial non-compliance with the indications contained in this document can lead to serious or fatal injuries.

**⚠ WARNING** – The qualified installer must always ensure that the installation takes place in accordance with the local regulations in force at the time of installation.

### 2.2 Compliant use

**⚠ ATTENTION** – The device requires grounding by a dedicated equipotential cable, to be connected in the grounding terminal inside the device.


**⚠ ATTENTION** – In any case, before installation, it is necessary to verify that the power supply system is fully compliant with the state of art and provided by qualified personnel in accordance with local and international regulations in force.


**⚠ ATTENTION** – The device is only safe to use if it is used as intended.

**⚠ ATTENTION** – Different uses and unauthorized modifications to the equipment or any of its components are therefore forbidden and are thus considered non-compliant.


**⚠ ATTENTION** – The equipment is designed to be connected and to communicate information and data via a network interface. Users are responsible for consistently providing and ensuring a secure connection between the product and their data network or any other network (as applicable). Users should establish and maintain all appropriate measures (such as, but not limited to, installing firewalls, applying authentication measures, encrypting data, installing anti-virus programs, etc.) to protect the product, the network, their system and interface against any type of security breach, unauthorized access, interference, intrusion, loss or theft of data or information. FIMER and its affiliates are not liable for damages or losses related to such security breaches, any unauthorized access, interference, intrusion, leakage or theft of data or information. The data, examples and diagrams in this manual are included only with the aim of describing the product and should not be considered as a guaranteed declaration of ownership. All persons responsible for installing the equipment indicated in this manual must ensure that each intended installation is suitable and acceptable, including compliance with any applicable safety or other operational requirements. In particular,


any risk in applications where a system or product failure would create a risk of damage to property or persons (including but not limited to personal injury or death) will be the exclusive responsibility of the person or entity installing the equipment; those responsible are encouraged to ensure that all measures are taken to exclude or mitigate such risks. This document has been carefully checked by FIMER, but deviations cannot be completely ruled out. If errors are detected, the reader is kindly requested to notify FIMER. Other than under explicit contractual commitments, in no event shall FIMER be responsible or liable for any loss or damage resulting from the use of this manual or from the installation of the equipment.

 **ATTENTION** – The product is not suitable for free display on the Internet. To ensure maximum security of information and operation, the device must remain protected from any attempt to contact it via the Internet and therefore a communication can only be originated from the device and not vice versa.

 **ATTENTION** – If you require further information, support or cybersecurity reports, you can write to [itteb.cybersecurity@fimer.com](mailto:itteb.cybersecurity@fimer.com).

## 2.3 Product handling

 **WARNING** – The total weight of the product without packaging is approximately 333 ÷ 400 kg (depending on the version): make sure to use a suitable tool for handling.

 **WARNING** – Transport and store in a dry place away from heat sources (as specified in the technical specifications), only in the original packaging.

## 3. *Installation*

# 3

**⚠ ATTENTION** – Failure to observe the instructions provided in this manual can cause serious damage to both the product and the installer (in the most serious cases, injuries can be fatal). Before proceeding with the installation, start-up and use of the product, you should carefully read the instructions in this manual. FIMER recommends using experienced professionals, who comply with current regulations, to install the product correctly.

### 3.1 Preparing for installation

Before installing, make sure that:

- Input power supply is completely switched off and remains off until installation is completed.
- The work area is adequately marked and isolated (access to people not required for the work must be prevented).
- Installation should not be done with wet hands and no water jet may be directed at the product.
- Do not install in conditions of rain, fog, or high humidity.
- The packaging of the product is perfectly intact and without obvious damage (if the product is damaged, contact your seller or request support at [www.fimer.com](http://www.fimer.com)).
- The product and all components (including cords) are perfectly intact and without any defects or obvious faults.

**⚠ ATTENTION** – To ensure the correct operation of the product, referring to local regulations in force, calculate the distance between the power supply panel and the installation site properly to determine the voltage drop, cord thickness and existing load, which are useful for identifying the maximum operating current.

**⚠ ATTENTION** – The entire electrical power supply system to which the product is connected must first be correctly sized by a qualified professional. The electrical data of the device, which must be consulted for the correct sizing of the power supply system, are the data on the label of the device itself.

**⚠ ATTENTION** – When installing this product, you must comply with all local and international standards for the construction and installation of electrical/electronic equipment, including but not limited to IEC 60364-1 and IEC 60364-5-52.

**The power supply system must meet the following requirements:**

- **TN or TT system, in both cases with PE cord**
- **Three-phase power supply:  $400 V_{AC} \pm 10\%$  - 50/60 Hz**

## 3.2 Tools required

- Cutter
- Flathead screwdriver and Phillips screwdriver or screwdriver
- Torque wrench for hexagonal screws
- Marker/pencil
- Drill and drill bit suitable for the material of the fixing surface to be drilled to install M12 anchors
- Hexagonal wrenches
- Wire stripper
- Forklift truck or crane and respective belts for the handling and positioning

**⚠ ATTENTION** – FIMER declines all responsibility for damages to property or persons deriving from the use of these instruments. The installation must be carried out by qualified personnel and in accordance with the regulations in force for the installation of electrical equipment.

## 3.3 Package contents

- N.1 FIMER ELECTRA DC Station
- N.4 M12 plugs with relative threaded bars and nuts
- N.4 stainless steel M12x20mm screws (DIN 933) + N.4 M12 stainless steel washers 37x13 sp 3 mm (DIN 9021)
- N.2 fixing plates
- N.2 Keys for opening the lateral door
- Template for holes and anchor devices installation in fresh concrete
- Installation manual

**IF REQUESTED IN ORDERING PHASE, IN ADDITION TO WHAT LISTED ABOVE, THE STATION IS EQUIPPED WITH:**

- N.1 Plate for fresh concrete installation
- N.4 Anchor devices M10 with welded washer
- N.4 hexagonal sleeves M10
- N.1 or more user RFID card(s)

## 3.4 Space and positioning

**⚠ ATTENTION** – Before choosing a location for this product, consult the electric vehicle's manual and follow any applicable guidelines.

**⚠ ATTENTION** – Ensure that there are no heat sources, flammable substances, or electromagnetic sources in the installation area either during the product installation phase or throughout its life.

**⚠ ATTENTION** – In addition, the installation site must be sufficiently ventilated to ensure proper heat dissipation.

**⚠ ATTENTION** – For mobile cellular versions of the product, make sure the selected area has cellular reception coverage.

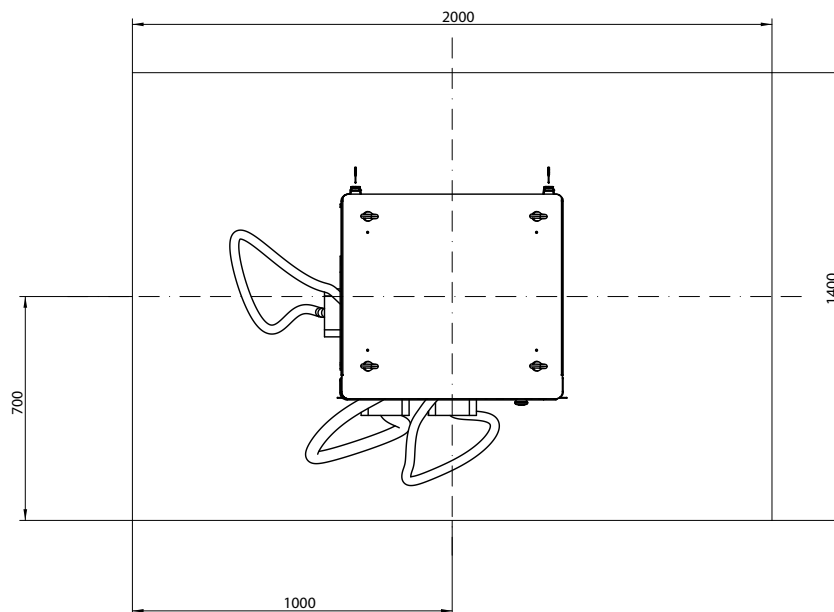
**⚠ ATTENTION** – Before installation, make sure that the environmental conditions (such as temperature, altitude and humidity) according to section 1.1 and 10 of the product specifications are met.

**⚠ ATTENTION** – For locations where the device will be exposed to direct sunlight or weather for most of the day, it is recommended to install a cover to protect the charging station.

- ⚠ **ATTENTION** – To ensure the functionality of the device and to guarantee its correct use by the user, the space around the device must be free to allow air circulation, maneuvering the cords, recharging operations by the user and routine and extraordinary maintenance in safety.
- ⚠ **ATTENTION** – In addition, the space required to park the electric vehicle for recharging must be taken into consideration.
- ⚠ **ATTENTION** – For locations where the device will be exposed to direct sunlight or weather for most of the day, it is recommended to install a cover to protect the charging station.

**Furthermore:**

- Make sure the charging device is protected from collisions by barriers or poles.
- Design the parking layout for easy access to the charging cord.
- Provide a comfortable environment for users, providing safety against vandalism or theft.
- Install the charging device in a location where it can be clearly seen or monitored.
- Install sufficient lighting around the device.



### 3.5 Unpacking

Before proceeding with the installation of the device, it is necessary to check, upon unpacking, that the various parts of the device do not present physical damage due to shocks, tears or abrasions. If any damage is detected, stop the installation procedure immediately and contact technical support as described in section 1.4.

The various components are protected by packaging and adhesive tapes. Before installation, each component must be cleared of any traces of dust, the packaging or adhesive tapes.

- ⚠ **ATTENTION** – The following images are for illustrative purposes only; they may not show all internal components of the product or present negligible differences from the actual configuration.
- ⚠ **ATTENTION** – Notify the carrier and FIMER support immediately if rough handling of the equipment is suspected or if any damage is found or suspected.



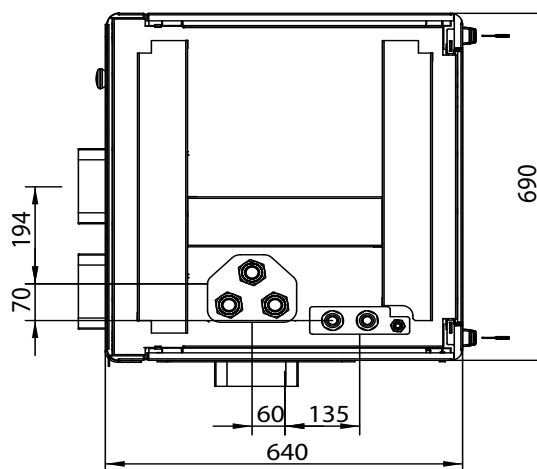
ShockWatch and TiltWatch devices indicate if the package was subject to shock or tip-over

1. Remove the panels and the roof unscrewing the fixing screws.
2. Remove fastening belts (if any).
3. Remove protective film and bumper being careful not to scratch the station surface.
4. Remove the cover plates on both sides underneath the doors, verify the presence of fixing screws which anchor the station to the pallet. If any, remove the screws and keep the cover plates that must be used as described in section 3.7.
5. Using a special handling equipment, lift the station from the eyebolts and place it on a horizontal work plane.

### 3.6 Anchor device installation

**⚠ ATTENTION** – The following images are for illustrative purposes only; they may not show all internal components of the product or present negligible differences from the actual configuration.

