Installation Manual

Keywatt S50 Station

Edition: 04/2023

DIM019665-EN_V001h

Beyond Charging

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The information provided in this documentation contains general descriptions and/or technical characteristics of the performance of the products contained herein. This documentation is not intended as a substitute for and is not to be used for determining suitability or reliability of these products for specific user applications. It is the duty of any such user or integrator to perform the appropriate and complete risk analysis, evaluation and testing of the products with respect to the relevant specific application or use thereof. Neither IES Synergy nor any of its affiliates or subsidiaries shall be responsible or liable for misuse of the information contained herein. If you have any suggestions for improvements or amendments or have found errors in this publication, please notify us.

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All pertinent state, regional, and local safety regulations must be observed when installing and using this product. For reasons of safety and to help ensure compliance with documented system data, only the manufacturer should perform repairs to components.

When devices are used for applications with technical safety requirements, the relevant instructions must be followed.

Failure to use IES Synergy software or approved software with our hardware products may result in injury, harm, or improper operating results.

Failure to observe this information can result in injury or equipment damage.

Table of content

1. Safety notes

Notice

Read these instructions carefully, and look at the equipment to become familiar with the device before trying to install, operate, or maintain it. The following special messages may appear throughout this documentation or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.

The addition of this symbol to a Danger hazard statements indicates that an electrical hazard exists, wich result in personal injury if the instructions are not followed.

This is the safety alert symbol. It is used to alert you to potential personnal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

⚠ DANGER

DANGER indicates an imminently hazardous situation which, if not avoided, **will result** in death or serious injury.

⚠ WARNING

WARNING indicates a potentially hazardous situation which, if not avoided, **can result** in death or serious injury.

⚠ CAUTION

CAUTION indicates a potentially hazardous situation which, if not avoided, **can result** in minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to physical injury.

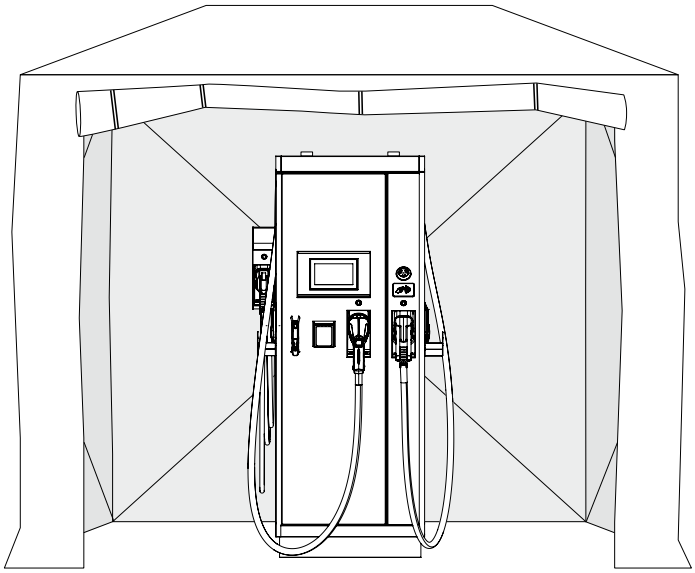
Please note

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by IES Synergy for any consequences arising out of the use of this material.

A qualified person is one who has skills and knowledge related to the construction and operation of electrical equipment and its installation, and has received safety training to recognize and avoid the hazards involved.

Rain and wet weather conditions

Do not open (installation, maintenance) a charging station in the event of bad weather (rain, thunderstorms, snow, etc.) without installing a worksite tent.



2. About the manual

Purpose of this manual

Technical documentation is an integral part of a product. Until it is disposed of, always keep the technical documentation close to the unit at hand, as it contains important information. Provide technical documentation to the person concerned if you sell, assign or lend the product.

This guide aims to provide informations needed for installation and end-of life of the Keywatt 50x Station. This guide must be read with other related documents. This guide is intended for qualified personnel to install on the charging stations

Document scope

This guide concerns the following charging stations:

- KEYWATT S50 Mono Combo2
- KEYWATT S50 Bi Combo2 / CHAdeMO
- KEYWATT S50 Bi Combo2 / CHAdeMO + TPE
- KEYWATT S50 Dual Combo2 + AC22
- KEYWATT S50 Dual Combo2 + AC43 + TPE
- KEYWATT S50 TRI Combo2 / CHAdeMO + AC22
- KEYWATT S50 TRI Combo2 / CHAdeMO + AC43 + TPE

Refer to your product label sticker to get your charger informations.


KEYWATT S50 Mono Combo2


KEYWATT S50 Bi Combo2 / CHAdeMO


KEYWATT S50 Bi Combo2 / CHAdeMO + TPE


KEYWATT S50 Dual Combo2 + AC22


KEYWATT S50 Dual Combo2 + AC43 + TPE


KEYWATT S50 TRI Combo2 / CHAdeMO + AC22


KEYWATT S50 TRI Combo2 / CHAdeMO + AC43 + TPE

Related documents

Document title	Reference
Installation Manual	DIM019665-EN
User Manual	DUM019665-EN
Service Manual	DMM019665-EN

User comments

We invite you to write to us to communicate any inaccuracies or omissions, or to make general comments or suggestions regarding the quality of this manual.

3. General Safety instructions

NOTICE

SAVE THESE INSTRUCTIONS

- To ensure proper and safe operation, please read these user instructions carefully and keep them for future reference.
- This manual contains important instructions for the charging station that shall be followed during installation, operation and maintenance of the unit.
- The locking key, supplied with unit, should be kept in a secure and known location by an individual that has read and understands the content of this manual.

⚠ WARNING

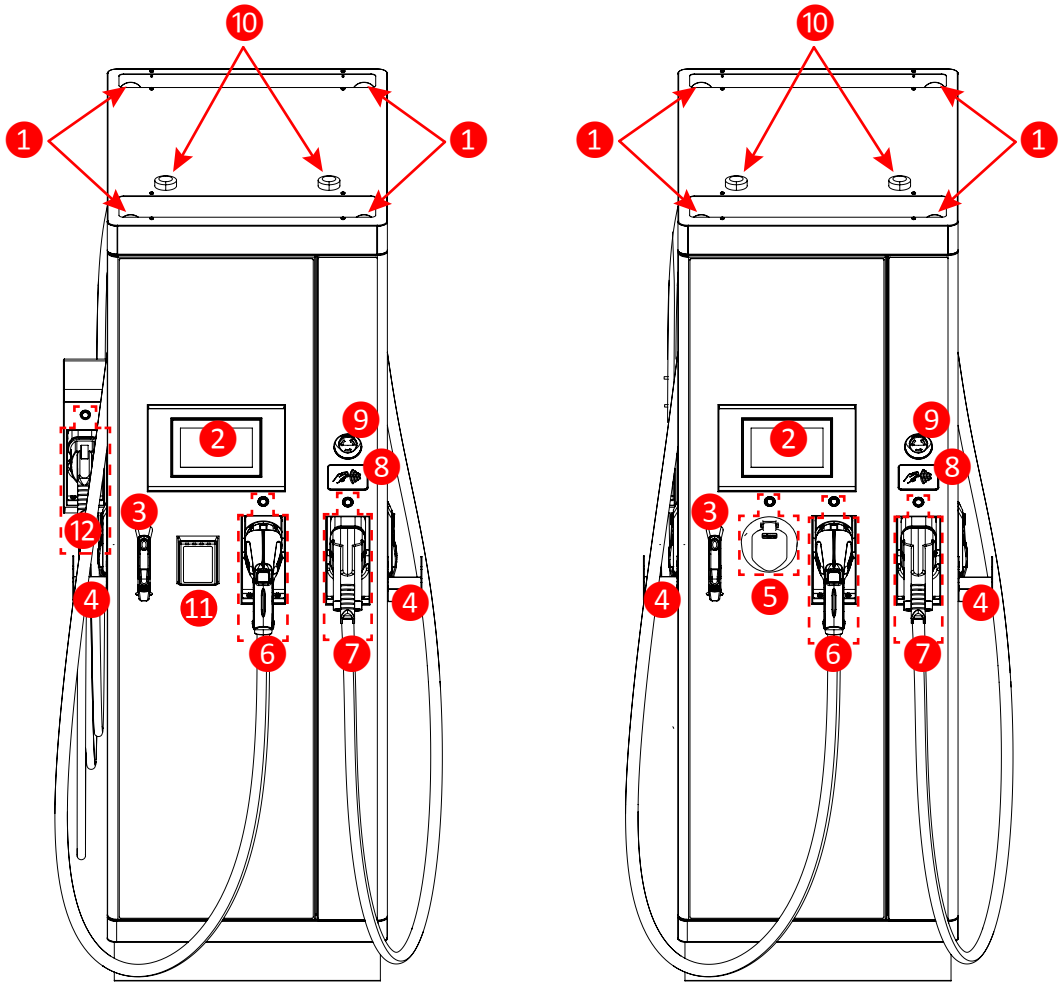
RISK OF ELECTRIC SHOCK, INJURY, AND/OR BURNING

- Only qualified, trained and authorized people will repair, replace or adjust this equipment.
- Make sure the AC input breaker is OFF and measures 0V after the breaker.
- Disconnect the protective device located upstream of the charger before working on it.
- Do not use this product if the enclosure or the EV connectors are broken, cracked, opened or show any other indication of damage.
- Replace the damaged cables by same caracteristics cables.
- Do not use a cord extension set, second cable assembly or adaptors in addition to the cable assembly for the connection of the EV to the EVSE.
- Do not alter AC plug provided – where it does not fit outlet, have proper outlet installed by a qualified electrician. Improper connection increases the risk of an electric shock.
- Charger shall be grounded to reduce risk of electric shock. Charger is equipped with an electric cord having an equipment-grounding conductor and a grounding plug. The plug is to be plugged into an outlet that is properly installed and grounded in accordance with all local codes and ordinances.
- This unit is for use on a circuit having a nominal rating more than 120V and is factory-equipped with a specific electric cord and plug that connects to an electric circuit. Make sure that the charger is connected to an outlet having the same configuration as the plug. Adapters shall not be used with this charger.
- This equipment employs parts, such as switches and relays, that tend to produce arcs or sparks.
- Never open the charger while input power is present.

