VESTEL
MOBILITY

ELECTRIC VEHICLE CHARGER

EVC04 Series

Installation Guideline

CONTENTS

1 - SAFETY INFORMATION

CAUTION

RISK OF ELECTRIC SHOCK

CAUTION: ELECTRIC VEHICLE CHARGER DEVICE SHALL BE MOUNTED BY A LICENSED OR AN EXPERIENCED ELECTRICIAN AS PER ANY REGIONAL OR NATIONAL ELECTRIC REGULATIONS AND STANDARDS IN EFFECT.

CAUTION

AC grid connection and load planning of the electric vehicle charging device shall be reviewed and approved by authorities as specified by the regional or national electric regulations and standards in effect.

For multiple electric vehicle charger installations the load plan shall be established accordingly. The manufacturer shall not be held liable directly or indirectly for any reason whatsoever in the event of damages and risks that are borne of errors due to AC grid supply connection or load planning.

IMPORTANT - Please read these instructions fully before installing or operating

1.1 - SAFETY WARNINGS

- Keep this manual in a safe place. These safety and operating instructions must be kept in a safe place for future reference.
- Check that the voltage marked on the rating label and do not use charging station without appropriate mains voltage.
- Do not continue to operate the unit if you are in any doubt about it working normally, or if it is damaged in any way - switch off the mains supply circuit breakers (MCB and RCCB). Consult your local dealer.
- The ambient temperature range should be between –35 ˚C and +55 ˚C without direct sunlight and at a relative humidity of between 5 % and 95 %. Use the charging station only within these specified operating condition. If product has RCCB, the ambient temperature range should be between –25 ˚C and +50 ˚C without direct sunlight.
- The device location should be selected to avoid excessive heating of the charging station. High operating temperature caused by direct sunlight or heating sources, may cause reduction of charging current or temporary interruption of charging process.
- The charging station is intended for outdoor and indoor use. It can also be used in public places.
- To reduce the risk of fire, electric shock or product damage, do not expose this unit to severe rain, snow, electrical storm or other severe weathers. Moreover, the charging station shall not be exposed to spilled or splashed liquids.
- Do not touch end terminals, electric vehicle connector and other hazardous live parts of the charging station with sharp metallic objects.

- Avoid exposure to heat sources and place the unit away from flammable, explosive, harsh, or combustible materials, chemicals, or vapors.
- Risk of Explosion. This equipment has internal arcing or sparking parts which should not be exposed to flammable vapors. It should not be located in a recessed area or below floor level.
- This device is intended only for charging vehicles not requiring ventilation during charging.
- To prevent risk of explosion and electric shock, ensure that the specified Circuit Breaker and RCD are connected to building grid.
- The lowest part of the socket-outlet shall be located at a height between 0,5 m and 1,5 m above ground level.
- Adaptors or conversion adapters are not allowed to be used. Cable extension sets are not allowed to be used.

WARNING: Never let people (including children) with reduced physical, sensory or mental capabilities or lack of experience and or knowledge use electrical devices unsupervised.

CAUTION: This vehicle charger unit is intended only for charging electric vehicles not requiring ventilation during charging.

1.2 - GROUND CONNECTION WARNINGS

- Charging station must be connected to a centrally grounded system. The ground conductor entering the charging station must be connected to the equipment grounding lug inside the charger. This should be run with circuit conductors and connected to the equipment grounding bar or lead on the charging station. Connections to the charging station are the responsibility of the installer and purchaser.
- To reduce the risk of electrical shock, connect only to properly grounded outlets.
- **WARNING :** Make sure that during installing and using, the charging station is constantly and properly grounded.

1.3 - POWER CABLES, PLUGS and CHARGING CABLE WARNINGS

- Be sure that charging cable is Type 2 socket compatible on charging station side.
- A damaged charging cable can cause fire or give you an electric shock. Do not use this product if the flexible Charging cable or vehicle cable is frayed, has broken insulation, or shows any other signs of damage.
- Ensure that the charge cable is well positioned thus; it will not be stepped on, tripped over, or subjected to damage or stress.
- Do not forcefully pull the charge cable or damage it with sharp objects.
- Never touch the power cable/plug or vehicle cable with wet hands as this could cause a short circuit or electric shock.
- To avoid a risk of fire or electric shock, do not use this device with an extension cable. If the mains cable or vehicle cable is damaged it must be replaced by the manufacturer, its service agent, or similarly qualified persons in order to avoid a hazard.