**⚠ ATTENTION** – We suggest the construction of a manhole with dimensions suitable for the positioning of the DC Station and its plate (in case of installation in fresh concrete), to allow easier cable entry.

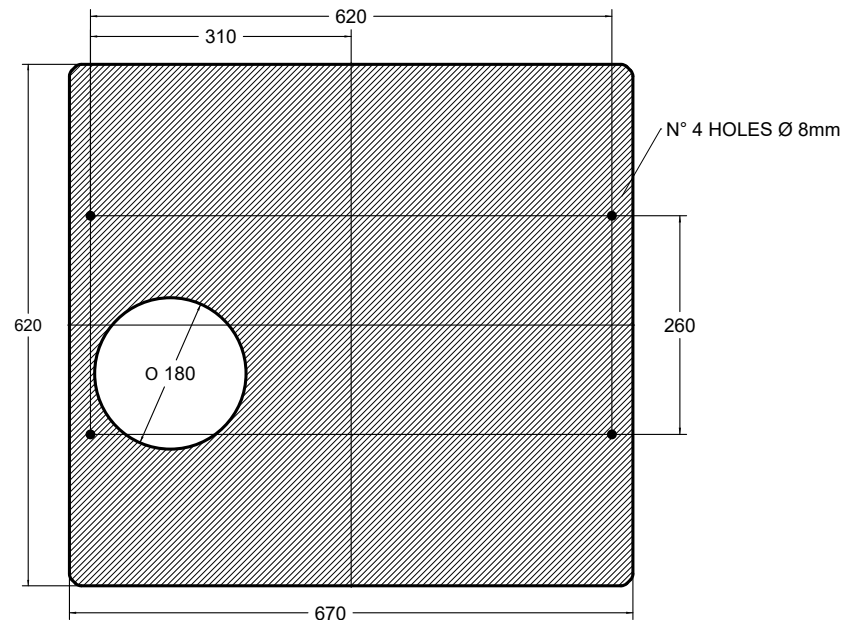


BOTTOM VIEW: Inlet holes positioning

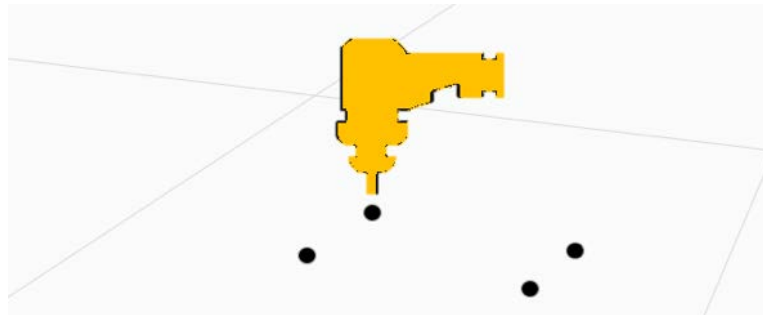


### 3.6.1 Installation on existing ground

1. Place the template on the ground where you want to install the product (in any case respecting the indications previously provided about positioning) and letting the corrugated pipe come out of the ground for about 3-5cm.



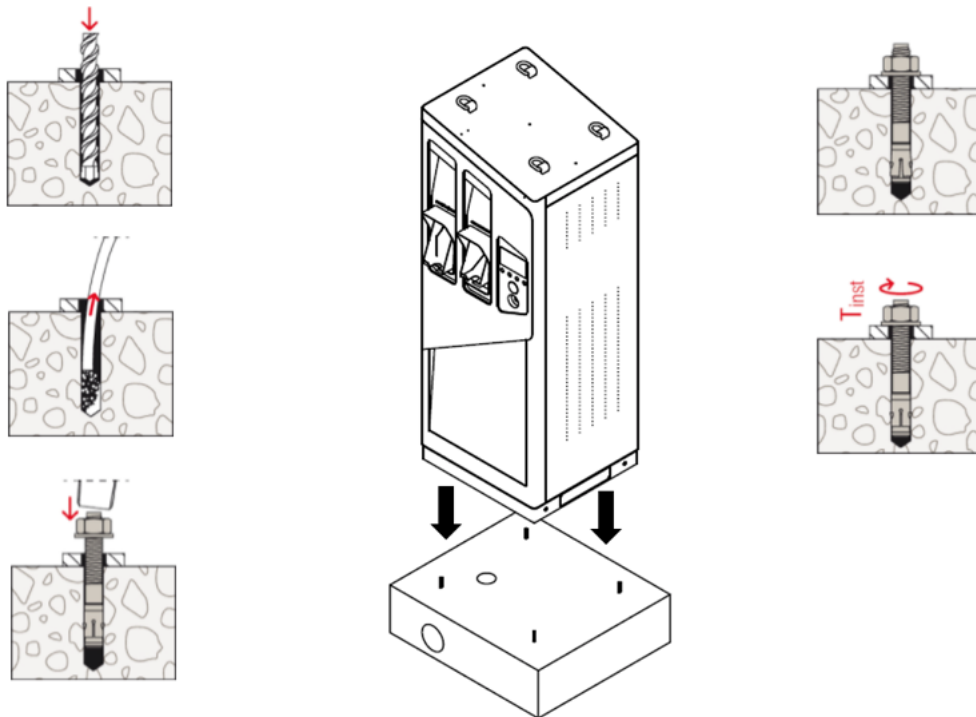
2. Using the template, make marks on the floor in correspondence of the four (4) present holes.



3. Remove the template and drill holes in the ground at the position of the four (4) marks previously made with adequate drill bit to position the anchoring devices (M12). The maximum drilling depth is 85 mm, while the minimum support width (concrete) must be at least 168mm. Then, clean the hole made from any debris of drilling.
4. If the installer wants to further increase the seal, it is possible to inject in the four (4) holes just made some resin anchor (or chemical).
5. Remove pre-screwed bolts and washers from the anchor devices.
6. Insert the four (4) anchor devices into the four (4) holes just drilled so that the threaded parts protruding from the ground is about 30 mm.
7. Lift and position the charging station at the corresponding anchor devices (so that the threaded parts protruding from the ground pass through the pedestal holes).
8. Adjust the cable gland(s) to pass the cable(multipolar)/cables into it. Finally, tighten the cable gland(s) once the correct length for connecting the power cables has been sized.

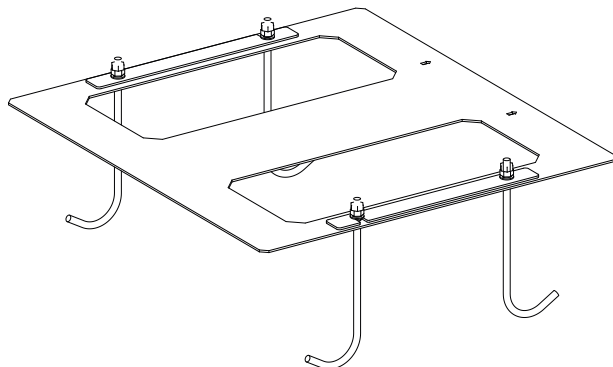
9. Fix the station to the ground as shown in section 3.7.

**⚠ ATTENTION** – The station cannot be lifted from the bottom once removed from pallet; for lifting and positioning, use the eyebolts on the roof.



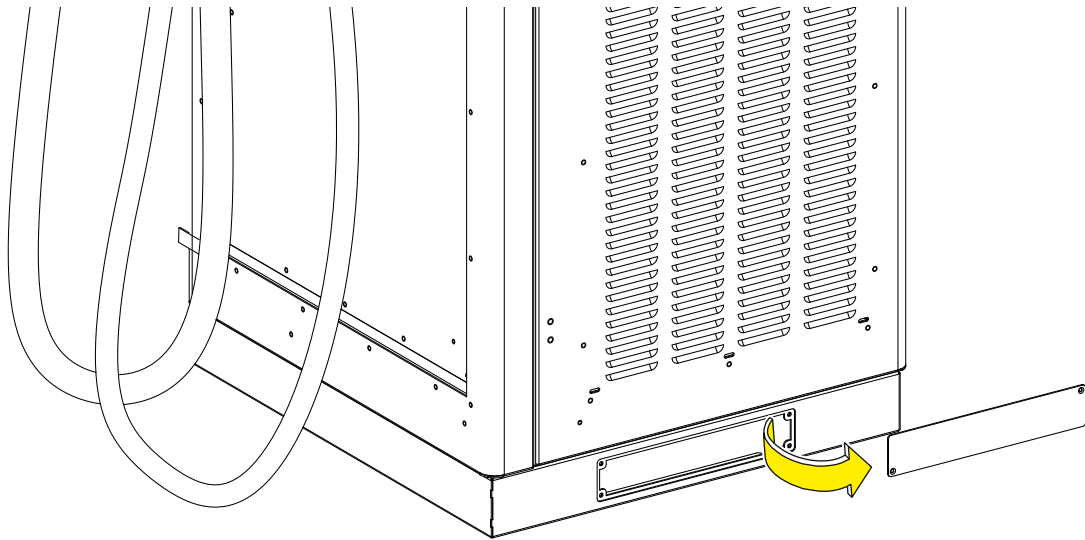
### 3.6.2 Installation in fresh concrete

1. Attach the anchor bolts to the plate using M10 threaded hexagonal sleeves.
2. Install the plate with anchor bolts inside the concrete casting, making sure that only the anchor bolts are submerged, while the horizontal plate must emerge just from the surface.
3. Once the cement has solidified, using a special handling equipment, place the station above the installation place, pass the cables from the bottom through the cable entry holes.
4. Adjust the cable gland(s) to pass the cable(multipolar)/cables into it. Finally, tighten the cable gland(s) once the correct length for connecting the power cables has been sized.
5. Fix the station to the ground as shown in section 3.7.

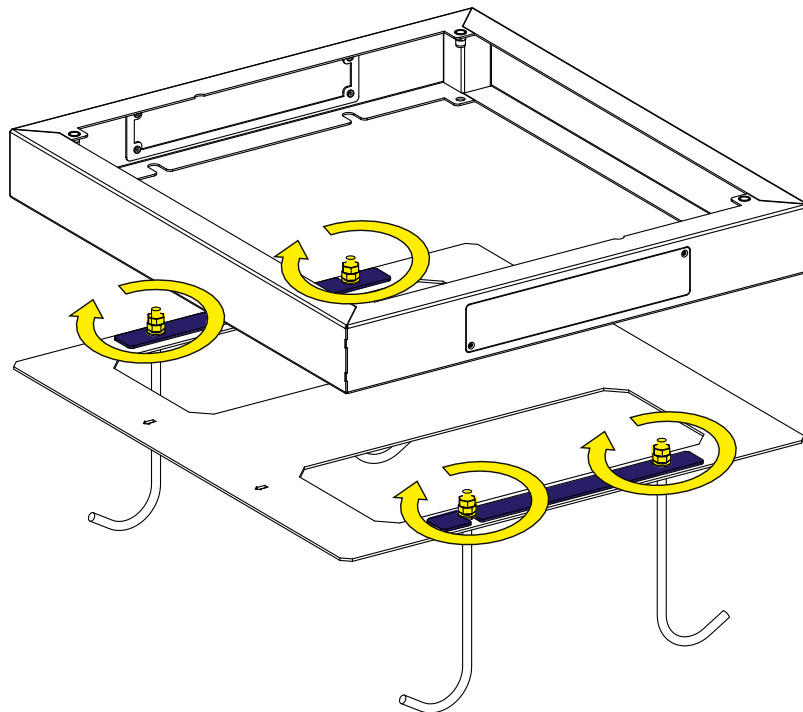


## 3.7 Station fixing

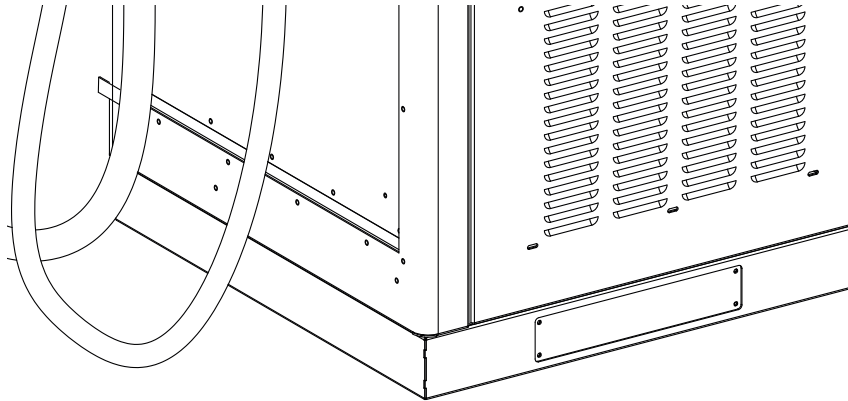
1. Remove the cover plates on both sides under the access doors.