Failure to follow these instructions can result in death or serious injury

4. Overview

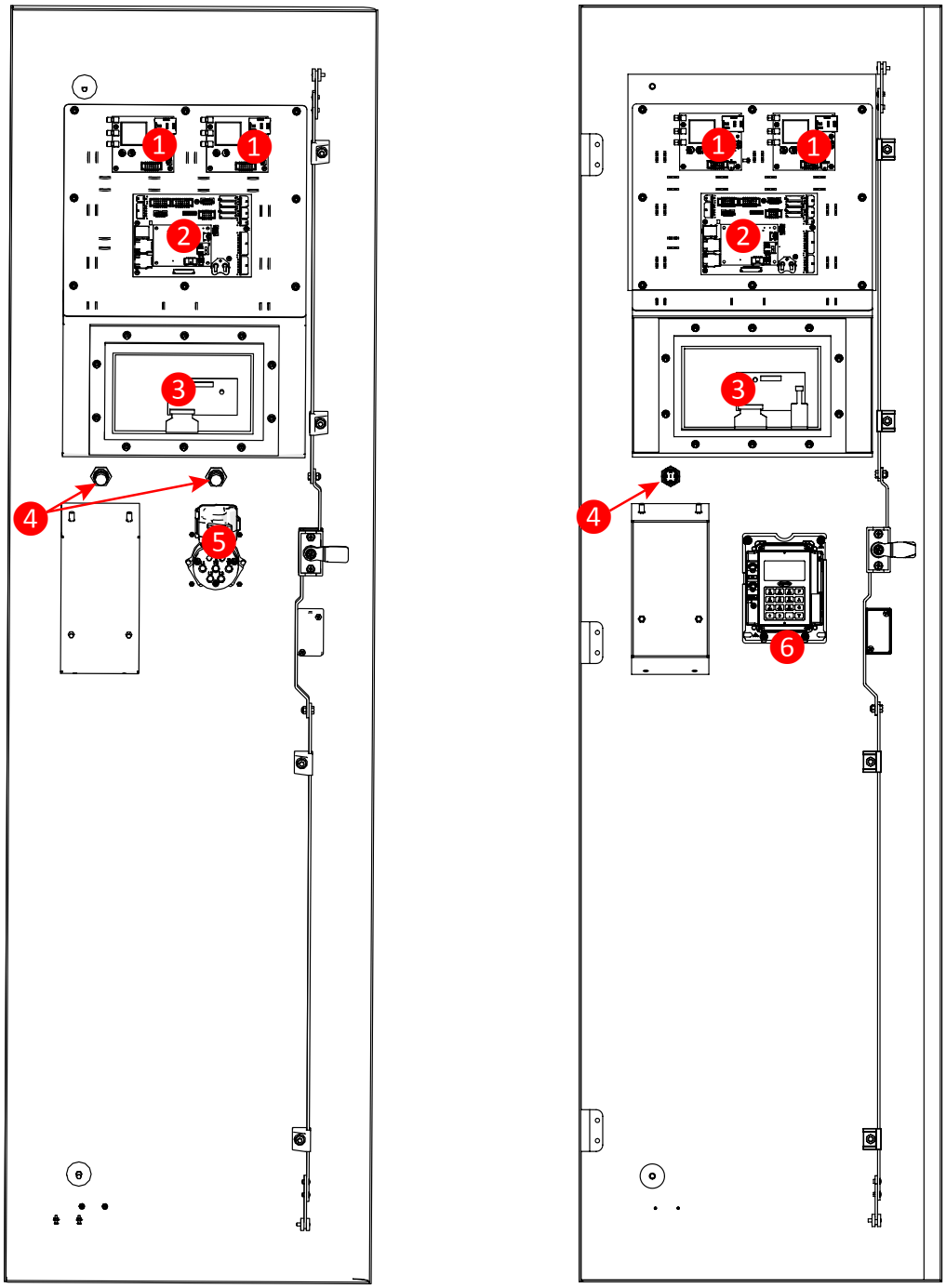
External view



Position	Description
1	Lifting rings
2	Touch screen
3	Door lock
4	Connector support *
5	AC Type 2-S outlet and LED *
6	CHAdeMO DC connector and LED *
7	CCS Type 2 DC connector and LED
8	RFID reader
9	Emergency Stop button
10	Antenna
11	Electronic Payment terminal *
12	AC Type 2 connector and LED *

***Note:** May change depending on version or technical modification

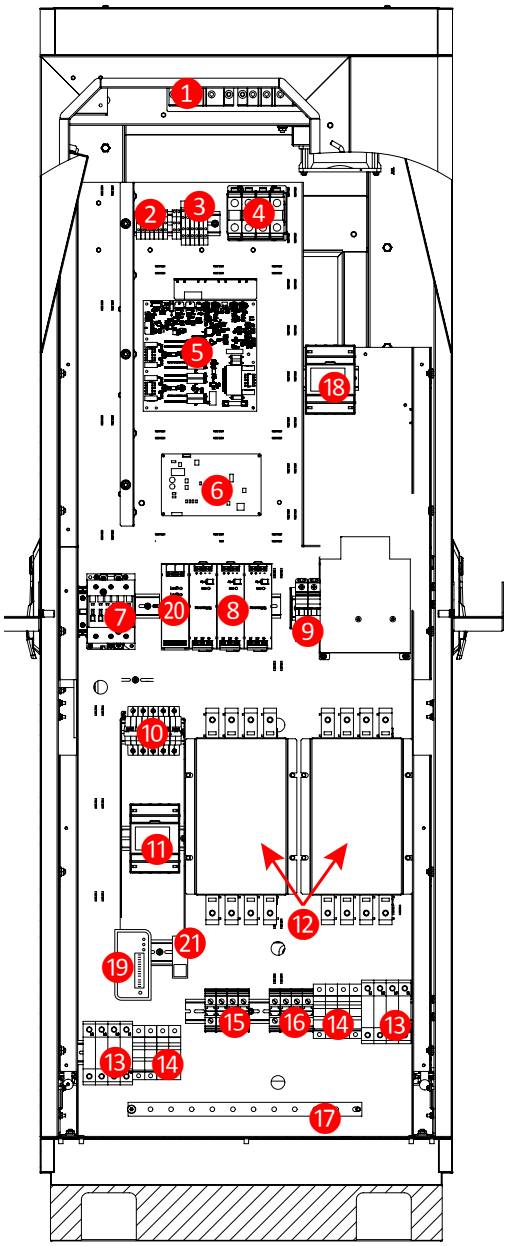
Internal door view



Position	Description
1	Modem board (x2)
2	OCPP board
3	Display board
4	Indicator lights
5	AC Type 2-S outlet *
6	Electronic Payment terminal *

***Note:** May change depending on version or technical modification

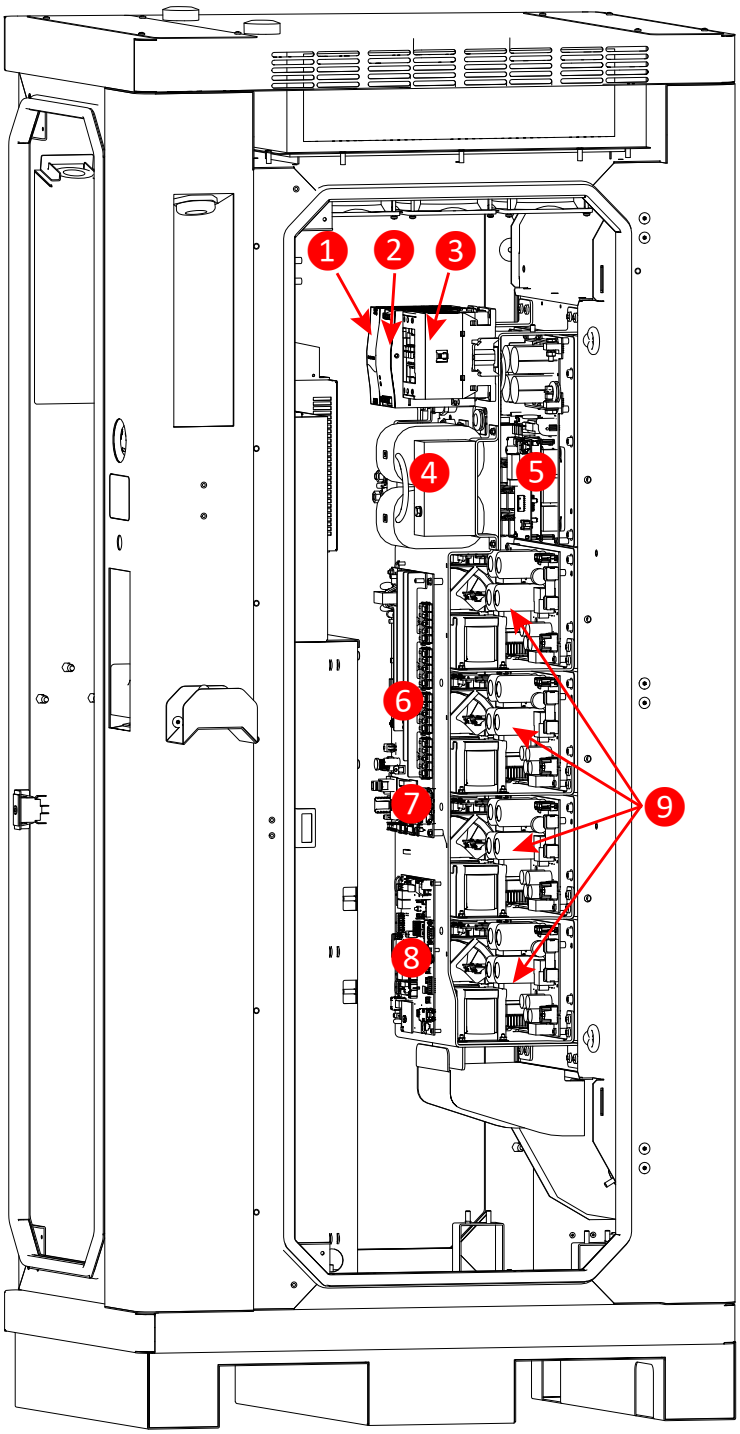
Internal view - front



Position	Description	Position	Description
❶	CHAdeMO diode*	⓬	Filter (x2)*
❷	Fan power supply terminals	⓭	Over voltage protection (x2)*
❸	Fan power supply contactor	⓮	Fuses terminal (x2)*
❹	DC output terminals	⓯	AC charger input terminals*
❺	Output Switch Board (OSB)	⓰	DC charger input terminals
❻	AC powershare board	⓱	Earthing bar
❼	AC contactor*	⓲	DC charger Powermeter*
❽	Power supplies	⓳	Vehicle presence detector module*
❾	Auxiliary power supply breaker	⓴	Redundancy module*
❿	AC Output breaker*	㉑	Ethernet connection
⓫	AC charger Powermeter*		

***Note:** May change depending on version or technical modification

Internal view - side



Position	Description
❶	12V power supply
❷	24V power supply
❸	Contactor
❹	DC coil
❺	APF module
❻	Distribution board
❼	Supervision board
❽	CCU board
❾	12,5kW power module (x4)