1.4 - WALL MOUNTING WARNINGS

- Read the instructions before mounting your charging station on the wall.
- Do not install the charging station on a ceiling or inclined wall.
- Use the specified wall mounting screws and other accessories.
- This unit is rated for indoor or outdoor installation. If this unit is mounted outdoors, the hardware for connecting the conduits to the unit must be rated for outdoor installation and be installed properly to maintain the proper IP rating on the unit.

2 - DESCRIPTION

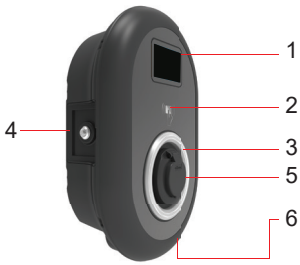
Model Name	**MODEL DESCRIPTION: EVC04-AC****** EVC04 : Electric Vehicle AC Charger (Mechanical Cabinet 04) 1st Asterisk (*) : Rated Power 7 : 7.4 kW (1Phase Supply Equipment) 11 : 11 kW (3Phase Supply Equipment) 22 : 22 kW (3Phase Supply Equipment) 2nd Asterisk (*) can include combinations of the following communication module options. RFID reader is standard equipment for all of the model variants. “S” or “HS” option must be included for selecting combinations of W,L and P: Blank : No connectivity module except RFID reader S : Smart Board with Ethernet Port HS : High Secure Smart Board with Ethernet Port W : Wi-Fi module or WiFi & Bluetooth module L : LTE / 3G / 2G module P : ISO 15118 PLC module 3rd Asterisk (*) : Can be one of the following: Blank : No Display D : 4.3” TFT color display 4th Asterisk (*) can be one of the following: Blank : No RCCB A : Charging unit with Type-A RCCB MID : Charging unit with MID Meter PEN : Broken PEN detection and disconnection function - EICH : Charging Unit with Eichrecht Conformity 5th Asterisk (*) can be one of the following: Blank : Case-B Connection with normal socket -T2S : Case-B Connection with shuttered socket -T2P : Case-C Connection with Type-2 vehicle connector -T1P : Case-C Connection with Type-1 vehicle connector -T1PUL: Case C Connection with Type-1 UL vehicle connector 6th Asterisk (*) can be one of the following: Blank : EVC04 standard cabinet ZEN : Zenith Cabinet LIB : Libra Cabinet
Cabinet	EVC04

3 - GENERAL INFORMATION

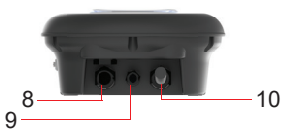
3.1 - INTRODUCTION OF THE PRODUCT COMPONENTS

3.1.1 - RCD MODELS

Socket Equipped Models



Tethered Cable Models



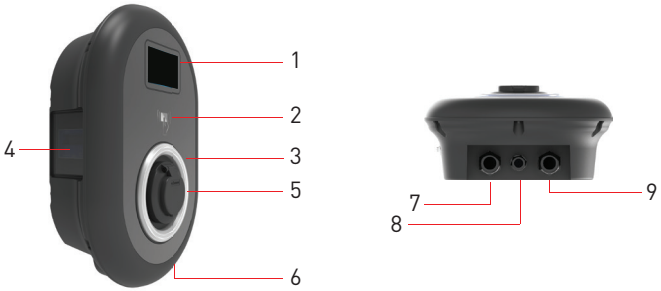
EN **Socket Models**

1- Information Display (Optional)
2- RFID Card Reader
3- Status indicator LED
4- Access cover for residual current device (Optional)
5- Socket Outlet
6- Product Label
7- Charging station connection cable union nut
8- Charging station Ethernet connection cable gland nut
9- Charging Cable (Optional) or Out of use

EN **Tethered Cable Models**

1- Information Display (Optional)
2- RFID Card Reader
3- Status indicator LED
4- Access cover for residual current device (Optional)
5- Dummy Socket
6- Charging Plug
7- Product Label
8- Charging station connection cable union nut
9- Charging station Ethernet connection cable gland nut
10- Charging cable

3.1.2 - MID MODELS



EN Socket Models with MID Meter

1- Information Display (Optional)

2- RFID Card Reader

3- Status indicator LED

4- MID Meter Display (Optional)