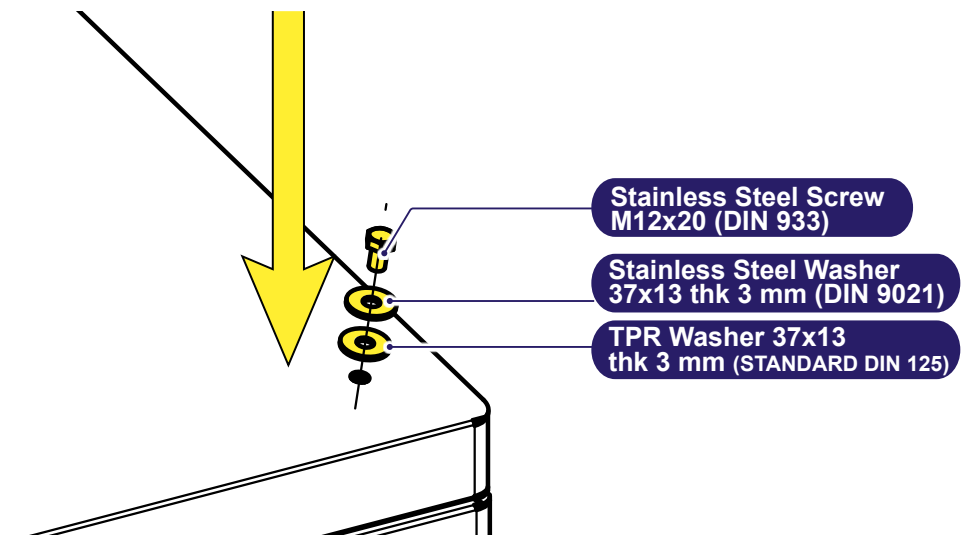
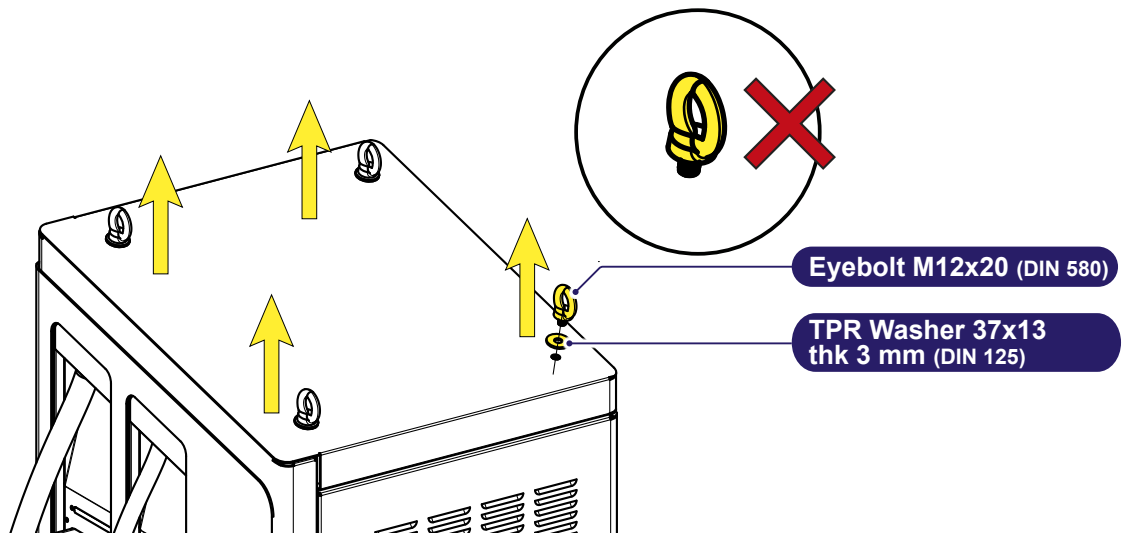
2. Remove the hexagonal sleeves, or M12 nuts, depending on the type of installation, place the fixing plates (in blue in the picture), then screw them back to anchor the station to the ground.



3. Mounting the cover plates.



4. Once the station is installed in its final position, remove the eyebolts and replace them with the supplied M12x20 screws, as shown in the figures below.



### 3.8 Power and grounding cord connection

- ⚠ **ATTENTION** – During installation, prevent the electrical connection of the power supply; the entire work area must be cordoned off and only qualified and authorized personnel may access it.
- ⚠ **ATTENTION** – The equipment should be powered through properly sized cords with appropriate resistance for the current flow for which the product was designed. Before wiring, ensure that the cords are properly sized and that the maximum allowable bending radii are not exceeded. The electrical data of the device, which must be consulted for the correct sizing of the power supply system, are the data on the label of the device itself.
- ⚠ **ATTENTION** – The power supply to the equipment must remain off throughout this step. The personnel in charge of carrying out the connection and power supply of the station must operate with proper personal protective equipment (PPE).
- ⚠ **ATTENTION** – Failure to follow these instructions could result in serious injury or death.
- ⚠ **ATTENTION** – The images below are for illustrative purposes only and may not show all internal components in the product.
- ⚠ **ATTENTION** – In the station are already contained differential protection devices (complying with one of the following standards: IEC 61008-1, IEC 61009-1, IEC 60947-2 and IEC 62423) and magnetothermal (complying with IEC 60947-2, IEC 60947-6-2 or IEC 61009-1 or with the relevant parts of IEC 60898 or IEC 60269) and discharger for overvoltage protection.

The charging station should be supplied by dimensioned and protected plant in accordance with the regulations in force in the country of installation and in compliance with all safety regulations for carrying out electrical work.

The upstream protection should be chosen considering that:

- The station will be able to withstand a maximum short-circuit current of 20 kA;
- It should be coordinated with the internal protections installed within the station.

The internal protections are listed in the tables below:

Station model	AC	DC
<b>ELECTRA DC Station 60</b>	Main Disconnector $I_{th@40^{\circ}C} = 200\text{ A}$ or RCBO (Q0) $I_n = 250\text{ A}$ $I_r = 0.8 \times I_n$ $I_i = 5 \times I_n$	
	RCCB (Q6) $I_n = 80\text{ A}$ $I_{\Delta n} = 0.03\text{ A} - \text{Tipo B}$	RCCB (Q10) $I_n = 100\text{ A}$ $I_{\Delta n} = 0.03\text{ A} - \text{Tipo A}$
	MCB (Q7) $I_n = 80\text{ A} - \text{Curva C}$ $I_{cn} = 10\text{ kA}$	2xMCB (Q1, Q2) $I_n = 50\text{ A} - \text{Curva C}$ $I_{cn} = 6\text{ kA}$

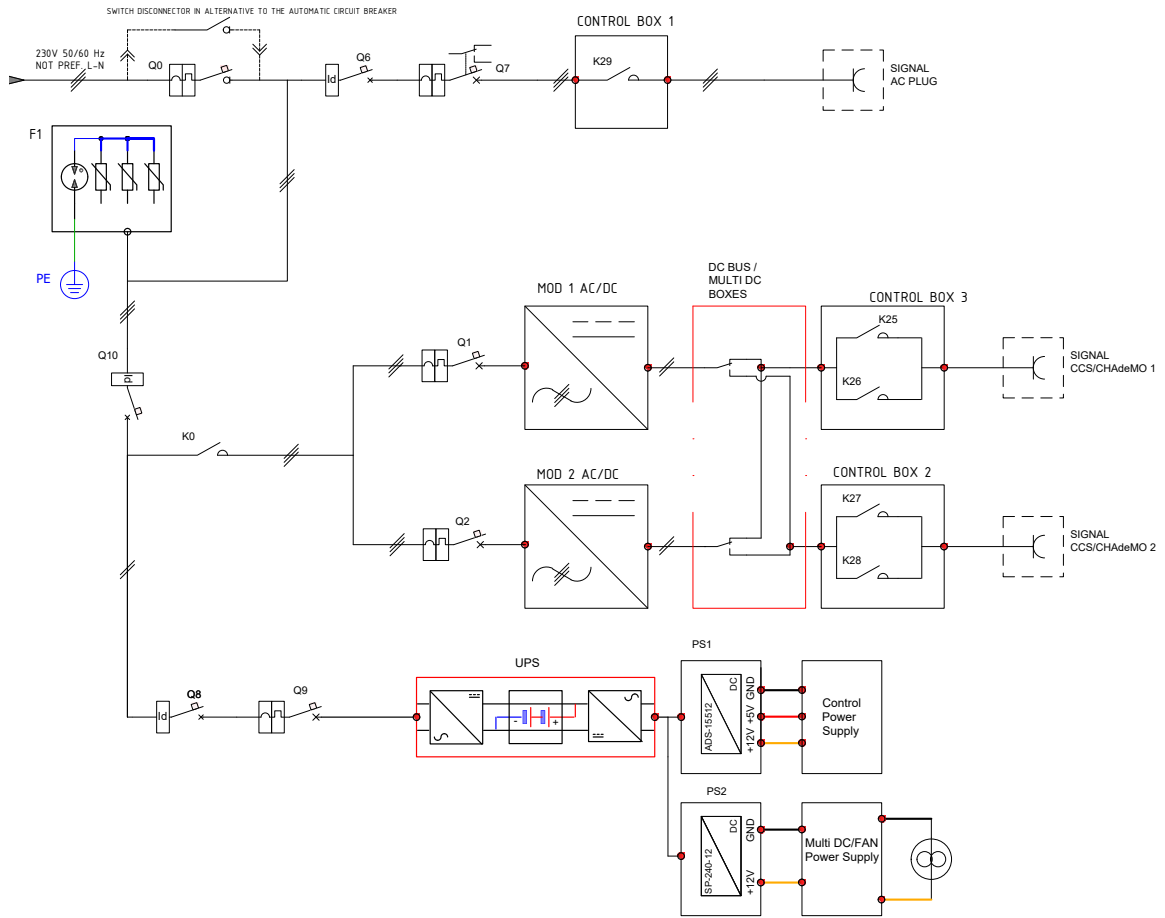
Station Model	AC	DC
ELECTRA DC Station 90	RCBO (Q0) $I_n = 250$ A $I_r = 0.9I_n$ $I_i = 5I_n$ $I_{\Delta n} = 0.3$ A – t = 200 ms	
	RCCB (Q6) $I_n = 80$ A $I_{\Delta n} = 0,03$ A – Tipo B	3xMCB (Q1, Q2, Q3)
	MCB (Q7) $I_n = 80$ A – Curva C $I_{cn} = 10$ kA	$I_n = 50$ A – Curve C $I_{cn} = 6$ kA