***Note:** May change depending on version or technical modification

5. Specification

Main supply

Mains supply 3-phase $L_1/L_2/L_3$ + N + PE

DC charger mains input			
Mains 3-phase voltage range (phase to phase)	V_{AC}	400 V_{AC}	± 10%
Earthed electrical system	TT; TN		
Frequency range	f	50 Hz	+4%/-6%
Nominal input current	I_{IN}	83A	Nom
Maximum input current	InA max	91A	Max
Presumed short circuit current	Icp	< 10kA	Max
Power Factor	PF	0,98	Nom
Efficiency	η	94 %	Max
Harmonic current @ nominal network voltage	THDi	< 16 % (@ P_{out} > 0,3 P_{max})	Max

AC charger mains input			
Mains 3-phase voltage range (phase to phase)	V_{AC}	400 V_{AC} (5)	± 10%
Earthed electrical system	TT; TN		
Frequency range	f	50 Hz	+4%/-6%
Nominal input current	I_{AC}	32A or 63A	Nom
Maximum input current	InA max	36A or 70A	Max
Presumed short circuit current	Icp	< 8kA	Max

Technical specification

Internal protection of mains inputs			
Inrush current limitation per phase	$I_{INRUSH\ LIMIT}$	< 3 x I_{AC}	Max
Max earth leakage current	$I_{LEAKAGE}$	< 3,5 mA	Max
Emergency button connection	Yes		
Overvoltage category	III		

DC Output			
Output voltage	V_{DC}_max	500 V_{DC}	Max
	V_{DC}_min	200 V_{DC}	Min
Output current	I_{DC}_max	125A (1)(2)	Max
	I_{DC}_min	1,5A	Min
Max Output Power	P_{OUT}	50kW	Max
Output connector (charging station side)	Permanent mounting		
Car Plug connectors	COMBO 2		
	CHAdeMO		
Output cable length	Meters	4m (5)	

DC output protection			
Hardware and software short circuit protection	Yes		
Hardware over voltage protection		+20% max	
Software over voltage protection	dynamic	+10% max	
Over temperature protection	-	70°C	
Reverse polarity protection	Yes		
DC output Contactor	Yes (2 poles)		
Rated Current Fuse (output)	I_{FUSE}	200	A
Galvanic isolation	$V_{input\ /\ output}$	4100	V_{DC}
Max time for DC line discharge < 60V	$T_{<60V}$	1	s

AC output			
AC Output voltage	V_{AC}_nom	400 V_{AC} (5)	± 10%
AC Output current	I_{AC}_max	32A or 63A	Max
Max Output Power	P_{OUT}	22kVA or 43kVA	Max
Connection to the vehicle	AC Type 2 S socket or AC Type 2 connector		

Internal AC output protection		
Inrush current	230A during 100 µs (5) 30A during following second (5)	
Short circuit Socket I^2t	A^2s	75 000
Circuit breaker for AC circuit	50A curve C or 80A curve C	

Embedded Insulation device of charger module	
Response time (tan)	< 3sec. for asymmetrical fault < 62sec. for symmetrical fault
Self test time	At power on and every 60s during charge
Internal resistance Ri of the measuring circuit	1.5Mohms permanent 750Kohms continuous measurement 300Kohms during simultaneous switching measurement
Measurement method	Continuous and switching measurement resistor method
Measuring current Im	< 1,4mA at RF=0
Measurement range (Ran)	20Kohms…300Kohms
Relative uncertainty	±15%
Line L+/L- Voltage (Un)	DC 200V…500V
System leakage capacity Ce	≤ 1µF : response value (Ran) and time (tan) are not guaranteed for capacity above 1µF
Parallelization	⚠ **Warning:** Do not connect the insulation monitor device (IMD) in parallel !! Response value (Ran) and time (tan) are not guaranteed.

4G module (EG25-G) characteristics

Network Mode/GNSS	EG25-G
LTE-FDD	B1 to B5/B7/B8/B12/B13/B18/B19/B20/B25/B26/B28
LTE-TDD	B38 to B41
UMTS	B1/B2/B4/B5/B6/B8/B19
GSM	850/900/1800/1900 MHz

Radio Frequency characteristics

The equipment module is designed to provide customers with global network coverage on the connectivity of UMTS/ HSPA+, and it is also fully backward compatible with the existing EDGE and GSM/GPRS networks.
Note: Frequency bands for European network coverage are marked with a star (*)

	Frequency bands (MHz)		Output power (dBm)
	Tx	Rx	Max
GSM850 / EGSM900* (GMSK)	880-915	925-960	33±2dB
GSM850 / E GSM900 (8-PSK)	880-915	925-960	27 ±3dB
DCS1800* /PCS1900 (GMSK)	1710-1785	1805-1880	30 ±2dB
DCS1800/PCS1900 (8-PSK)	1710-1785	1805-1880	26 ±3dB
WCDMA	B1*/B2/B4-B6/B8*/B19	B1/B2/B4-B6/B8*/B19	24 +1/-3dB
LTE-FDD	(B1/3/7/8/20/28/38/40)* (B2/B4/B5/B12/B13/B18/ B19/B25/B26/B28)	(B1/3/7/8/20/28/38/40)* (B2/B4/B5/B12/B13/B18/ B19/B25/B26/B28)	23±2dB
LTE-TDD	B38-B41	B38-B41	23±2dB

RFID reader characteristics

To start a charge, users must swipe a contactless tag RFID card across the reader and/or can swipe a credit card across the RFID Payment terminal.

Frequency Bands	13.56 Mhz
Contactless tag RFID Power output	-4.35dBuA/m
Payment RFID Power output	6.56dBuA/m (UIC180) or 13.17 dBµA/m @10m (Self 2000)

Detection Loop characteristics

The equipment is designed to be connected to two independent vehicle parking loop and provide detection.
Frequency is determined by loop geometry.

Frequency Bands	18-110 KHz
Loop customization (1m x 1m)	20.4dBuA/m

General & dimensions

External dimensions with cable support (HxWxD)	mm	1800 x 614 x 814	± 10%
External dimensions w/o cable support (HxWxD)	mm	1800 x 600 x 814	± 10%
Weight (with DC cable and cable management)	Kg	350	Max
Type of installation	Indoor or outdoor		
Fixation points	4 studs M14 for ground mounting		
Mechanical resistance to impact	IK	IK10 (except screen IK08)	
Protection Type (EN60529)	IP	IP55	
Cooling system	Heatsink with forced air flow by fans IP55 without air filter		
Sound pressure level (1m, all directions) @Pmax	dBA	57 dBA	Max
Sound pressure level (5m, all directions) @Pmax	dBA	43 dBA	Max

Climatic & Environment constraints			
Operating temperature (with derating)	-25°C to +50°C[3] (-20°C à +50°C If payment terminal)		
Storage temperature	-25°C to +70°C		
Relative humidity	RH	10% to 90%	
Installation altitude	Alt	2 000 m	Max

Norms & standards	
Radio Equipment Directive (RED)	2014/53/EU [4]

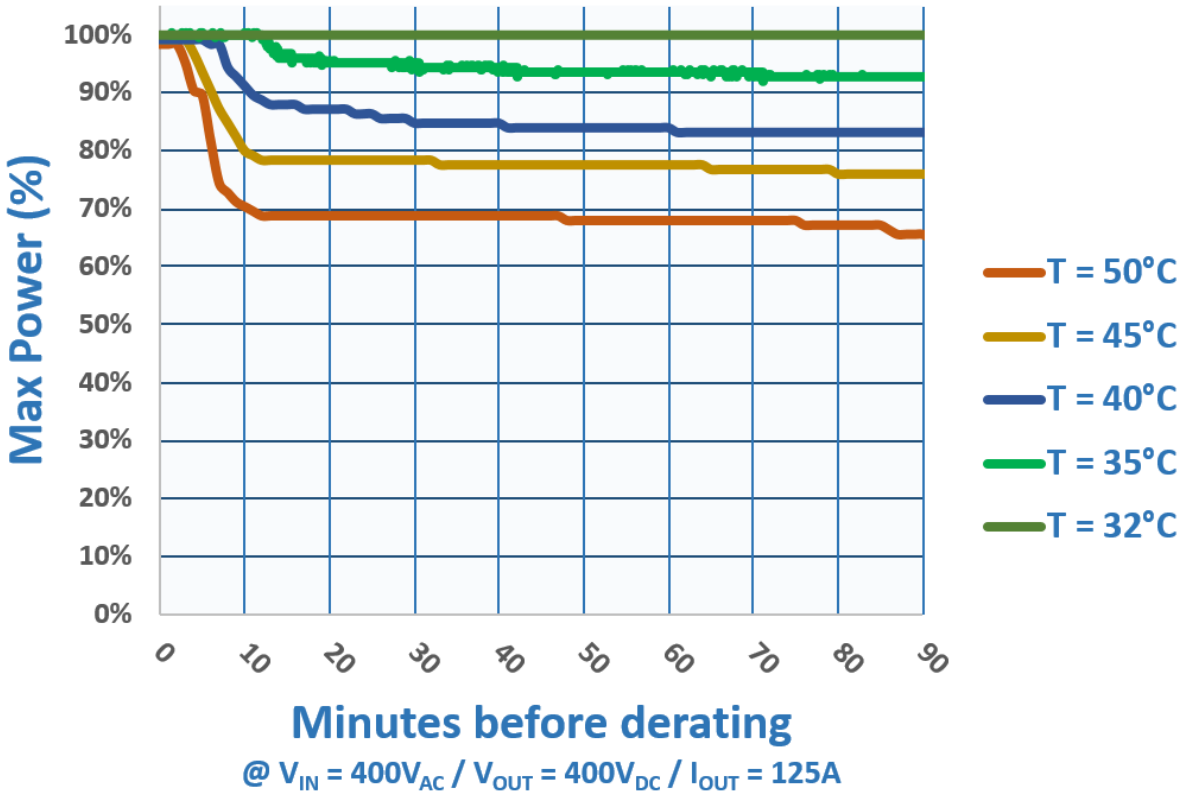
[1] Max output current will be adapted versus maximum carrying current of the vehicle plug.
[2] Output current can be even reduced with the power derating versus temperature.
[3] With derating from 35°C.
[4] Design in compliance with CE directives.
[5] May change depending on version.

Compliance

CCS CHAdeMO RoHS CE

Derating

As a direct correlation exists between the output power and the ambient temperature a derating curve is provided for all charging station.



6. Handling and storage instructions

Storage

The charging station is supplied in an individual wooden crate. When commissioning the product, all the protection for transport must be removed before installing and powering on the charging station.