5- Socket Outlet

6- Product Label

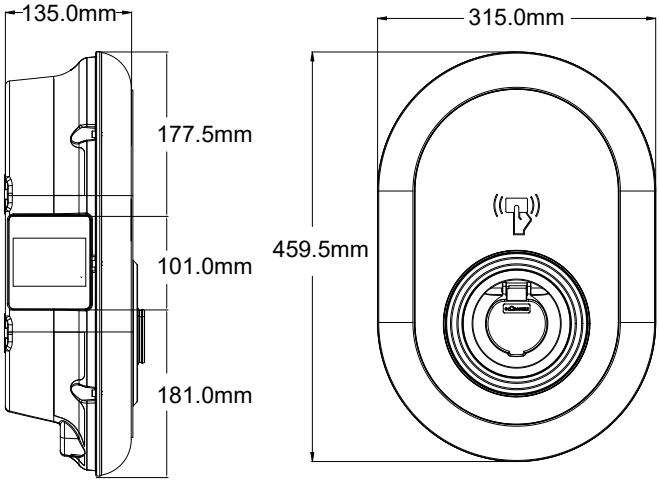
7- Charging station connection cable union nut

8- Charging station Ethernet connection cable gland nut

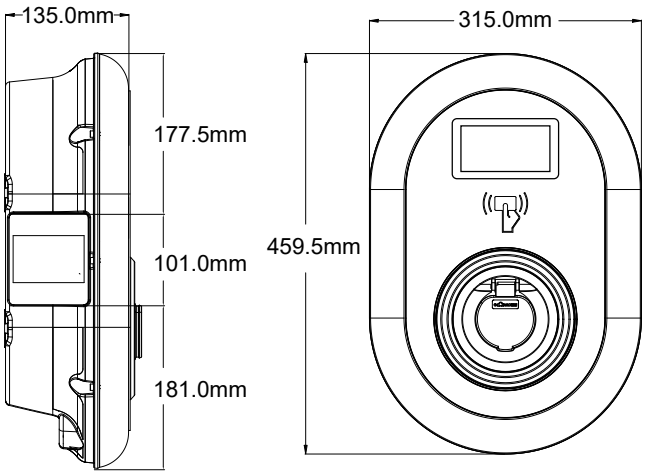
9- Charging Cable (Optional) or Out of use

3.2 - DIMENSIONAL DRAWINGS

3.2.1 - Without Display Model



3.2.2 - With Display Model



4 - REQUIRED EQUIPMENT, TOOLS and ACCESSORIES

		
Drill Bit 8mm	Impact Drill	PC
		
Volt Indicator	Torx T25 Security Screwdriver	Water Level
		
Flathead Screwdriver (Tip width 2.00-2.5 mm)	Pointed Spudger	Right Angle Screwdriver Adapter / Torx T20 Security Bit
		
RJ45 Crimping Tool	Cat5e or cat6 ethernet cable	

5 - TECHNICAL SPECIFICATION

This product is compliant to IEC61851-1 (Ed3.0) and IEC61851-21-2 standard for Mode 3 use.

Model		EVC04-AC22 Series	EVC04-AC11 Series	EVC04-AC7 Series
IEC Protection class		Class - I		
Vehicle Interface	**Socket Model**	Socket TYPE 2 (IEC 62196)		
	Cable Model	Cable with TYPE 2 (IEC 62196) Female Plug		
Voltage and Current Rates		230/400V ~ 50 Hz - 3-Phase 32A	230/400V ~ 50 Hz - 3-Phase 16A	230 V ~ 50 Hz - 1-Phase 32A
Broken PEN Detection Voltage Range (Optional)		NA	NA	<208V , >254V Single phase TN-C-S supplies only
AC Maximum Charge Output		22kW	11kW	7.4kW
Built-in Residual Current Sensing module		6mA		
Required Circuit Breaker on AC Mains		4P-40A MCB Type-C	4P-20A MCB Type-C	2P-40A MCB Type-C
Required Leakage Current Relay on AC Mains (for products which are not equipped with RCCB Type A)		4P -40A - 30mA RCCB Type-A	4P -20A - 30mA RCCB Type-A	2P -40A - 30mA RCCB Type-A
Required Surge Arrester on AC Mains (for installations other than residential areas)		4P-12.5kA-SPD Type-2	4P-12.5kA-SPD Type-2	2P-12.5kA-SPD Type-2
Required AC Mains Cable		5x 6 mm^2 (< 50 m) External Dimensions: Ø 18–25 mm	5x4 mm^2 (< 50 m) External Dimensions: Ø 18–25 mm	3x 6 mm^2 (< 50 m) External Dimensions: Ø 13-18 mm
Required AC Mains Cable (Optionaly only for France)		5 x 10 mm^2 (< 50 m) External Dimensions: Ø 18–25 mm	5 x 2.5 mm^2 (< 50 m) External Dimensions: Ø 18–25 mm	3 x 10 mm^2 (< 50 m) External Dimensions: Ø 13-18 mm