Station Model	AC	DC
ELECTRA DC Station 120	RCBO (Q0) $I_n = 400$ A $I_r = 0.8I_n$ $I_i = 5I_n$ $I_{\Delta n} = 0.3$ A – t = 200 ms	
	RCCB (Q6) $I_n = 80$ A $I_{\Delta n} = 0.03$ A – Tipo B	4xMCB (Q1, Q2, Q3, Q4)
	MCB (Q7) $I_n = 80$ A – Curva C $I_{cn} = 10$ kA	$I_n = 50$ A – Curve C $I_{cn} = 6$ kA

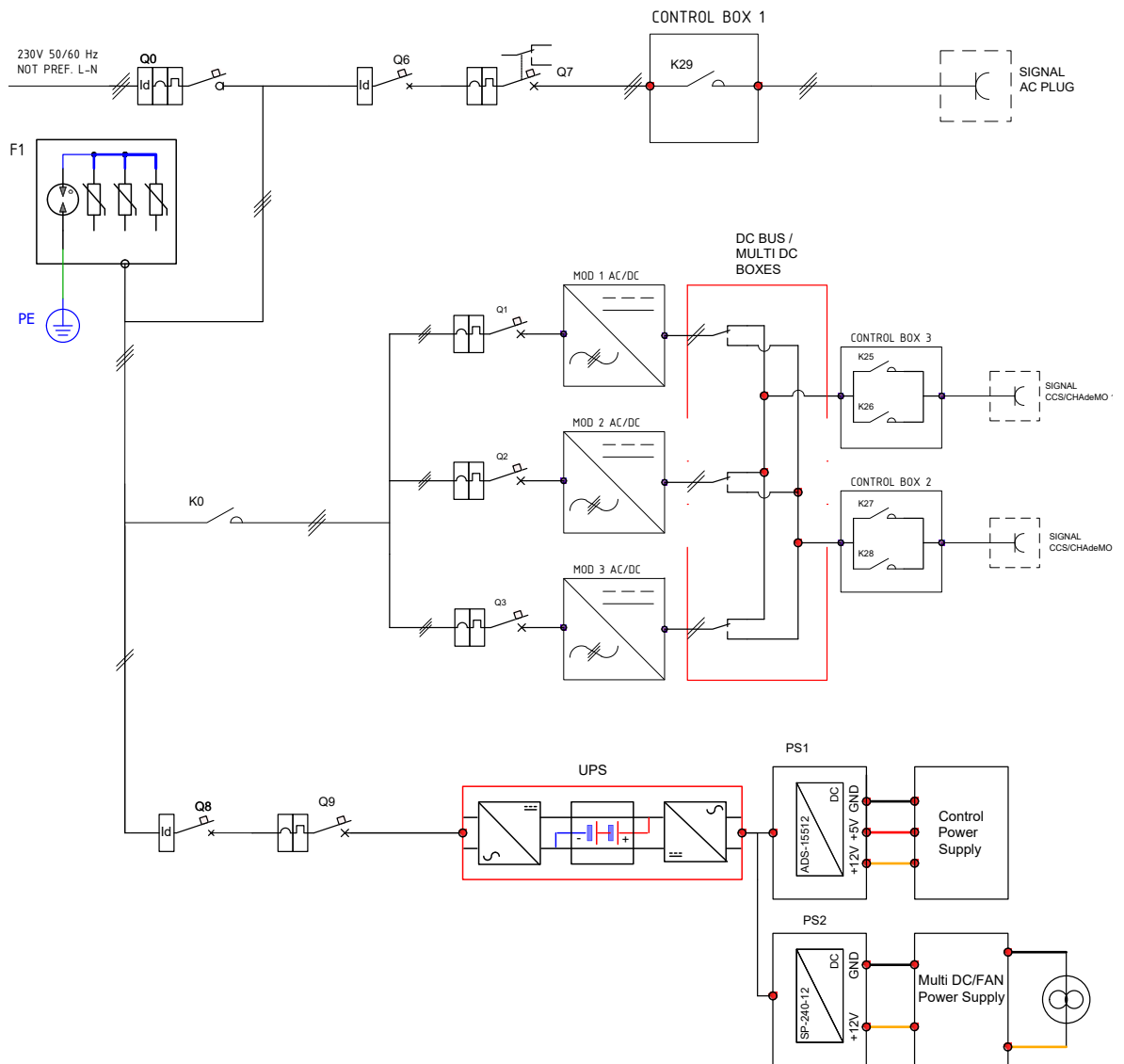
Station Model	AC	DC
ELECTRA DC Station 150	RCBO (Q0) $I_n = 400$ A $I_r = 0.9I_n$ $I_i = 5I_n$ $I_{\Delta n} = 0.3$ A – t = 200 ms	
	RCCB (Q6) $I_n = 80$ A $I_{\Delta n} = 0,03$ A – Tipo B	5xMCB (Q1, Q2, Q3, Q4, Q5)
	MCB (Q7) $I_n = 80$ A – Curva C $I_{cn} = 10$ kA	$I_n = 50$ A – Curve C $I_{cn} = 6$ kA

Below the single-line diagram of all ELECTRA DC Station models.