Keep the charging station in its original packaging in an appropriate place:

- placed on dry ground or on a sheet to protect it from damp,
- sheltered from dust, inclement weather and sunlight.

During prolonged storage, check the state of the charging station packaging regularly.

Do not store the charging station for more than a year without powering it up, to avoid the deterioration of in-active electronic components.

Transport

Throughout the transport phase, take all necessary measures to keep the pallet stable.

Equipment Handling

The station 50kW charging station weighs 350 kg. It must be handled by lifting equipment.

NOTICE

RISK OF DAMAGE TO THE CHARGING STATION

- Do not lift charger by the door. Damage will occur.
- Improper storage or handling may cause damage to the unit.

Failure to follow these instructions can result in equipment damage.

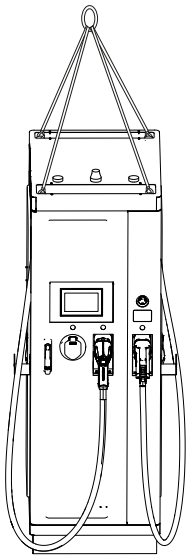
⚠ CAUTION

RISK OF INJURY DUE TO DROPPING OR FALLING

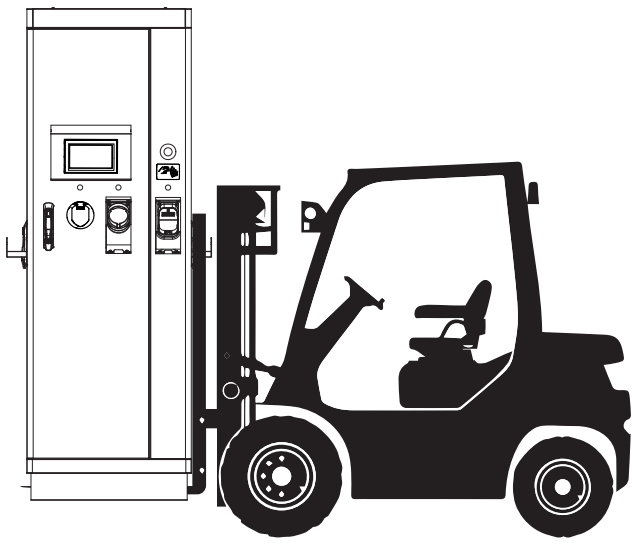
- Follow specified procedures for hoisting operations.
- Take measures to prevent falling when you carry or transfer the unit.
- Due to its dimensions and center of gravity position, take all necessary measures to prevent the charging station to rock.

Failure to follow these instructions can result in minor or moderate injury.

SLINGING



FORKLIFT



7. Installation

Tool List

- Cable cutter
- 8mm ring terminal (x2)
- Cutter
- Dismantling tool
- flat tube terminal (x8)
- Crimping pliers
- 6mm Allen key

Installation Rules

⚠ CAUTION

RISK OF DAMAGE TO THE TERMINAL

- This equipment is not intended to be installed in explosive atmosphere (ATEX). In case of installation near a garage or a service station, the terminal must be placed off zone 0, 1 or 2 ATEX (refer to zoning plan of the site concerned).
- This equipment is not intended to be installed in a flood area.
- Do not inject air inputs or outputs. An insufficient ventilation may increase the internal temperature and may cause a dysfunction.

Failure to follow these instructions can result in minor or moderate injury.

⚠ WARNING

RISK OF ELECTRIC SHOCK, INJURY, AND/OR BURNING

- The equipment must be installed and operated with minimum distance of 22cm of the human body.

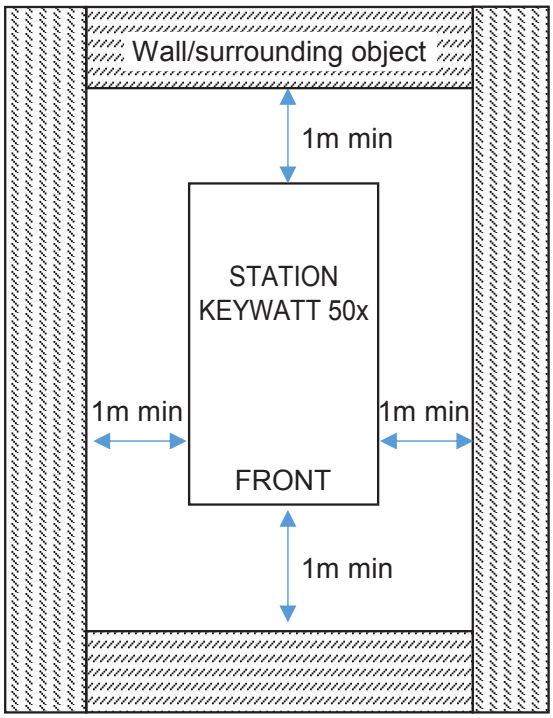
Failure to follow these instructions can result in death or serious injury

Civil Engineering

The charging station must be installed on a flat surface that is able to support its weight. It is advisable to leave 1m free space around the charging station if it is surrounded by a wall. This free space is mandatory for charging station's ventilation and operation.

Never block the air flow.

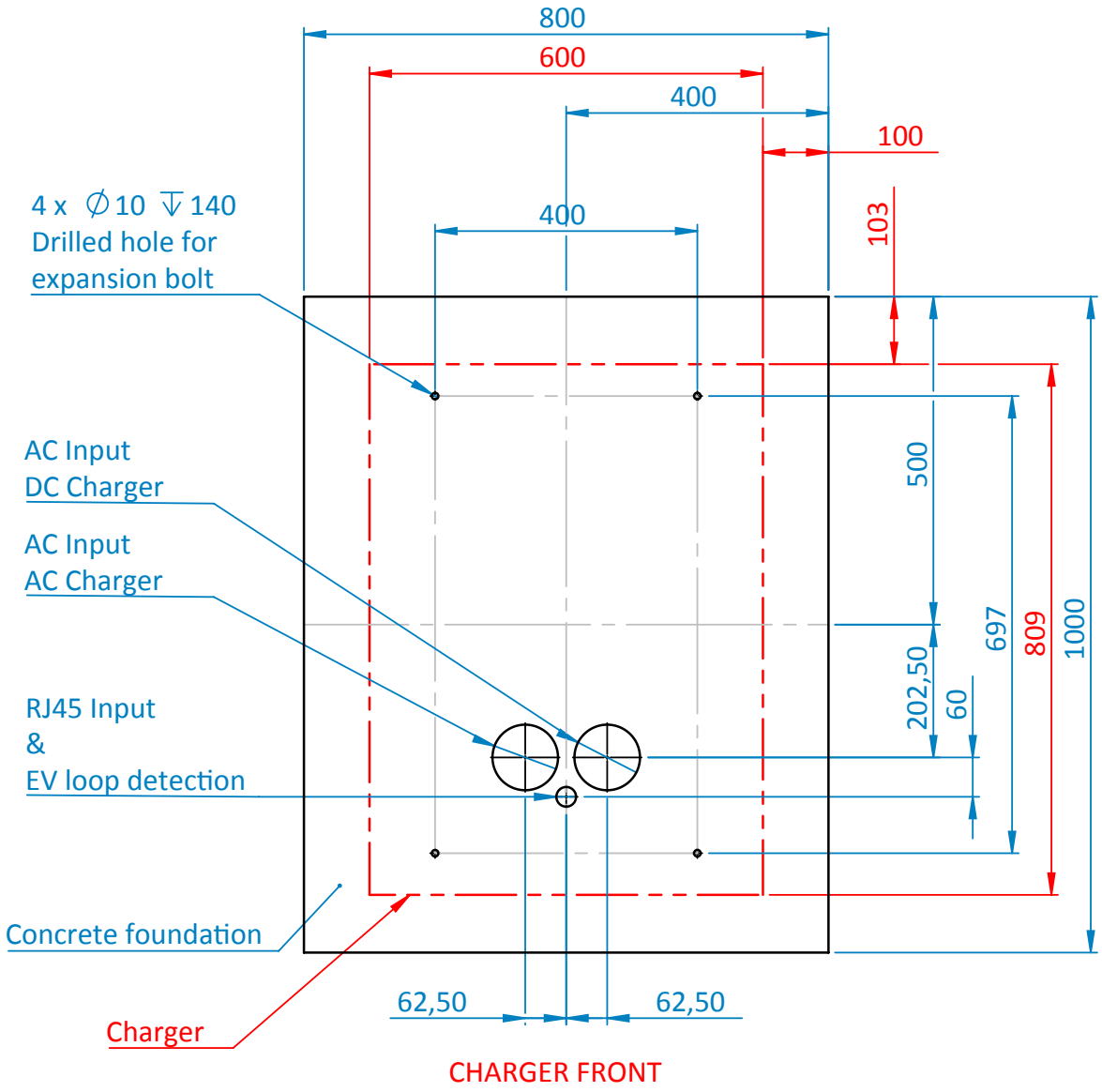
Overall Layout (top view)



Charger Footprint

Installation on the concrete slab (1000 x 800 mm x 400 mm thick.