CONNECTIVITY

Ethernet	10/100 Mbps Ethernet (Standard with Smart Options)
Wi-Fi (Optional)	Wi-Fi 802.11 a/b/g/n/ac
Cellular (Optional)	LTE: B1 (2100 MHz), B3 (1800 MHz), B7 (2600 MHz), B8 (900 MHz), B20 (800 MHz), B28A (700 MHz) WCDMA: B1 (2100 MHz), B8 (900 MHz) GSM: B3 (1800 MHz), B8 (900 MHz)

OTHER FEATURES (Connected Models)

Diagnostics	Diagnostics over OCPP WebconfigUI
Software Update	Remote software update over OCPP WebconfigUI update Remote software update with server

AUTHORIZATION

RFID	ISO-14443A/B and ISO-15693
PLUG & CHARGE (Optional)	ISO-15118-2

MECHANICAL SPECIFICATIONS

Material	Plastic
Product size	315 mm (Width) x 459.5 mm (Height) x 135 mm (Depth)
Dimensions (with package)	405 mm (Width) x 530 mm (Height) x 325 mm (Depth)
Product weight	5 kg for socket equipped model, 6,8kg for tethered cable model (3 Phases) 5,5kg for tethered cable model (1 Phase)
Weight with package	7,1 kg for socket equipped model, 8,9kg for tethered cable model (3 Phases) 7,6kg for tethered cable model (1 Phase)
AC Mains Cable Dimensions	For three-phase models Ø 18-25 mm For one-phase models Ø 13-18 mm
Cable Inlets	AC Mains / Ethernet / Modbus

ENVIRONMENTAL TECHNICAL SPECIFICATIONS

Protection Class	Ingress Protection	IP54
	Impact Protection	IK10 (optional display has IK08 protection)
Usage Conditions	Temperature	-35 °C to 55 °C (without direct sunlight) -25 °C to 50 °C (optionaly product has RCCB)
	Humidity	5% - 95% (relative humidity, without condensation)
	Altitude	0 - 4,000m

6 - INSTALLING CHARGING STATION

6.1 - SUPPLIED INSTALLATION EQUIPMENT AND ACCESSORIES

Accessory/Material Name	Use For	Quantity	Picture
Dowels (M8x50 Plastic Dowels)	Mounting charging station to the wall	4	
Torx T25 Security Screw (M6x75)	Mounting charging station to the wall	4	
Gasket for screw 6x75	IP for screws which are used for mounting charging station to the Wall.	4	
Torx T20 Security L-Allen	IP for screws which are used for mounting charging station to the Wall.	1	
Wrench	Disassembling and fastening the cable glands	1	
RCCB Wrench(Optional)	To open the RCCB Cover	1	
RJ45 Male Connector – Optional	LAN Cable connection	1	
Mounting Template	Mounting the charging station to the wall	1	
O-Ring	Mounting the charging station to the pole	3	
Screw M6X20	Mounting the charging station to the pole	3	
Screw M6X30	Mounting and providing earth continuity for the charger, that mounts to metal surface. This screw should be mounted to the right-down hole of charging station to the Wall. Below this screw, there should be rubber under it to fix the ground cable.	1	
IP Rubber	Fixing the ground cable with the screw M6x30. This rubber should be placed to right-down Wall mount hole of charging station, under the ground cable and screw M6x30	1	
SIM Card (Optional)	Product control with internet connection	1	

User RFID Card (Optional)	Start&Stop Charging	2	
Master RFID Card (Optional)	Adding & Removing the User RFID Cards to Local RFID List	1	
Installation Guide (Optional)	Installation Manual	1 Set	
Instruction Book (Optional)	User Manual	1 Set	
QSG	Quick Start Guide	1 Set	

6.2 - PRODUCT INSTALLATION STEPS

CAUTION!

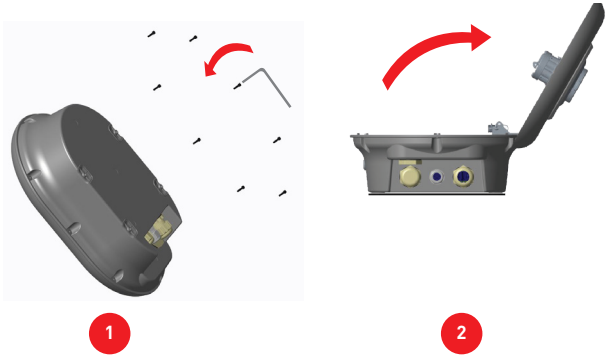
- Ensure that ground resistance of the installation less than 60ohms.
- Prior to mounting your charging station on the wall, read these instructions.
- Do not mount your charging station to the ceiling or an inclined wall.
- Use the wall mounting screws and other accessories specified.
- This charging station is classified as indoor and outdoor installation compatible. If the device is installed outside the building, the hardware that will be used to connect the cables to the charger shall be compatible with outdoor use and the charging station shall be mounted preserving the IP rate of the charger.