### ELECTRA DC STATION 60

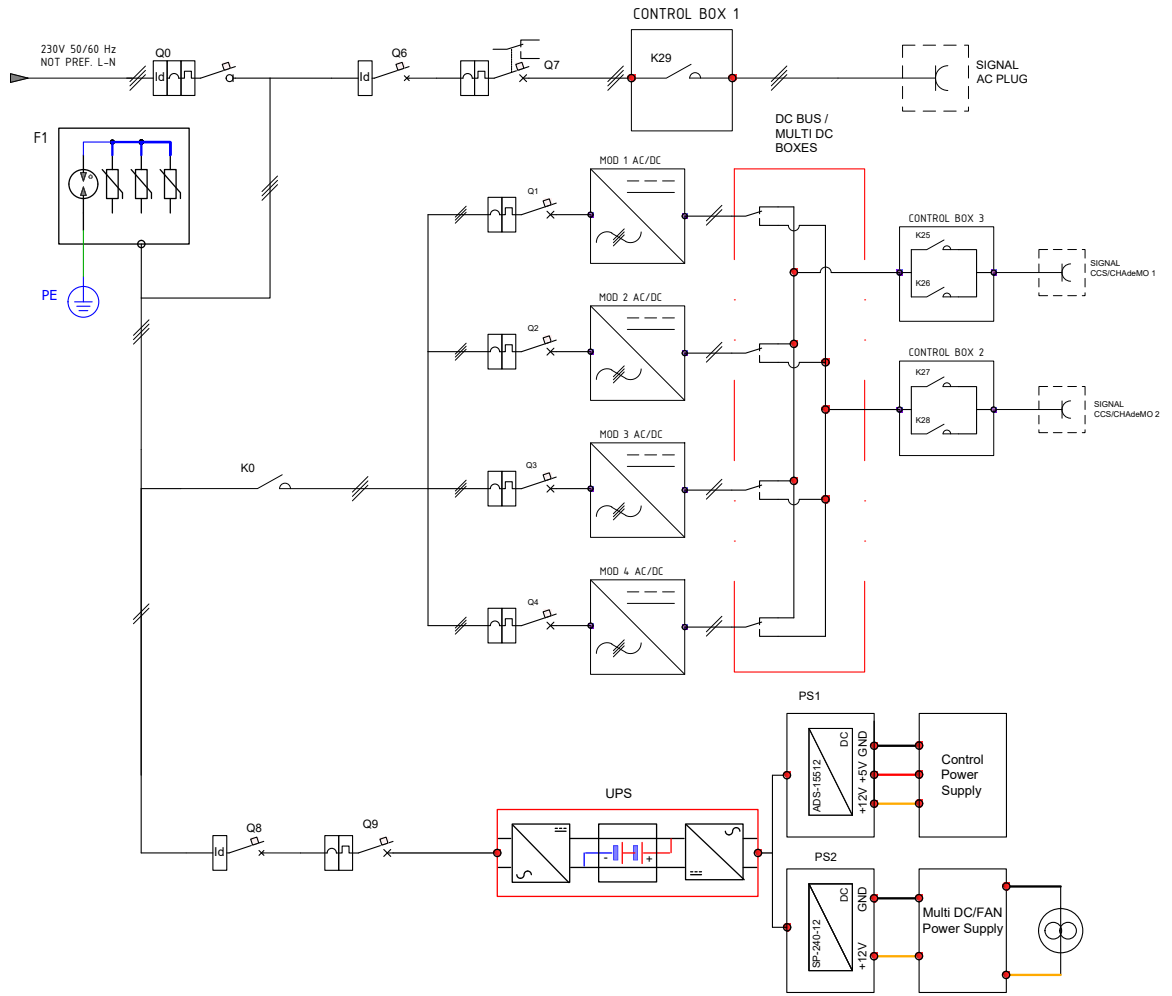


# ELECTRA DC STATION 90

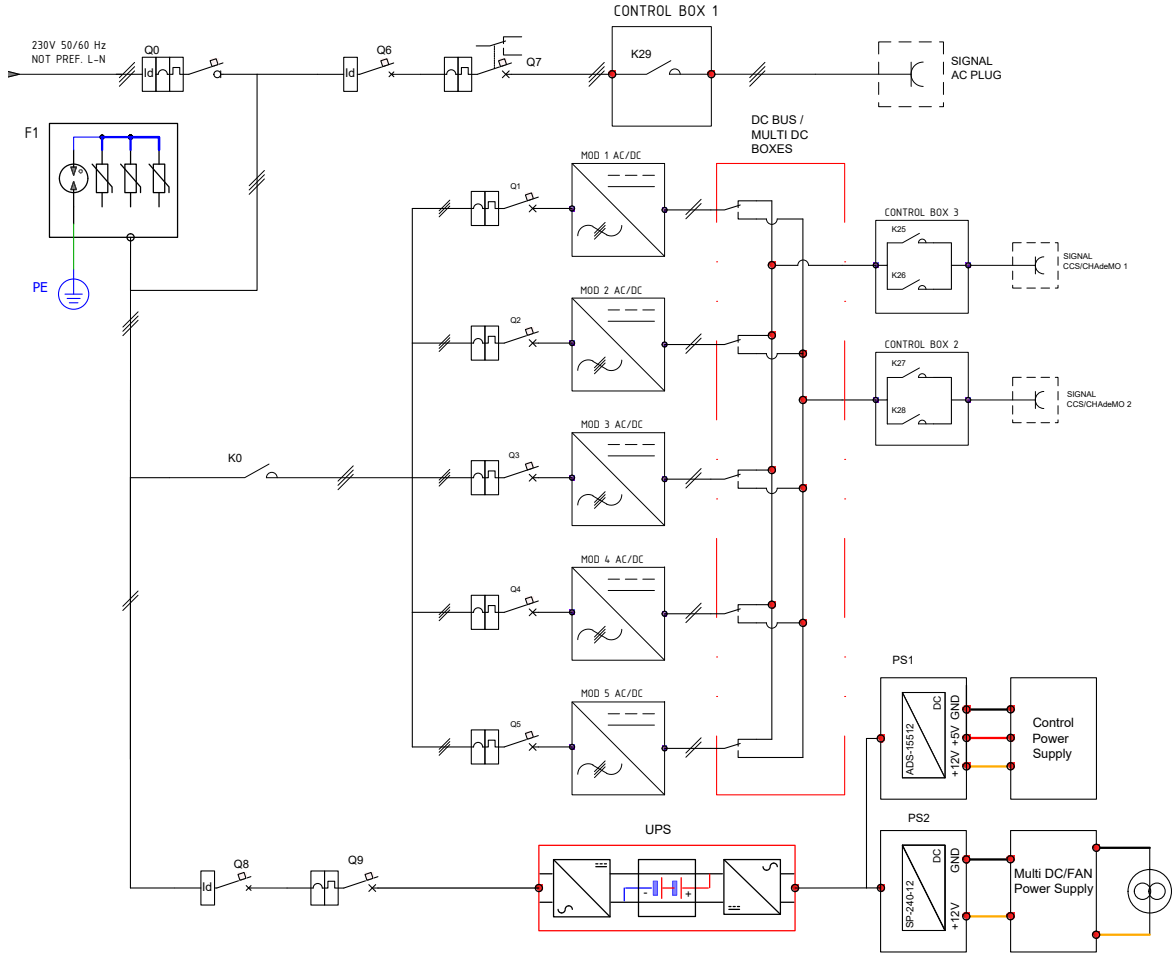




# ELECTRA DC STATION 120



## ELECTRA DC STATION 150

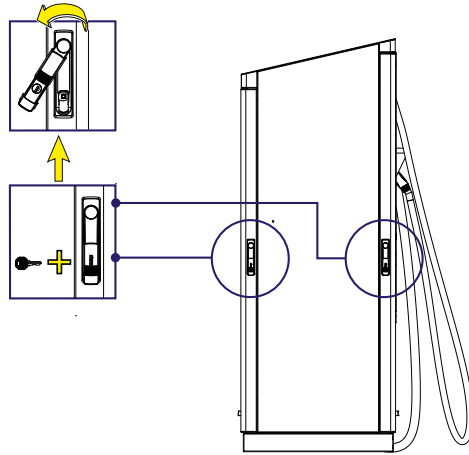


**⚠ ATTENTION** – The following guidelines provide information regarding the power cords to be used and the recommended conductor size:

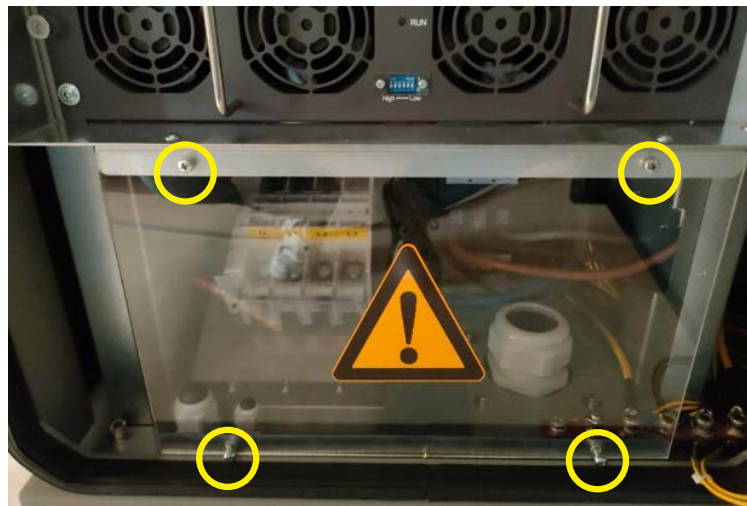
Station Model	L < 75 m	75 ≤ L ≤ 100 m	100 < L ≤ 150 m
ELECTRA DC Station 60	3x70+1x25+1xG35	3x70+1x25+1xG35	3x95+1x25+1xG50
ELECTRA DC Station 90	3x95+1x25+1xG50	3x120+1x25+1xG70	3x150+1x25+1xG95
ELECTRA DC Station 120	3x120+1x25+1xG70	3x150+1x25+1xG95	3x185+1x25+1xG95
ELECTRA DC Station 150	3x150+1x25+1xG95	3x185+1x25+1xG95	3x185+1x25+1xG95

Below is a description of procedure for correct operation of the station at power supply and ground plant arranged in the installation site.

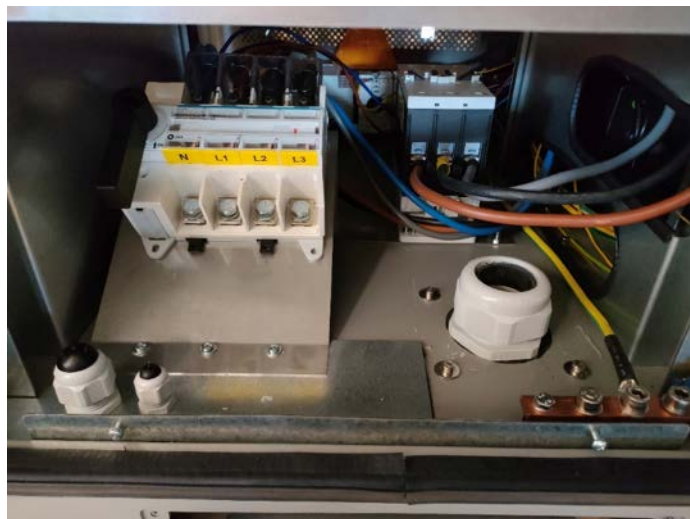
1. Open both the access doors (right and left side) using the supplied keys, as shown in figure.



2. Remove the plexiglass protection at the bottom of the DC Station to access the cable entry section. To remove the protection, unscrew the four (4) fixing screws highlighted in the figure.



3. Once removed the plexiglass protection you will have access to the cable entry section where there are cover plates equipped with cable glands.



**NOTE** – The pictures above refer to ELECTRA DC Station 60 equipped with Main disconnector; different version is equipped with main Circuit Breaker. Different ELECTRA DC Station models have the same cable entry position but are equipped with different number and size of cable glands.

4. Through the cable glands it is possible to pull the cables inside the station to guarantee the degree of protection by ensuring that all are tightened properly.
5. In case some cable glands are not used, verify if equipped with protection cap.
6. Remove the cover of the main disconnector/circuit breaker by unscrewing the fixing screw(s).
7. Connect the previously prepared cables with suitable cable terminals:
  - a. ELECTRA DC Station 60:**
    - Main Disconnector version: Active and neutral conductors (M8 screw, maximum width 20 mm, tightening torque 13 Nm) and the yellow/green conductor to the earth collector (copper bar, M8 hole, 13 Nm tightening torque).
    - Main Circuit Breaker version: Active and neutral conductors (M8 screw, maximum width 25 mm, tightening torque 14,4 Nm) and the yellow/green conductor to the earth collector (copper bar, M8 hole, 13 Nm tightening torque).
  - b. ELECTRA DC Station 90:**
    - Active and neutral conductors (M8 screw, maximum width 25mm, tightening torque 14,4 Nm) and the yellow/green conductor to the earth collector (copper bar, M8 hole, 13 Nm tightening torque).
  - c. ELECTRA DC Station 120 - 150:**
    - Active and neutral conductors (M10 screw, maximum width 32 mm, tightening torque 48 Nm) and the yellow/green conductor to the earth collector (copper bar, M8 hole, 13 Nm tightening torque).

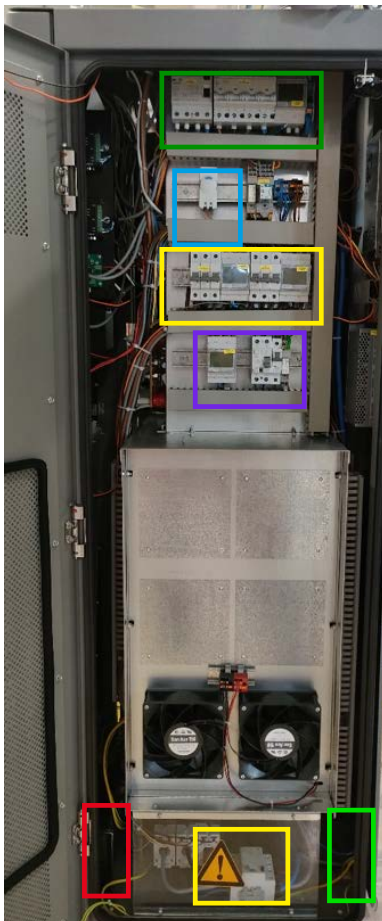
## 4. *First startup and configuration*

# 4

- ⚠ ATTENTION** – FIMER products are configured in the factory before delivery according to the information provided by the customer.
- ⚠ ATTENTION** – At the time of purchase, all customers or users are required to provide information regarding the required configuration and electrical features of the network to which the station will be connected.
- ⚠ ATTENTION** – FIMER considers the information provided at the time of purchase to be final and, consequently, any configuration changes or any other necessary actions that were not agreed upon or defined at the time of purchase will not be included in the guarantee.
- ⚠ ATTENTION** – For all these reasons, once the above-mentioned procedure has been completed by qualified technical personnel, the equipment can be considered ready for its first use.

Below is a description of charging station's start-up procedure.

1. Opening the door leads to the section where there are protection switches, the UPS and the surge protection device (photo referring to ELECTRA DC Station 60).



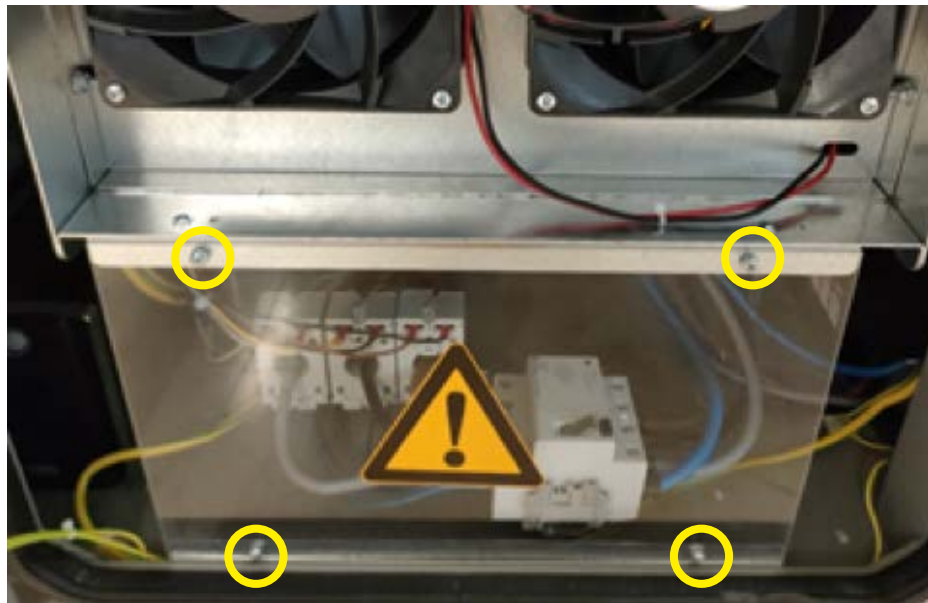
- AC plug switches
- DC plug switches
- Thermostat
- UPS Auxiliaries
- UPS
- SPD

2. Before proceeding with the start-up of the charging station, carry out the following checks, keeping the main disconnect/main circuit breaker and mainstream switches in the “OFF” position:

a. For ELECTRA DC Station 60 only, check the status of the main residual current circuit breaker to protect DC plug.