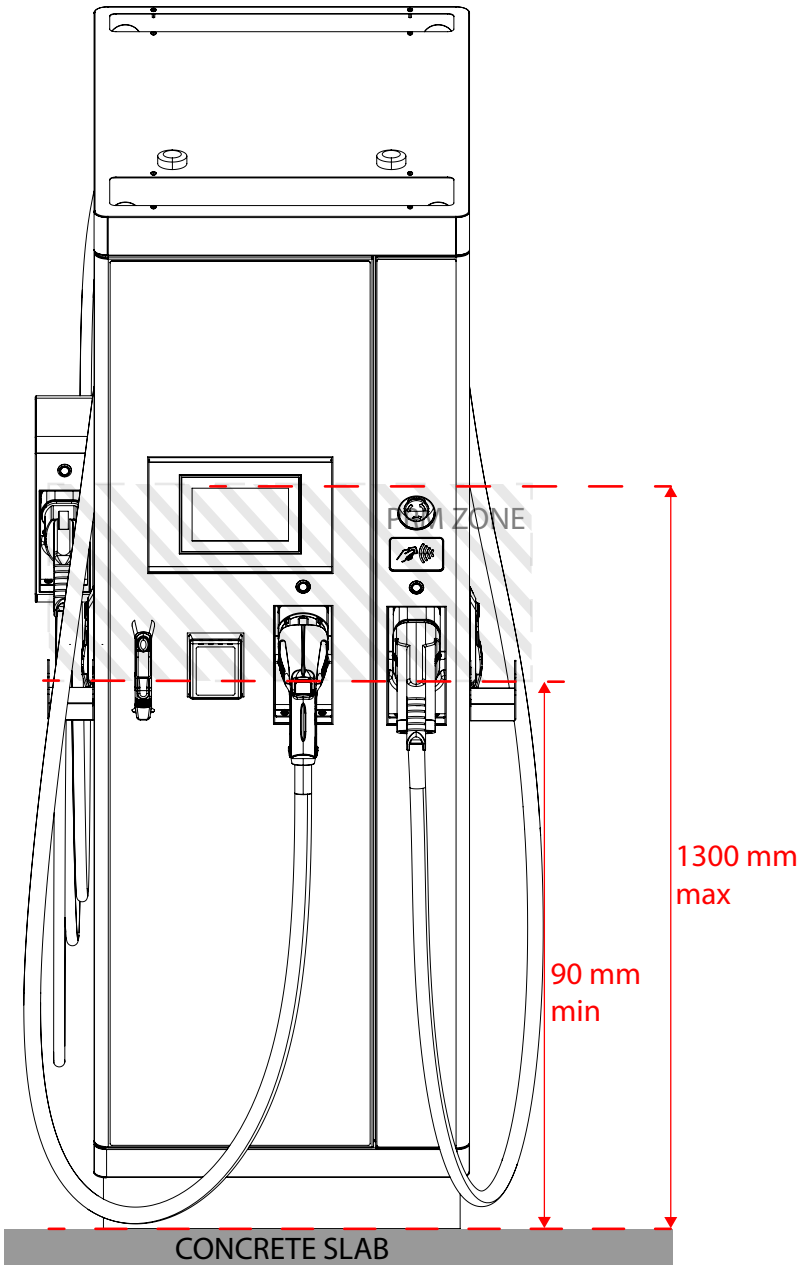
The figure below shows the installation on the concrete slab of the station.



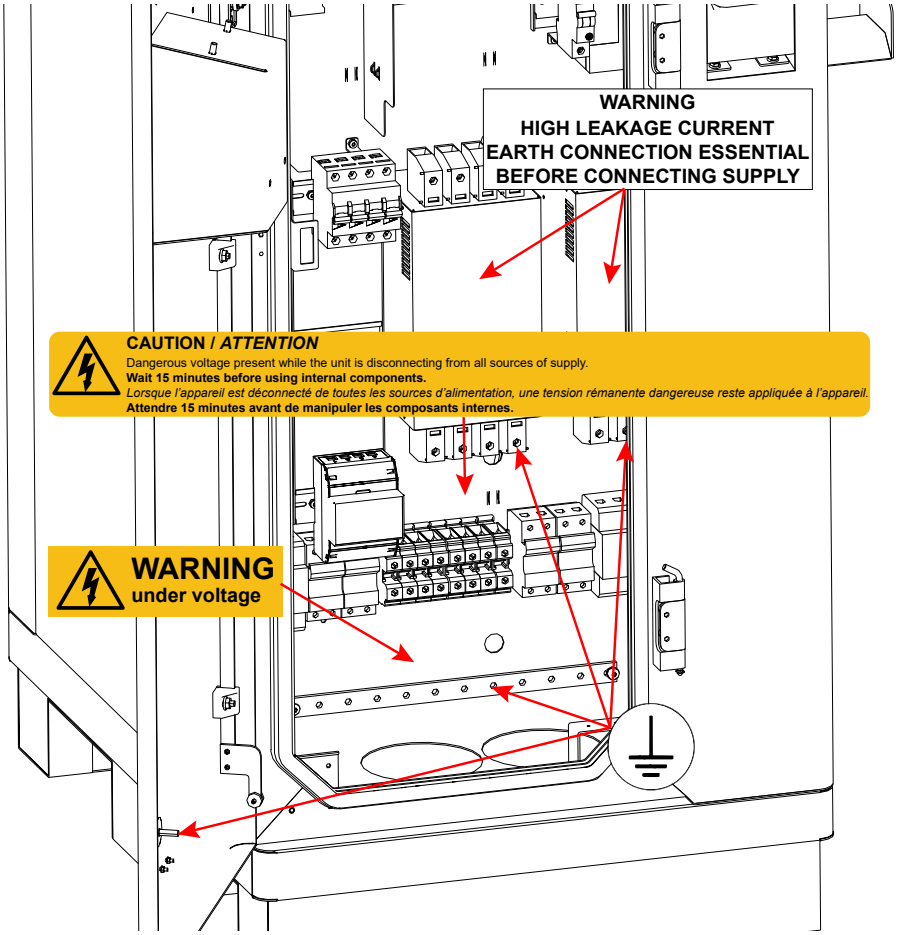
Note: All pertinent state, regional, and local safety regulations must be observed when installing and using this device.

Note: The manufacturer cannot be held responsible for failure to follow the instructions given in this instruction sheet.

The concrete slab must not compromise the PRM zone.



Stickers location



Connection to the electricity grid

Checking the Electrical Requirements

The connection to the electricity grid and the affiliation of the upstream protection devices is the responsibility of the customer and must be carried out by qualified personnel.

The electrical installation of the charging station must meet current regulations.

The charger must be connected to the electricity grid:

- 3 phase + neutral + protective earth (3P+N+PE)
- 400/230 V +/-10%
- Neutral point treatment: TT or TN

Grounding Instructions

The protective earth conductor and the power supply conductors must have the same characteristics in terms of:

- size
- dimensions
- insulation
- material
- thickness

The protective earth conductor must be green and yellow. It must be longer than the other conductors.

The ground of the power supply circuit and the ground of the product must be connected.

Connection configuration

There are severals configurations of connection to the electricity grid depending on the model of the charging stations, the conditions of use and the number of power lines.

Identify the appropriate configuration in the table below, then refer to the corresponding chapter to follow the recommendations:

Charger model	1 power line, 1 supply line		simultaneous charging point (AC+DC), 2 supply lines
KEYWATT S50 Dual Combo2 + AC22	#3 configuration	or	#2 configuration
KEYWATT S50 Dual Combo2 + AC43 + TPE	#3 configuration	or	#2 configuration
KEYWATT S50 Tri Combo2 / CHAdeMO + AC22	#3 configuration	or	#2 configuration
KEYWATT S50 TRI Combo2 / CHAdeMO + AC43 + TPE	#3 configuration	or	#2 configuration
KEYWATT S50 Mono Combo2	#1 configuration		
KEYWATT S50 Bi Combo2 / CHAdeMO	#1 configuration		
KEYWATT S50 Bi Combo2 / CHAdeMO + TPE	#1 configuration		

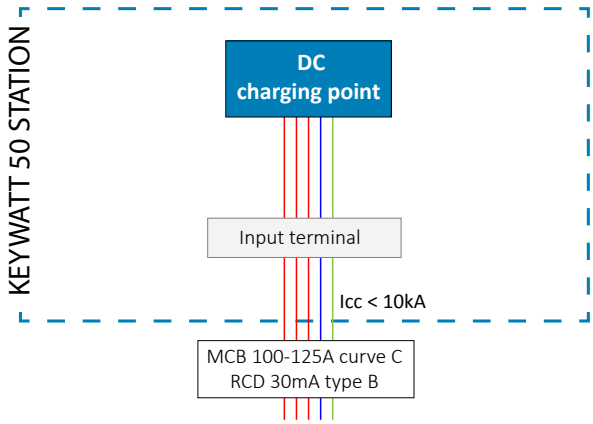
• #1 configuration : Single power supply on a DC charging point

The DC charging point has a power supply line connected to the mains input (see figure 5-1, page 26). The supply line must be equipped upstream with a dedicated protection. The recommendations for protection below are given for information only. The installer must adapt the section, the type of cable and the protections to meet the regulations in force:

Upstream protection recommendations	
	Mains input / DC charging point
RCD	30mA type B
MCB	100-125A curve C

The wiring recommendations below are for reference. The installer must take all the necessary precautions to ensure that the section of the power cables is suitable for the protection of the connection point and complies with local standards and rules:

Wiring recommendations	
	Mains input / DC charging point
Permissible section range on the input terminal	25 to 70 mm²
Minimum section	25 mm²



•#2 configuration: Separate power supplies on the AC and DC charge points

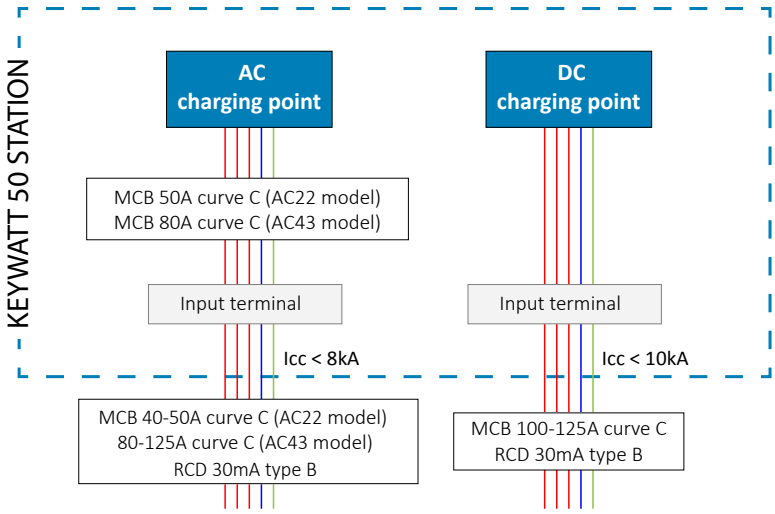
Each connection point must be considered individually (see figure 5-2, page 26) and protected by a residual current device (RCD) in the event of available simultaneous charge. Each supply line must be equipped upstream with a dedicated protection. The recommendations for protection below are given for information only. The installer must adapt the section, the type of cable and the protections to meet the regulations in force:

Upstream protection recommendations		
	Mains input / AC charging point	Mains input / DC charging point
RCD	30mA type B	30mA type B
MCB	40-50A curve C (for AC 22kVA charger) 80-125A curve C (for AC 43kVA charger)	100-125A curve C

The wiring recommendations below are for reference. The installer must take all the necessary precautions to ensure that the section of the power cables is suitable for the protection of the connection point and complies with local standards and rules:

Wiring recommendations		
	Mains input / AC charging point	Mains input / DC charging point
Permissible section range on the input terminal	2,5 to 35 mm^2	25 to 70 mm^2
Minimum section (1)	6 mm^2 (for AC 22kVA charger) 16 mm^2 (for AC 43kVA charger)	25 mm^2

(1) When the section of the cable is less than the minimum section admissible by the input connector, a connection capacity adaptor (Cross section 10mm^2 min - not supplied) will be necessary.