6.2.1 - OPENING THE COVER OF THE CHARGING STATION

CAUTION

RISK OF ELECTRIC SHOCK

Please power off the charging station mains supply



1- Remove the cover screws with Torx T20 security L-Allen or Right Angle Screwdriver Adapter using Torx T20 Security Bit.

2- Open the cover.

6.2.2 - WALL MOUNT INSTALLATION

Wall mount installation is common for all charging station models.

1- Open the product front cover by following the instruction.

2- Place the charging station to the Wall by using the mounting template which is given in accessory bag and mark the drill bit holes with a pencil.

3- Drill the wall on the marked points using the impact drill (8mm drill bit).

4- Place the dowels into the holes.

5- Tighten the security scews (6x75) of the product using Torx T25 Security Screwdriver.

6- Insert the AC mains cable into the charging station from the left cable gland which below the station. Follow the AC Mains Connection instructions on the next pages, depending on the model of the charger. (Single/Three Phase)

7- When mounting the charging station on conductive metal surfaces such as metal poles, etc., you can make the grounding connection via the “bottom right” screw using the grounding extension cable as shown in the figure below. To ensure grounding, you need to change the position of the ground wire from “a” to “b” as shown in the figure below. The figure below shows the ground connections for single phase and three phase. Follow the instructions below.

i. Insert the plastic support (IP rubber supplied in the unit’s accessory package) into the fixing hole (position “b”)

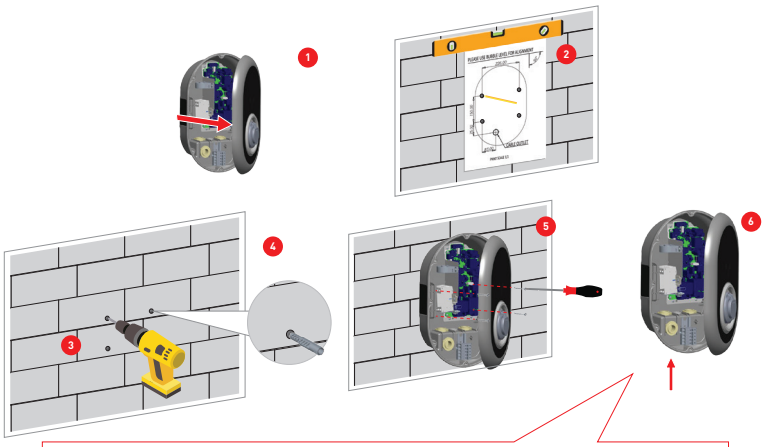
ii. Secure the ground wire using the M6x30 screw included in the artwork package, which is also used to mount the product to the conductive metal surface.

Note: Both grounding and sealing are achieved by first putting a rubber gasket under the ground wire and then tightening the screw, respectively, as shown in the figure.

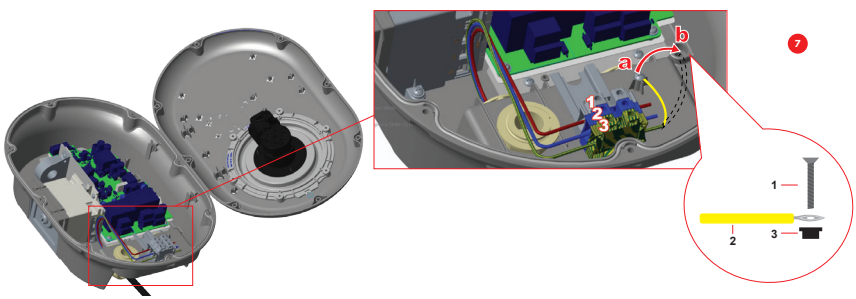
8- Tighten the cable glands as shown in the figure. Before closing the cover of the charging station, follow the instructions in next sections if any function related to these sections are used.