If the residual current circuit breaker is in the “0” position, proceed as follows:

- Remove the plexiglass protection at the bottom of the station to access the cable inlet section. To remove the protection, unscrew the four (4) fixing screws highlighted in the figure.
- Arm the residual current circuit breaker and reassemble the plexiglass protection through the four (4) fixing screws.



b. Emergency button status

In case the button was accidentally pressed, turn it counter clockwise.

c. Main tightening torques

- Circuit Breakers 16 Nm.
- Differentials 8 Nm.
- Contactor 18 Nm.
- Thermostat 1 Nm.

4. Move the disconnect/main Circuit Breaker lever to the “ON” position. Reassemble the plexiglass protection through the four (4) fixing screws, then close the left side door with the key.

5. Access the right side of the charging station again to proceed with the power supply, following the sequence below:

- a. Arm all circuit breakers and differentials in sequence.
- a. Check that the thermostat is set to 35°C.

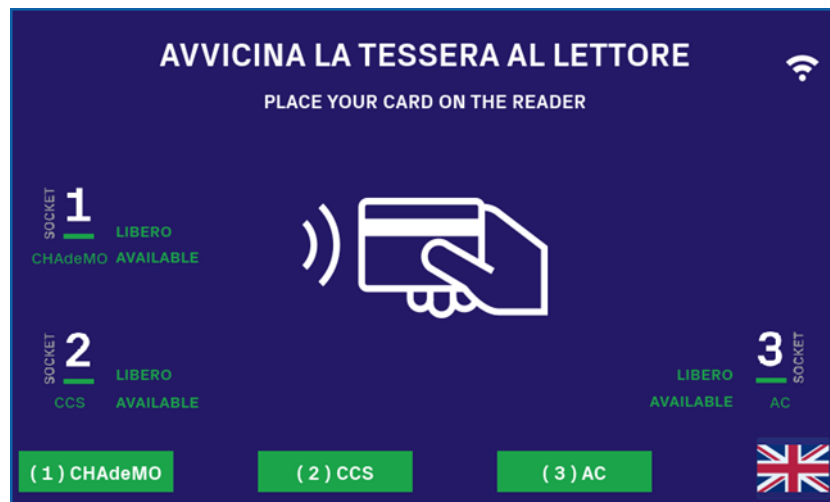


- b. Turn on the UPS by pressing the power button.
  - c. Close the right-side door.
5. Power up the station by setting the protection switch located upstream of the station to the "ON" position.

After completing the procedure described above, the charging station will perform internal checks.



Once the checks are finished, the HMI will display the availability of the various Plugs as shown in figure.



The information and instructions are always displayed in two languages of which Italian will always be displayed as the main one. You can change through the button under the flag the secondary language.

## 5. *Instruction for use*

# 5

**⚠ ATTENTION** – The pictures below are for illustrative purposes only and may not show all internal components installed in the product.

### 5.1 Operations prior to charging

**⚠ ATTENTION** – Throughout the charging process, DO NOT remove the charging connector from the electric vehicle. Remove the charging connector from the vehicle only when charging is complete. Pulling the charging connector out of the vehicle during the charging process can result in serious personal injury or property damage.

Before starting a new charging session:

**⚠ ATTENTION** – Make sure that the product and its connectors are perfectly intact, dry and free of any impurities

**⚠ ATTENTION** – Do not insert fingers or objects into the Plug

**⚠ ATTENTION** – Make sure the product is not and has not been exposed to heat sources or explosive or flammable substances

**⚠ ATTENTION** – Ensure that the electric vehicle is compatible with the technical characteristics of the product

**⚠ ATTENTION** – Do not use adapters or extensions not specified by the manufacturer as they may damage the product and create a risk of injury to the user

**⚠ ATTENTION** – No vehicle adapters should be used to connect a connector to a vehicle socket

**⚠ ATTENTION** – Adapters between the vehicle socket and plug may be used only when specifically designated and approved by the vehicle manufacturer or the manufacturer of the electric vehicle power equipment and in accordance with national requirements. Such adapters shall, however, conform to the requirements of IEC 61851-1 and other relevant standards governing both the plug and the socket of the adapter. The adapters must in any case be marked with specific indications of use permitted by the manufacturer (e.g. IEC 62196). Such adapters shall not allow the switch between different modes of operation

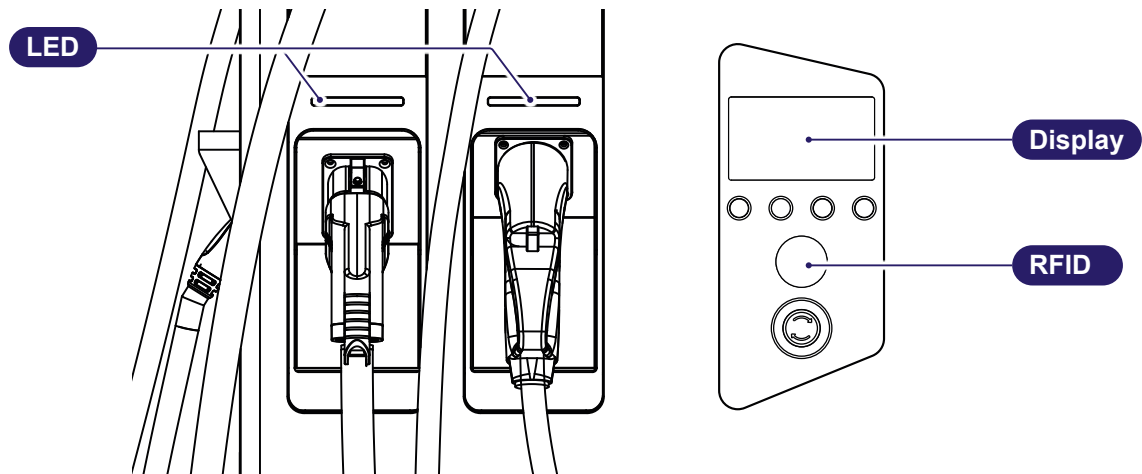
### 5.2 Use interface

**⚠ ATTENTION** – The following indications regarding the graphics available on the displays are for illustrative purposes only and may differ from what is displayed on the stations installed in the field (depending on the firmware version)

**⚠ ATTENTION** – Below are indications regarding the colors of the LEDs placed near the Plug holder of the charging station..







The interface consists of a display with the relative idiom selection buttons, a RFID card reader, LEDs placed near each Plug holder.



FIMER ELECTRA DC Station will allow the user to start charging session using a RFID technology card or by remotely enabling via OCPP (RemoteStart Transaction).

#### **STATUS LED**

Above each Plug Holder there is an LED that provides information on the status of the Plug itself according to this legend:

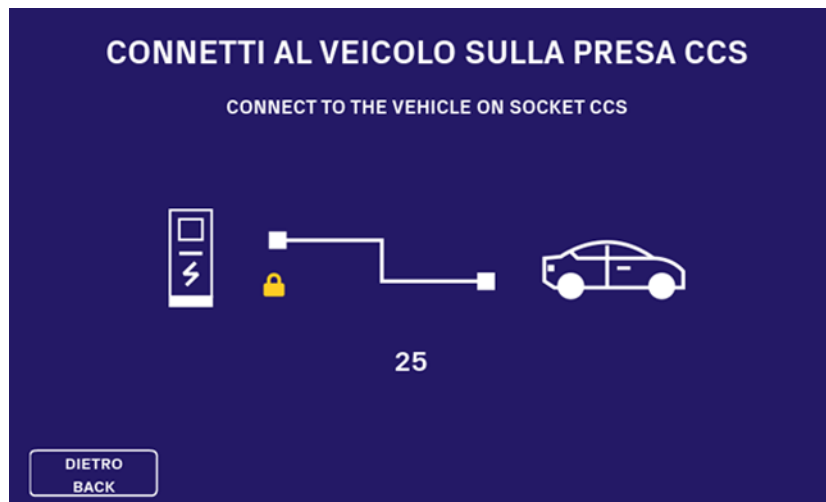
-  Green LED: Available Plug/Blinking for complete charge
-  Blue LED: Charging Plug
-  Red LED: Plug not available for error/failure
-  Yellow LED: Booked Plug

#### **AUTHENTICATION VIA RFID**

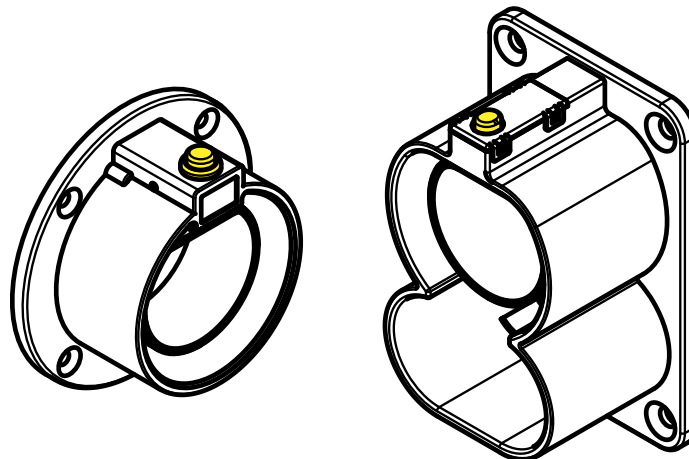
- Place your card near the RFID reader
- The system verifies that your card is enabled for charging (local/remote), if not, the following message will be displayed



- In case of successful enablement, the charging station will start searching for a vehicle.



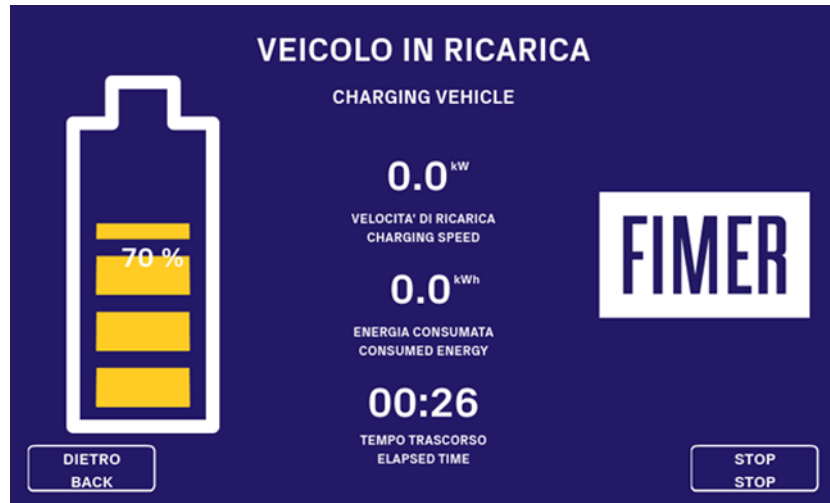
- For CCS2 and T2 plugs, press the button (shown in red in the pictures below) to release the cable.