• **#3 configuration: Single power supply on the AC and DC charge points**

AVIS

This configuration is only allowed in France if the simultaneous charging is deactivated. Otherwise, compliance with the regulations is no longer assured.

The same normative limitation will apply to the other countries of the European Union from February 2022.

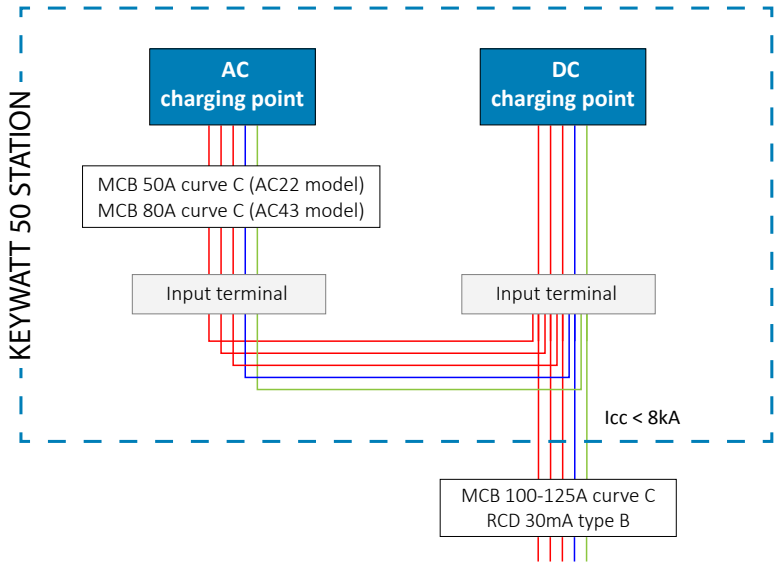
Both AC and DC load points have the same power supply line connected to one of the two mains inputs. Then a bridge is made with the second mains input (see figure 5-3, page 27). The power supply line must be equipped upstream with a dedicated protection. The recommendations for protection below are given for information only. The installer must adapt the section, the type of cable and the protections to meet the regulations in force:

Upstream protection recommendations	
	Mains input / AC and DC charging point
RCD	30mA type B
MCB	100-125A courbe C

Les recommandations de câblage ci-dessous sont données à titre d'information. L'utilisateur devra adapter la section et le type de câble pour satisfaire à la règlementation en vigueur :

Wiring recommendations	
	Mains input / AC and DC charging point
Permissible section range on the input terminal	25 à 70 mm²
Minimum section (1)	25 mm²

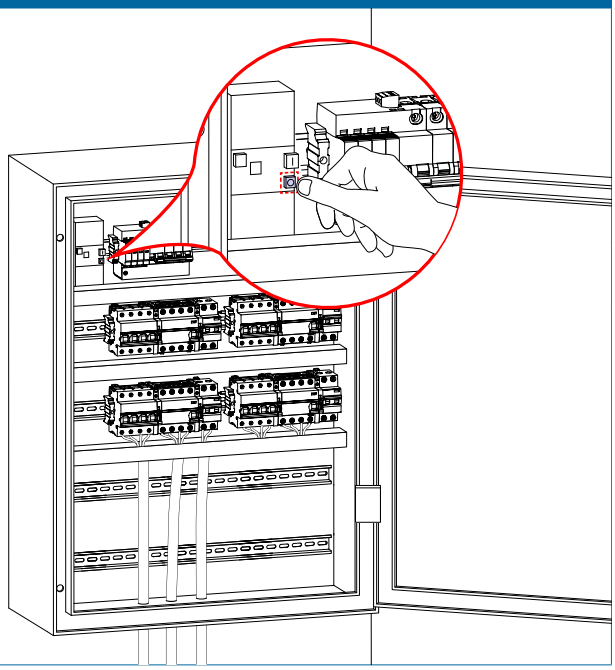
(1) When the section of the cable is less than the minimum section admissible by the input connector, a connection capacity adaptor (Cross section 10mm² min - not supplied) will be necessary.



Cable cutter / dismantling tool / flat tube terminals (x8) / 8mm ring terminal (x2) / crimping pliers / cutter / 6mm Allen key

1 Switch off external power supply

1. Access the external mains circuit breaker
2. Turn off the power at the main breaker panel. Use padlock, labeling, tagging. so that no one switches the power back on while you're working



⚠ WARNING

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

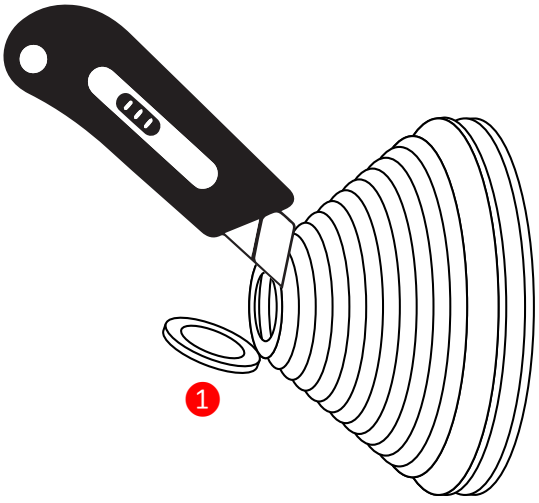
- Be sure the supply power is off before starting installation
- Make sure nobody can switch on power during installation

Failure to follow these instructions can result in death or serious injury.

2 Adapt the rubber gasket

Cutter

1. Cut the rubber gaskets ❶ **(x2)** in order to fit with the size of the AC and DC entry cables



3 Enter the mains input cables

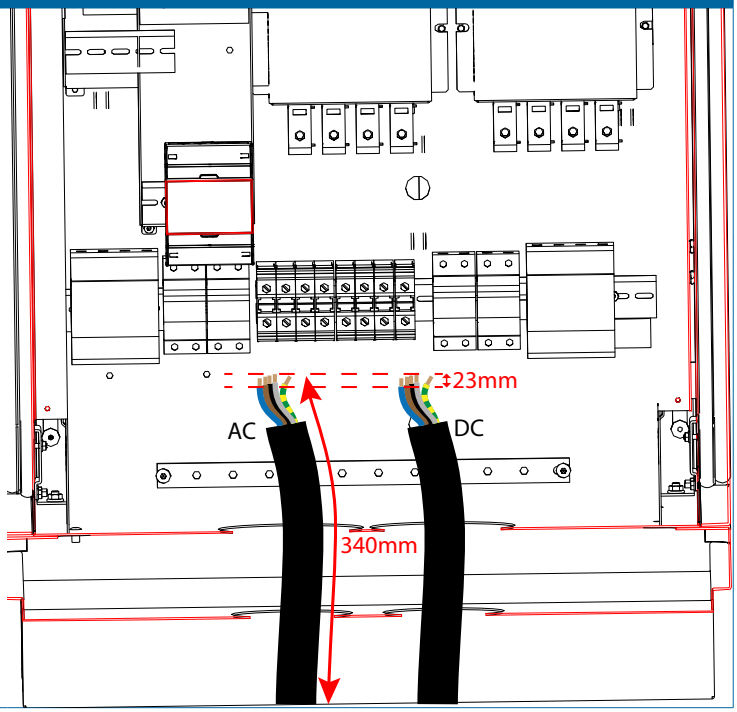
Cable cutter / dismantling tool /flat tube terminals (x8) / 8mm ring terminal (x2) / crimping pliers

1. Unlock and open the front door
2. Pass the AC charger mains input cable through the left hole and the DC charger mains input cable through the right hole at the bottom of the charger and cut them 340mm from the bottom
3. Remove 23mm of insulation from each cable
4. Put terminals to each cable end:

• flat tube terminals for P1, P2, P3 and N cables

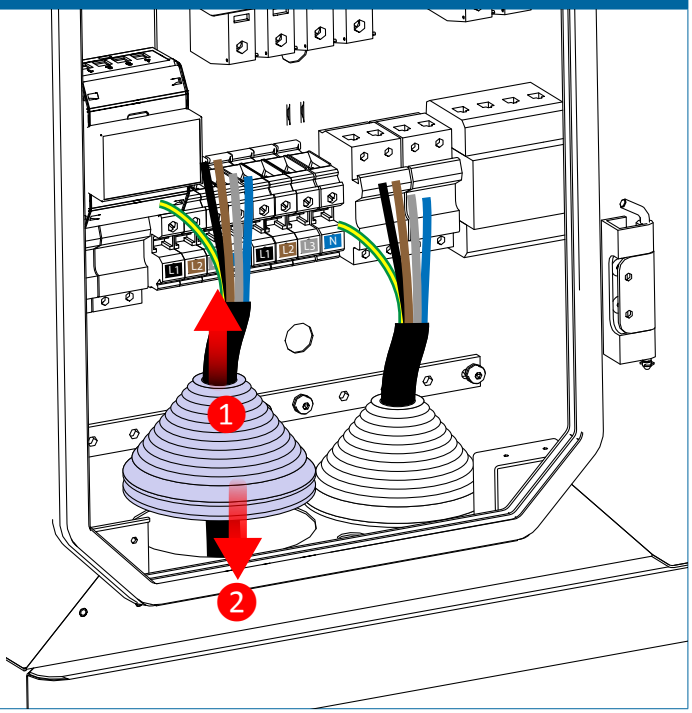
• 8mm ring terminal for the PE cable

Note: The stripping length must be adjusted according to the reference of the selected ring terminals.



4 Install the rubber gasket

1. Pass the input cable through the rubber gaskets ❶.
2. Fit the grommet over the cable entry well from the top down ❷.
3. Repeat the action on the second input cable if equipped.