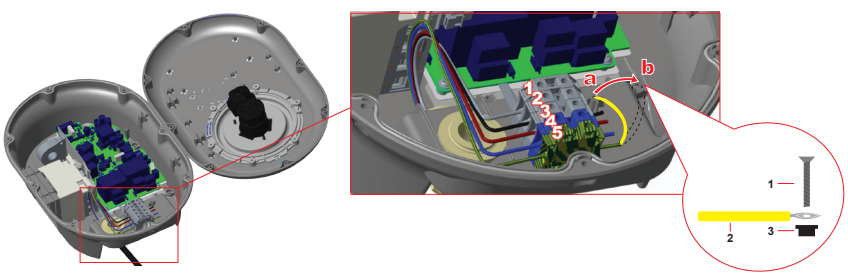
9- To close the cover of the charging station, tighten the cover screws which you had removed with Torx T20 Security L-Allen or Right Angle Screwdriver Adapter using Torx T20 Security Bit. (Min:1.2Nm; Max:1.8Nm)

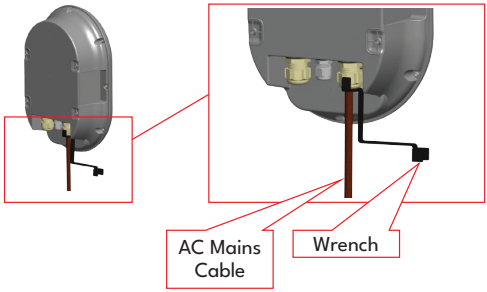
10- Mounting the charging station on the wall is finished.

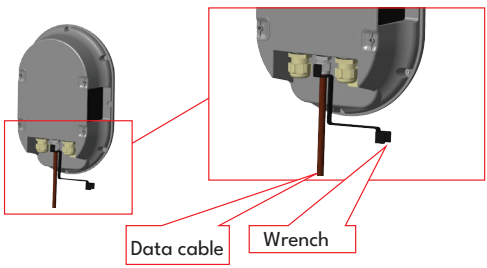


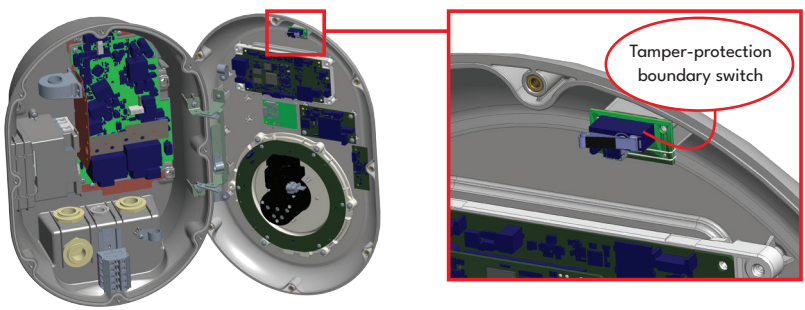
Before next step (7), Please check the instructions for Single Phase or Three Phase cable connections.







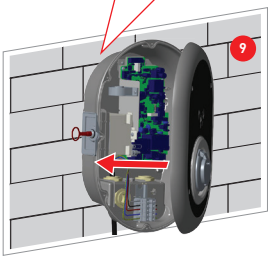




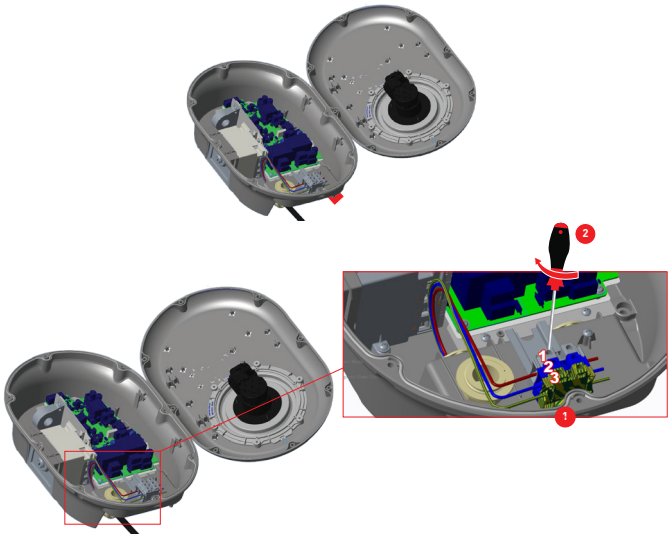
Tamper-protection boundary switch is activated In the case of front cover of the EVC04 is opened while the product is energized.

An OCPP security message is shared with backend if the tamper-protection boundary switch is activated and LED status indicator blinks yellow.

Before closing the cover of the charging station, check next instructions if any function related to these sections are used.