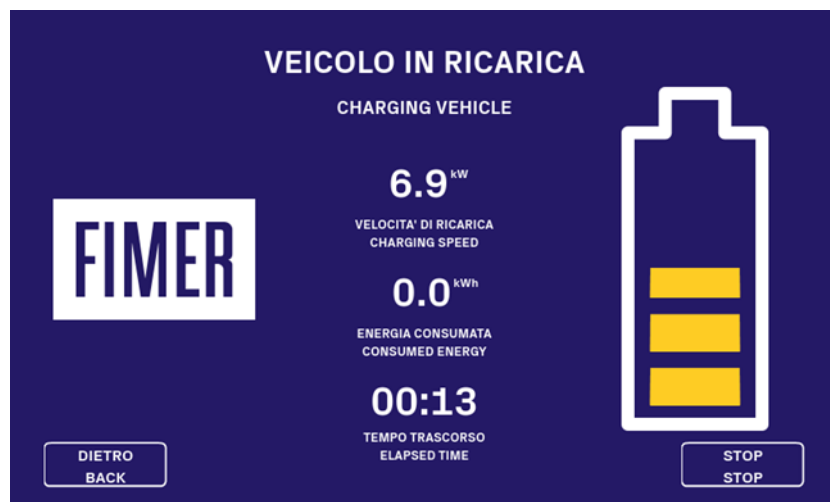
- Connect the chosen plug from those available to your vehicle (Operation to be completed within 30 seconds). Once the plug is connected, the display will show that the chosen plug is occupied. If required (CHAdEMO) swipe the RFID card again to start charging.



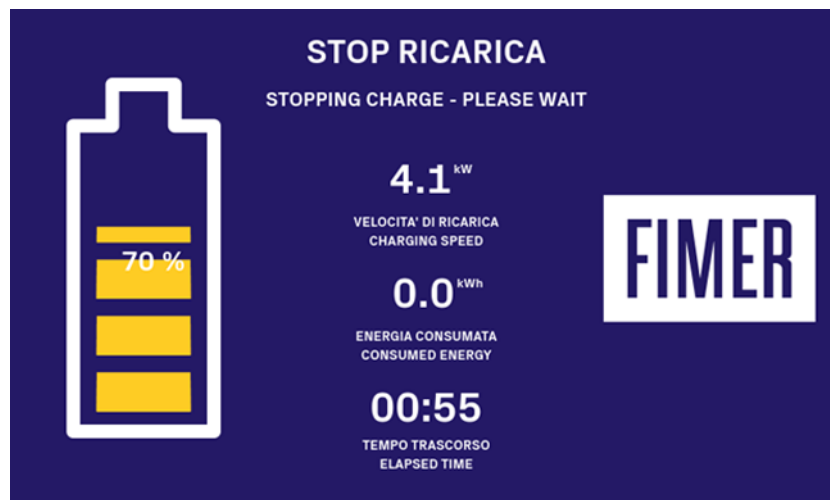
- After a few seconds, the charging begins showing the following message, in case of DC charging, containing the main information about the state of the charging session



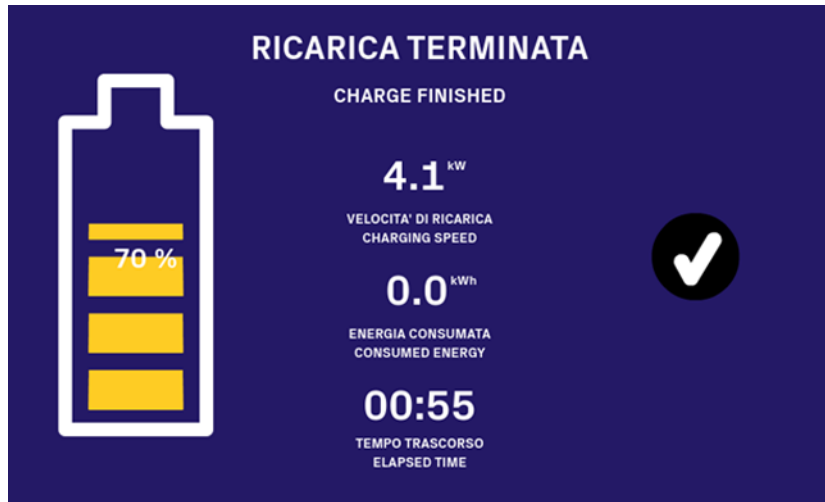
- In case of AC charging, the Battery SoC information will not be available, so the screen will be as follows



- While the vehicle is charging, the display returns to the main screen; you can swipe the RFID card again to see information about the charging session.
- In order to conclude the session before your EV is fully charged, you can either terminate on vehicle side or by swiping the RFID card on the reader and give STOP command through the corresponding button.



- Once the charging session is completed, the following message will be displayed



- When it is possible to remove the plug, its LED will be flashing green and the display will show the following message.



### REMOTE AUTHORISATION

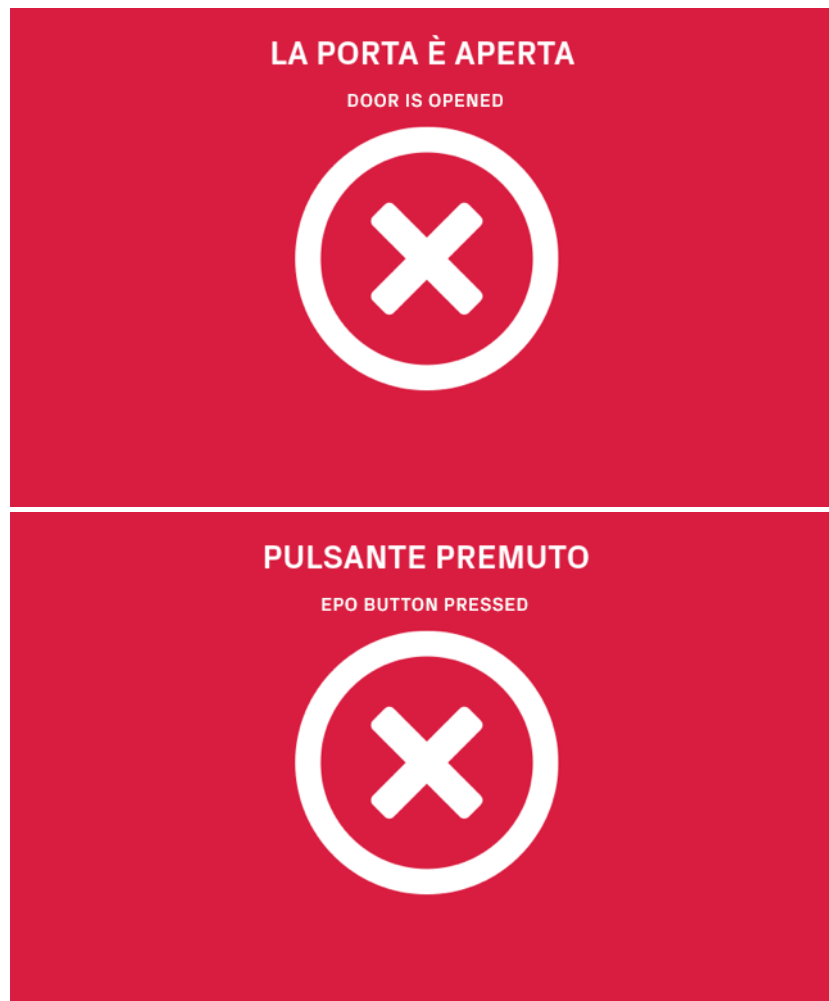
You must follow the chosen service provider instruction for remote authorisation through APP or other.

## 5.3 Errors or authorisation failure

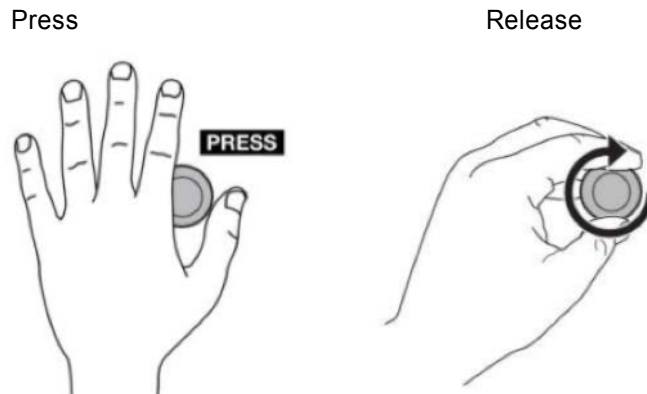
If any error occurs at the beginning of charging session, the following image will appear on the display of the station which identifies a failure into authorisation.



If one of the station doors is open or the emergency button has been pressed intentionally or erroneously, the station will block any charging session in progress and immediately make all the Plugs unavailable, displaying the following messages on display respectively.



If anomalies occur emergency button must be pressed, and message above will be displayed. This way the charging session will end immediately.



If the message “temporarily unavailable” appears on the station display, the failure may arise due to multiple situations.

On the display, in the lower right corner, the error code is displayed as for example in the image below:



The most common events that can lead to an out-of-service can be:

- Communication error with energy meters.
- Station power supply failure.
- Incorrect levels of supply voltages.
- Communication failure with control board.

**⚠ ATTENTION** – If it is impossible to finish the charging session before the battery is fully charged, as described in Par. 5.2, the interruption must be imposed through the electric vehicle. The vehicle will notify the station the end of charging session by unlocking the Plug.

## 6. *Troubleshooting*

# 6

- 📖 **READ THE MANUAL** – In the event of an error, the charging session is interrupted.
- 📖 **READ THE MANUAL** – If the cause of the fault can be attributed to the electric vehicle, after disconnecting the charging cable, the station executes several controls, if it confirms the correct functioning, the Plug will be available again.
- 📖 **READ THE MANUAL** – For additional details regarding error codes or failures management, please refer to the User Guide available by contacting the contacts provided in section 1.4 or by connecting to [www.fimer.com](http://www.fimer.com).