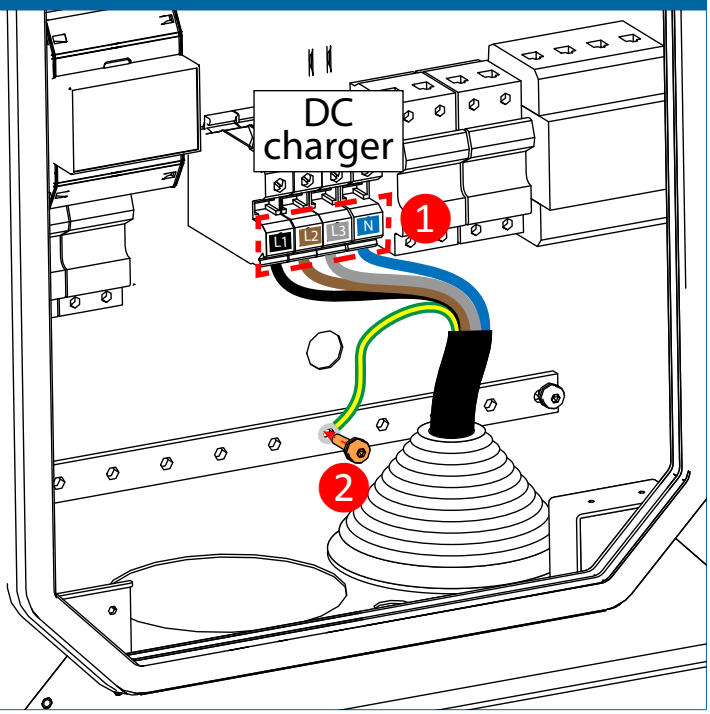


5-1 Connect the power cable to the main input

6mm Allen key

1. Connect the L1, L2, L3 and Neutral cables to the DC charger input - **position** ❶
2. Connect the ground cable to the earthing bar - **position** ❷

Recommended torque: 6-12 N.m

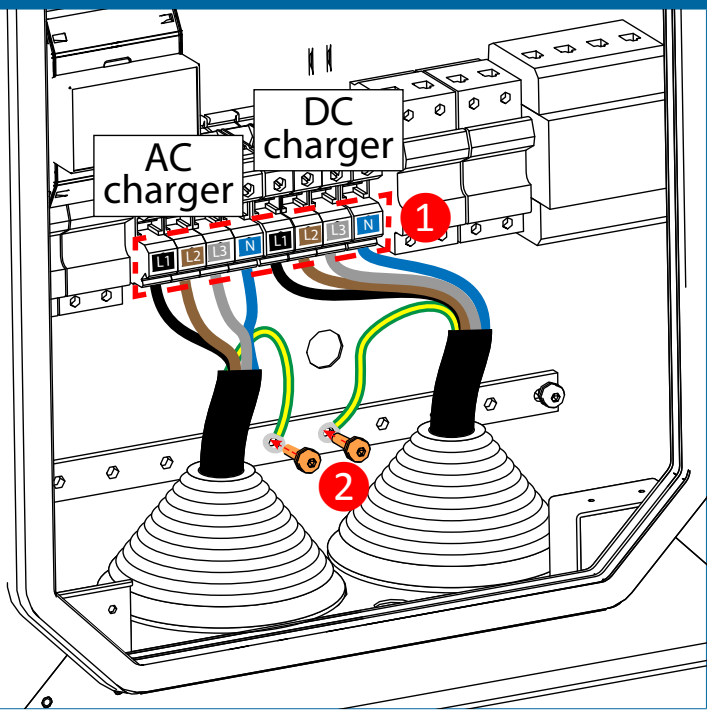


5-2 Connect the power cables to the mains inputs

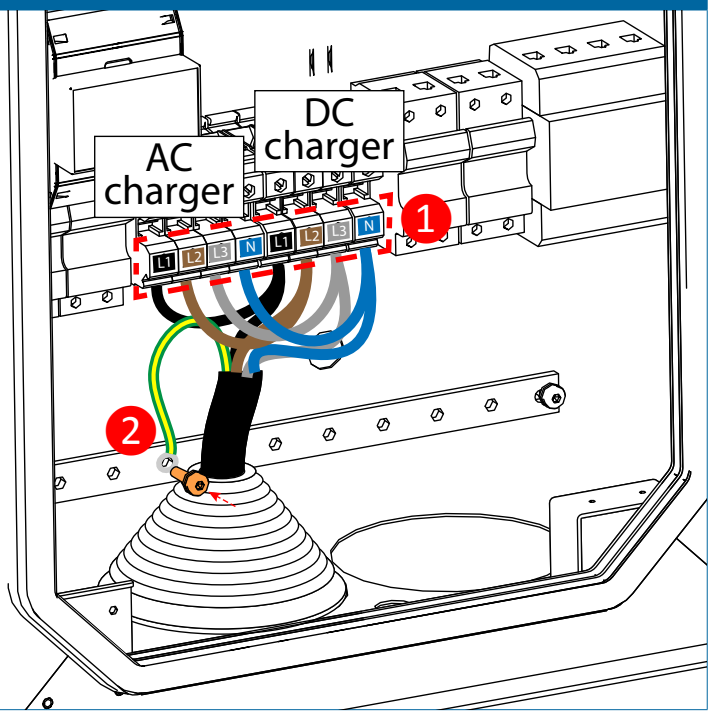
6mm Allen key

1. Connect the L1, L2, L3 and Neutral cables to the AC charger (left) and DC charger (right) inputs - **position** ❶
2. Connect the ground cables to the earthing bar - **position** ❷

Recommended torque: 6-12 N.m



5-3 Connect the power cables to the mains inputs

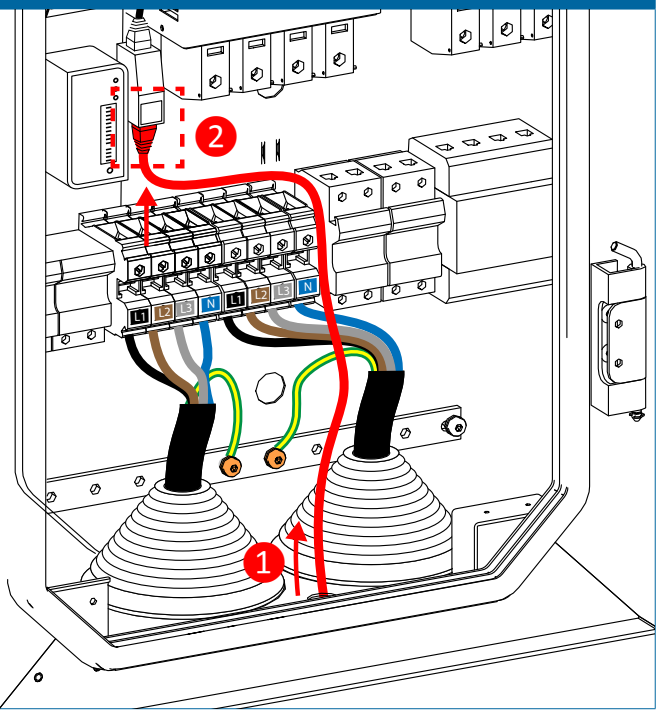


6mm Allen key

1. Connect the L1, L2, L3 and Neutral cables to the DC charger (right) and AC charger (left) inputs - **position** ❶
2. Connect the ground cables to the earthing bar - **position** ❷

Recommended torque: 6-12 N.m

6 Connect the Supervision Ethernet cable

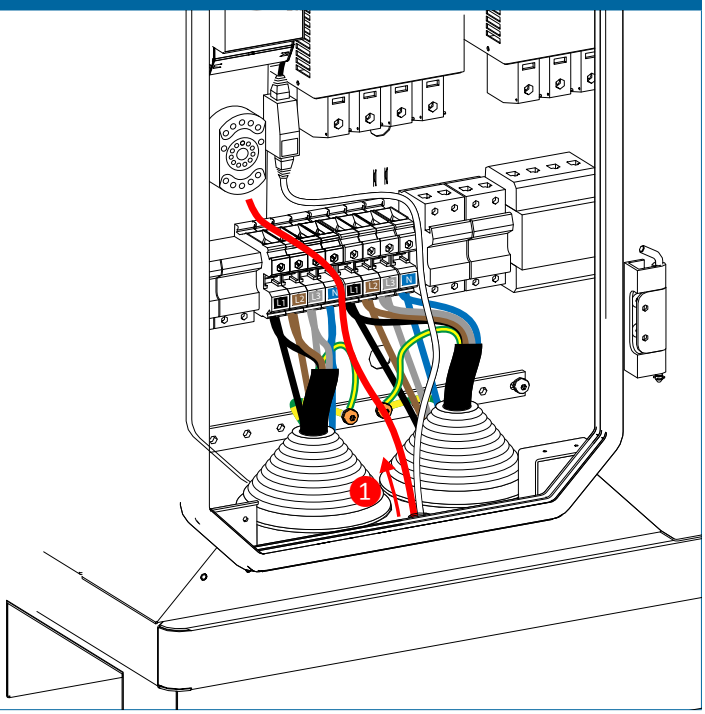


1. Unlock and open the right side door
2. Pass the Ethernet cable through the bottom ❶ and the wall ❷ of the charger
3. Connect the supervision cable to the Ethernet / RJ45 socket (see page 9) ❸
4. Close and lock the doors

7 Pass the vehicle detection cable (optional)

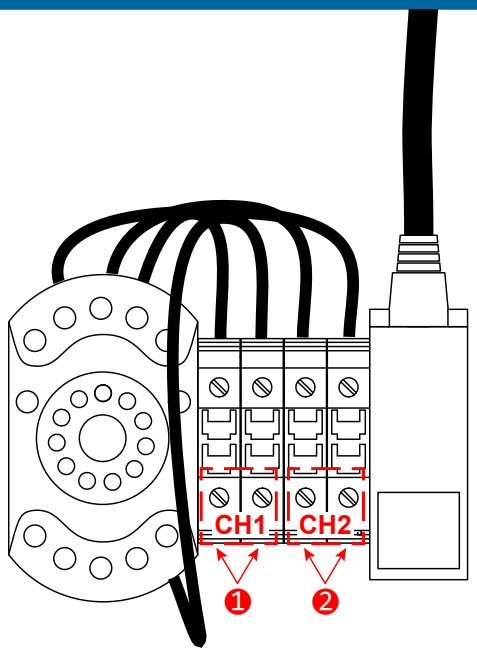
1. Pass the cable through the bottom ❶ of the charger

Note: Two vehicles can be detected by the vehicle detector. If needed, repeat the operation with a second vehicle detection cable.