6.2.3- SINGLE PHASE CHARGING STATION AC MAINS CONNECTION

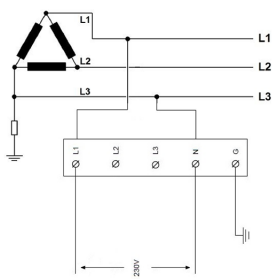


1- Insert the cables to the terminal block as shown in the image. Check the table below to match Electric Terminal number with AC Cable Color.

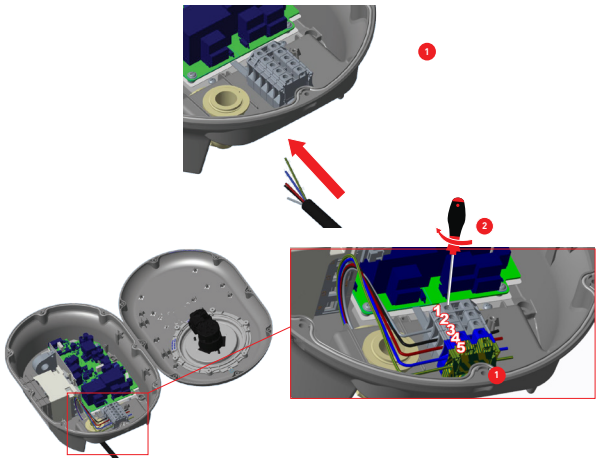
2- Tighten the screws on the terminal block as shown in the image with the tightening tourqe of 1.9-2Nm.

Electric Terminal	**AC Cable Color**
1	AC L1 (Brown)
2	AC Neutral (Blue)
3	Earth (Green-Yellow)

For single phase **IT Grid** installation, wiring diagram which is shown below should be used. Also grounding type should be set to “IT Grid” from the ”Installation settings” menu in web user interface.



6.2.4 - THREE PHASE CHARGING STATION AC MAINS CONNECTION



1- Insert the cables to the terminal block as shown in the image. Check the table below to match Electric Terminal number with AC Cable Color.

2- Tighten the screws on the terminal block as shown in the image with the tightening tourqe of 1.9-2Nm.

Electric Terminal	AC Cable Color
1	AC L3 (Grey)
2	AC L2 (Black)
3	AC L1 (Brown)
4	AC Neutral (Blue)
5	Earth (Green-Yellow)

If you want to install the three-phase charging station in single-phase, the phase cable connection must be made on terminal L1 as shown in the figure in the SINGLE-PHASE CHARGING STATION AC MAINS CONNECTION section.

6.2.5 - BROKEN PEN DETECTION FEATURE (Optional)

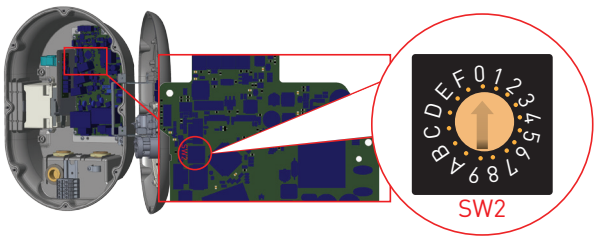
This feature is valid for single phase units and should only be used on single phase TN-C-S supplies.

Protection against electric shock in the installation is provided by a contactor which electrically disconnects the vehicle from the live conductors of the supply ,from protective earth and from control pilot within 5 seconds in the event of the supply voltage to the charging point, between the line and neutral conductors, being greater than 254 V rms or less than 208 V rms.

If the unit detects broken PEN, it automatically goes into error mode and can only be cleared by power cycling the charge point i.e. powering off and back on again. The unit should be reset to get over the error.

6.2.6 - ADJUSTING CURRENT LIMITER

The charging station has current limiter (rotary switch) on the mainboard which is shown in figure below. This switch is used for adjusting the current and power of charging station. The arrow in the middle of the rotary switch must be adjusted gently by rotating with a flathead screwdriver to the position of the required current rate. The details of the current rates are desicribed in table below.



Other Location

Current Limiter Position	Current Limit Value			
	Phase	22 kW	11kW	7.4kW
0	1-Phase	10 A	10 A	10 A
1		13 A	13 A	13 A
2		16 A	16 A	16 A
3		20 A		20 A
4		25 A		25 A
5		30 A		30 A
6		32 A		32 A
7				
8	3-Phase	10 A	10 A	
9		13 A	13 A	
A		16 A	16 A	
B		20 A		
C		25 A		
D		30 A		
E		32 A		
F				