## 7. Maintenance

# 7

- ⚠ **ATTENTION** – Before performing any maintenance work, disconnect the device from its power supply and mark and isolate the work area to prevent serious damage or injury.
- ⚠ **ATTENTION** – The proper operation and life of the product depend on periodic maintenance and inspection, according to the following program. To perform this maintenance, please contact a qualified FIMER technician.
- ⚠ **ATTENTION** – A register of use/maintenance of the device is suggested, keeping track of the operations carried out and the components replaced.
- ⚠ **ATTENTION** – A damaged or defective unit should not be operated, but should be immediately replaced or repaired by qualified service personnel in accordance with the manufacturer's instructions.
- ⚠ **ATTENTION** – If a device is damaged, the product and the power supply must be secured (if possible, by disconnecting the circuit breaker upstream of the faulty product), affix an appropriate warning forbidding its use immediately and contact a qualified technician or use one of the service channels indicated in section 1.4.
- ⚠ **ATTENTION** – Cleaning the exterior of the device is always recommended when necessary; it should be done avoiding strong jets of air or water as well as the use of soaps or detergents that are too aggressive and corrosive for the product's materials.
- ⚠ **ATTENTION** – To clean, use a soft damp cloth with mild detergent and, when finished, wipe off any traces of moisture or liquid with a soft dry cloth.
- ⚠ **ATTENTION** – The owner is responsible for the maintenance and condition of the product.
- ⚠ **ATTENTION** – Maintenance must always be carried out in compliance with current regulations and making sure to protect people, things and animals during all maintenance operations.
- ⚠ **ATTENTION** – It is advisable, only by means of operations carried out by a qualified technician in compliance with safety regulations and by previously disconnecting the station from its power supply, to periodically check its internal status and press the TEST button on the residual current circuit breakers inside the station at least every six (6) months.
- ⚠ **ATTENTION** – The station does not include any components that can be repaired or replaced independently by the user.
- ⚠ **ATTENTION** – The kind and frequency of inspections depends on the existence of abnormal loads, humidity or other anomalies. Anyway, these operations, should be executed in the following time ranges, depending on the characteristics of components.



## 7.1 Maintenance schedule

**⚠ ATTENTION** – If damages are encountered, immediately stop the use of the charging station, reporting its unavailability, proceeding with the repairing.

**⚠ WARNING** – The continued operation may cause serious personal injury and property damage.

**⚠ ATTENTION** – Use only the original reparation kit and replacement components.

**⚠ WARNING** – The use of non-original replacement components may cause safety issues and violate the equipment guarantee and approval.

### Predictive Maintenance (Every month)

- Generic visual inspection of all charging station components.
- Check Plugs and cables for visible damages.

### Periodic maintenance (Every three months)

- Check of eventual damages of the charging station.
- Clean the connectors.
- Check HMI's state.
- Test the switches' functionality.
- Test ground dispersion scanner.
- Check and clean/substitute air filters.
- Depending on the operating frequency, filters must be replaced every three (3) months to guarantee correct and constant cooling of the charging station.
- Check ventilation outlets are free and not clogged.
- Check the correct operation of cooling fans.
- Check the correct operation of emergency button.
- Download folder LOG (/home/mcuser/LOGS/).

### Periodic maintenance (Every six months)

- All the operations mentioned in the three (3) months periodic maintenance.
- Check oxidation signs or other signs that need to be treated.
- Check corrosion in the internal connection.
- Check connection and condition of internal battery at UPS.
- Check all values of tightening torque, if under the indicated values, tight again.
- Check fuses.

### Periodic maintenance (Every year)

- All the operation in six (6) months periodic maintenance.
  - Substitute ventilation fans every four (4) years.
  - Check the state of charge of UPS' internal batteries; substitute every five (5) years.
  - Substitute outlet relays every six (6) years.
-

## 8. Commissioning

# 8

Commissioning is the last phase necessary to start up the charging station. The objective of this phase is to check the safe operation of charging station for its operating purpose. Commissioning activities must be carried out by FIMER personnel or FIMER-qualified personnel, by means of a letter certifying their qualification. The personnel in charge must ensure that all operations comply with the local regulations in force. Check the integrity of the PPE that will be used to perform the operations.

- ⚠ ATTENTION** – It is responsibility of the users to PPE efficient. These must be checked before and after the commissioning activities.
- ⚠ ATTENTION** – It is responsibility of the personnel in charge to check the suitability of the PPE to be worn.

An example of PPE to wear can be the following:

- Type A protection
- Type E protection



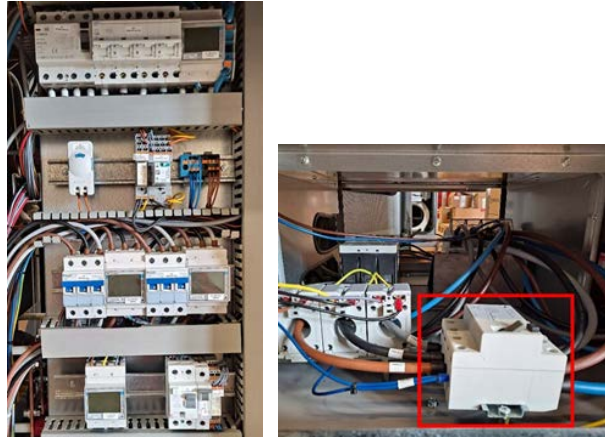
Before commissioning, these rules must be followed:

- All civil works must be completed.
- All electric installations must be completed.
- All network equipment must be completed.
- Power should be available during commissioning.
- Professional technician must attend the commissioning to supply/cut off power supply to the charging station.
- An electric vehicle compliant with standard within the station or vehicle simulator must be available.

- ⊘ FORBIDDEN** – After commissioning FIMER ELECTRA DC STATION cannot be moved. If this occurs without FIMER approval, the warranty will be considered void.

The following operations must be carried out with the station disconnected, verify the absence of voltage by means of voltage detection.

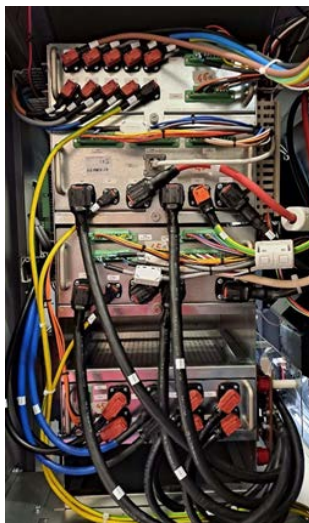
- Check the status (OFF) of the protection switches. If they are ON, set them to OFF.
- In the picture below it is in state 1 (ON), but it is only a sample picture and refers to 60 kW model.



- Check the correct insertion of the serial, Ethernet, and USB cables of the CPU and RS-485 to USB converters.



- Check the correct insertion and tightness of the power cables on the DC and AC modules.
- Check the correct insertion in the green connectors on the modules.



- Check the tightness of the power cables on the copper bars.



- Check the condition of the gasket of the external doors. It must not show cracks, cuts or breaks.



- Check that the main disconnect switch or circuit breaker is set to status 0 (OFF). In the picture below it is in state 1 (ON), but is only a sample picture.



Main disconnect switch for ELECTRA DC STATION 60



Main circuit breaker for ELECTRA DC STATION 120 and 150

- Remove the plexiglass protection at the bottom of the DC Station to access the cable entry section. To remove protection, unscrew the four (4) fixing screws.
- Check the quality of the earthing system, then compare the result with the local regulations in force.
- Supply voltage upstream of the ELECTRA DC Station keeping the main disconnect/circuit breaker to the OFF state (0).
- Check the values of the input voltages at the main disconnect/circuit breaker. These must comply with the rated value:  $400 V_{AC} \pm 10\%$ .
- Disconnect the ELECTRA DC STATION from the main supply.
- Set the main disconnect/circuit breaker to the state ON (1).
- Reassemble the protective plexiglass.
- Supply voltage upstream of ELECTRA DC STATION.
- Set all the protection switches to the state ON (1).
- Turn on the UPS.
- Close the open doors and check the ELECTRA DC STATION status (any alarms or errors).
- Check the connection with your backend. (Wait 5/10 minutes for the connection).
- Perform a charging test, using a suitable vehicle or vehicle simulator, on each plug.

## 9. *Decommissioning and disposal*

# 9

The product must be used and subsequently disposed of in accordance with the regulations in force for the treatment of waste electrical and electronic equipment (WEEE) or any other regulations in force in the country of installation (in accordance with Directive 2012/19/EU).

- |  |
|--|
| <p>⚠ <b>ATTENTION</b> – This product must not be disposed of with household waste.</p> <p>⚠ <b>ATTENTION</b> – The device may contain materials that could be recycled.</p> <p>⚠ <b>ATTENTION</b> – Additional information on disposal facilities can be obtained from local authorities.</p> <p>⚠ <b>ATTENTION</b> – Before proceeding with disassembling and removal, disconnect the power supply from the power supply panel and make sure that no one can access the panel and accidentally turn on the power supply again during all phases of decommissioning.</p> |
|--|

If you want to uninstall and store the device for later use, the following precautions should be observed:

- Disconnect the device from its power supply.
- Clean the unit and store it in its original packaging once it has dried completely.
- Comply with the environmental storage conditions as shown in technical data table.

# 10. Technical data

Technical data				
FIMER ELECTRA DC Station model	60	90	120	150
<b>Input</b>				
Rated supply voltage <sup>1)</sup>	400 V <sub>AC</sub> ± 10% (3P + N + PE)			
Grounding system type	TT or TN (both with PE)			
Maximum rated power	110 kVA	143 kVA	176 kVA	210 kVA
Maximum rated current	159 A	207 A	255 A	304 A
Power factor	0.99			
Maximum efficiency	>95%			
THD	<5%			
Frequency	50-60 Hz			
<b>Output</b>				
Charging method	Mode 3, Mode 4			
Available outlets	CHAdEMO, CCS2, T2			
Maximum AC output power T2	43 kW @ 400 V, 63 A			
Rated AC output voltage T2	400 V <sub>AC</sub> ± 10% <sup>1)</sup>			
Rated AC output current T2	63 A			
Maximum DC output power CCS	60 kW	90 kW	120 kW	150 kW
Rated DC output voltage CCS	150 – 900 V <sub>DC</sub>			
Maximum DC output current CCS	200 A			
Maximum DC output power CHAdEMO	60 kW			
Rated DC output voltage CHAdEMO	150 – 500 V <sub>DC</sub>			
Maximum DC output current CHAdEMO	125 A			
<b>Mechanical data</b>				
Dimensions	697 x 1853 x 644 mm			
Charging cable length	3 m			
Weight	333 kg	355 kg	378 kg	400 kg
IK protection rating	IK 10			
Enclosure material	Galvanised steel			
Pollution degree	PD3			
<b>Environmental data</b>				
IP protection rating	IP 54			
Operating temperature	-25...+50°C			
Storage temperature	-25...+70°C			
Humidity	0..95% (non-condensing)			
Altitude	Up to 2000 m <sup>2)</sup>			
Connection to the mains	Permanently connected			
Installation	Indoor/Outdoor			
<b>Additional Information</b>				
Product intended for use by	Unskilled person			
Positioning in area with	Non-restricted access			
Fixed or removable installation	Fixed			
Protective measures against electric shock	Class I			
Overvoltage category	IV			
Electrical protection included	RCBO, MCB, SPD			
Energy meter	MID certificate			
Network interface	GSM/3G/4G, Ethernet, WLAN (optional)			
HMI	LCD display 7" (buttons for languages selection)			
Supported languages	Italian, English, Spanish, French others on request			
Status LED	Green, red, blue, yellow			
Ocpp protocol	1.6 Json			
User authentication	ISO / IEC 14443 A/B MIFARE RFID reader			
Remote SW updates by Ocpp	•	•	•	•
Simultaneous charging	•	•	•	•
Emergency button	•	•	•	•
Door opening signal	•	•	•	•
Standard	IEC61851-1, IEC61851-21-2, IEC61851-23, IEC61851-24			
Certification <sup>3)</sup>	CE, RCM, UL			

1) Please contact FIMER to check the availability of different rated voltages

2) For installation above 2000 m please contact FIMER

3) Please contact FIMER to check the certification status





For more information  
please contact  
your local FIMER  
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