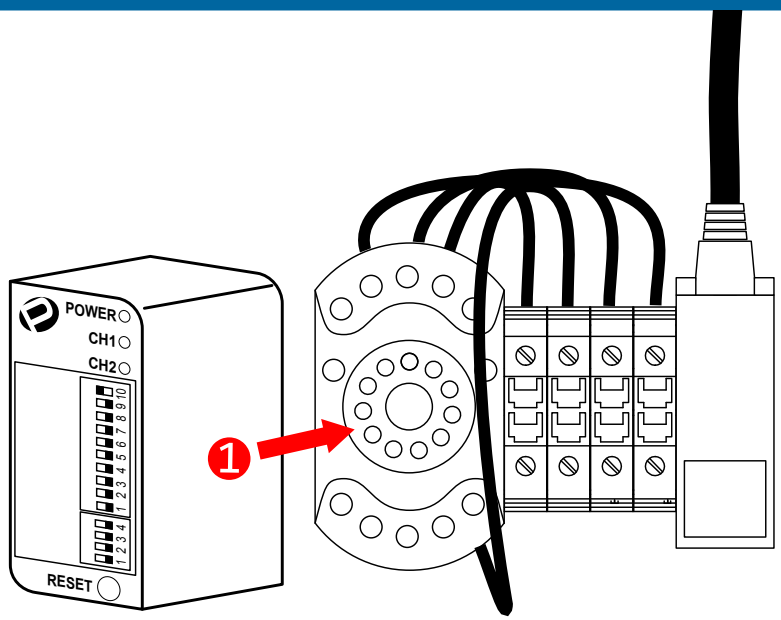
8 Connect the vehicle detection cable (optional)

1. Connect ❶ on CH1 terminal for one vehicle detection
2. Connect ❷ on CH2 terminal for a second vehicle detection



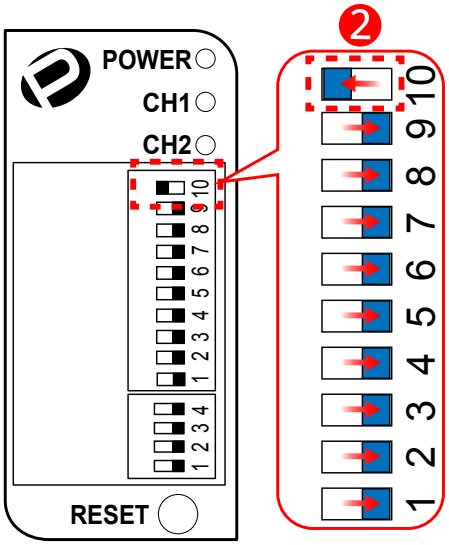
9a Install the vehicle detector (optional)

1. Install ❶



9b Install the vehicle detector (optional)

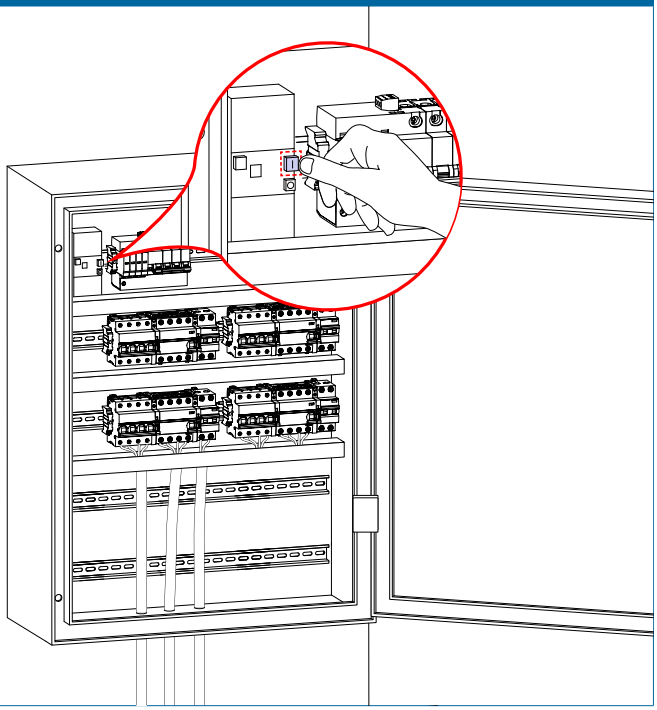
1. Put SW10 to ON (to the left) ❷ and all the other switches to the right



9 Switch on external power supply

1. Access the external mains circuit breaker
2. Turn the mains circuit breaker power on

Note: Charging station is now powered. It will startup, perform a self-test and will display on its screen when ready to use



8. Commissioning

SIM card (optional)

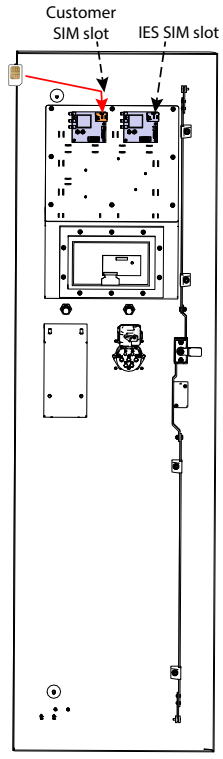
NOTICE

We have seen **using M2M hardened SIM cards fosters significatively the communication quality of our EV chargers** in the field. These cards are well-known for their capability to operate at wider temperature, humidity, pressure and vibration ranges.

To ensure an optimized service level (remote access to deployed EV Chargers, supervision communication depending services…), **we recommend you choosing this type of SIM card in the IES Synergy KEYWATT chargers**.

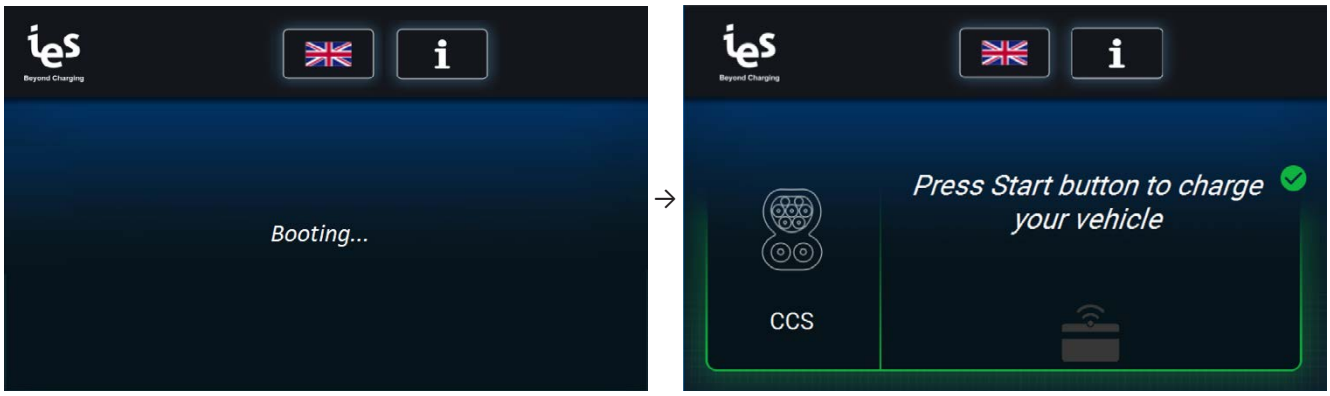
1 Customer SIM card installation

1. Open the front door
2. On the internal door panel, you can place your SIM card in the empty slot on modem board (Customer slot).
   Note: Use the modem board connected to 3G MONOSIM on OCCP board
3. Close the door



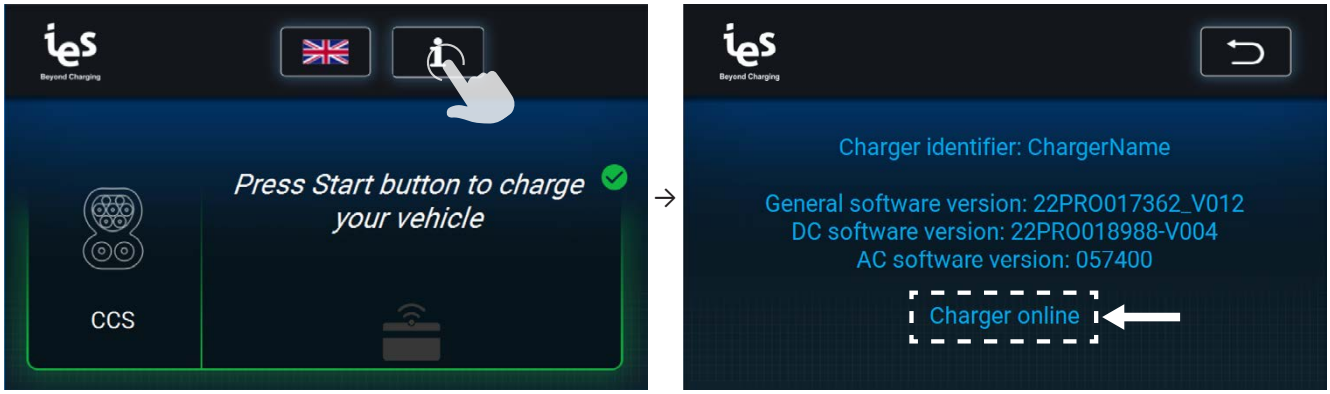
First start

During the first start of the charging station, the following messages will appear on-screen:



If the display does not turn on at the first start, please see the maintenance manual.

After starting, check on the supervision server that the charging station is connected.



If the charging station is not connected to the supervision server, please refer to the maintenance manual.

Booting errors

Message	Description
Error connecting server.	Message displayed during the startup of the charging station if the backend server rejects the connection.
Error connecting to RFID reader.	Message displayed during the startup of the charging station if the RFID does not work. Please see the maintenance manual.
Error connecting to comm control unit.	Message displayed during the startup of the charging station if the CCU does not work. Please see the maintenance manual.

Power limitation

If necessary, you can limit the power delivered by the charging station on the backend server.

For the charging station, use the OCPP frame “Change Configuration” to adjust the following configuration parameters:

Configuration parameters details	Expected value type	Default value	Description
PowerLimit	Watts	50000	Maximum power to be delivered by the charger on DC outputs. Allow to limit the output power below 50kW.
VoltageSupplyLimit	Volt	230	The nominal value of the single-phase voltage provided in the country. Usually 230V in Europe.
IoutAcMax	Amp	32	Maximum current to be delivered by the charger on the AC output. Limits the AC output current below 32A.
CurrentInputLimit	Amp	175	The maximum total input current allowed by the power supply for AC and DC charges. Limits the total input current below 175A.

Refer to your backend server instructions to know how to change these configuration parameters.

9. Protecting the environment

Recycling Packaging

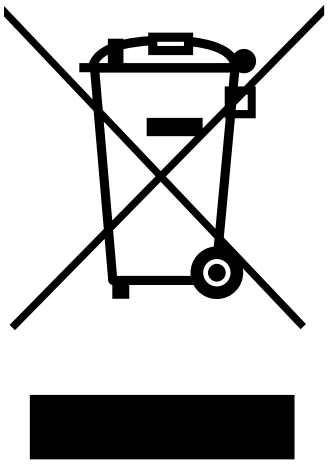
The packaging materials from this equipment can be recycled. Please help protect the environment by recycling them in appropriate containers.

Thank you for playing your part in protecting the environment.

End-of-Life Recycling

This product has been optimized to reduce the amount of waste produced at the end of their useful life and for better recovery of component parts and materials when following customary processing procedures.

Products have been designed so that their components can be processed by conventional procedures: decontamination where this is recommended, reuse and/or dismantling in order to improve recycling performance, and crushing to separate out the rest of the materials.



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Beyond Charging