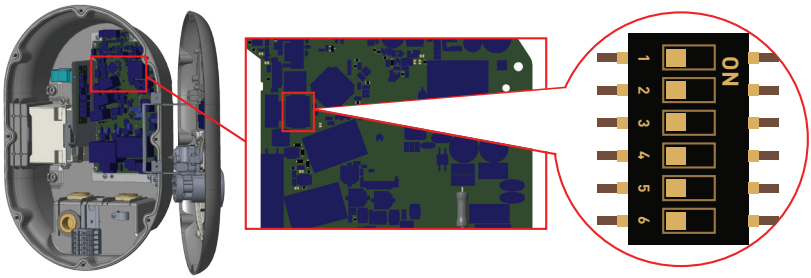
Required Circuit Braker on AC Mains	
EV Charging Station Current Limiter Setting	C-Curve MCB
10 A	13 A
13 A	16 A
16 A	20 A
20 A	25 A
25 A	32 A
30 A	40 A
32 A	40 A

Optionally only for Germany

Current Limiter Position	Current Limit Value			
	Phase	22 kW	11kW	7.4kW
0	1-Phase	10 A	10 A	10 A
1		13 A	13 A	13 A
2		16 A	16 A	16 A
3		20 A		20 A
4		25 A		25 A
5		26 A		26 A
6		32 A		32 A
7				
8	3-Phase	10 A	10 A	
9		13 A	13 A	
A		16 A	16 A	
B		20 A		
C		25 A		
D		26 A		
E		32 A		
F				

Required Circuit Braker on AC Mains	
EV Charging Station Current Limiter Setting	C-Curve MCB
10 A	13 A
13 A	16 A
16 A	20 A
20 A	25 A
25 A	32 A
26 A	32 A
32 A	40 A

6.2.7 - DIP SWITCH SETTINGS



Brief descriptions of the DIP switch pin settings can be found in below table.

Pin Number	Description
Pin-1	Reserved
Pin-2	External Enable Input Functionality
Pin-3	Locked Cable Function (only for socket models)
Pin-4-5-6	Power Optimizer (Requires Optional Accessories)

6.2.7.1 - DATA CABLE CONNECTION

1- Remove rubber cork from cable gland.

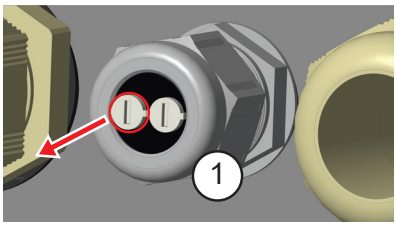
2- Insert cable through the cable holes.

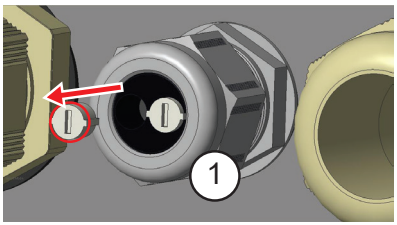
3- Insert the cable through the RCCB housing holes.

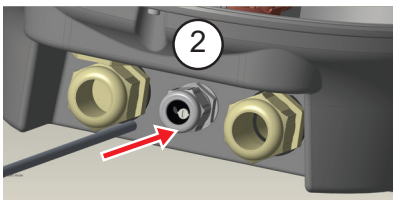
4- Finally, to connect the wires on mainboard, check next sections depending on the functions to be used.

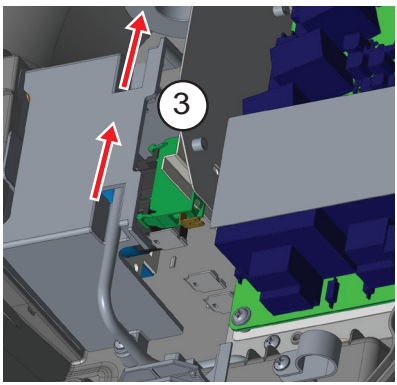
NOTE : Below data connection cables can be inserted through the cable holes;

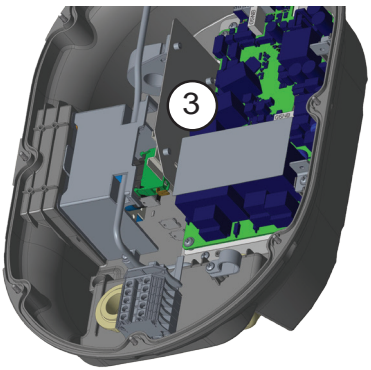
- **a.** External enable input cable
- **b.** Power optimizer measurement cable
- **c.** Ethernet daisy chain connection cables (Optional)
- **d.** Load shedding triggering signal cable
- **e.** Shunt trip module control signal cable for welded relay contact failure





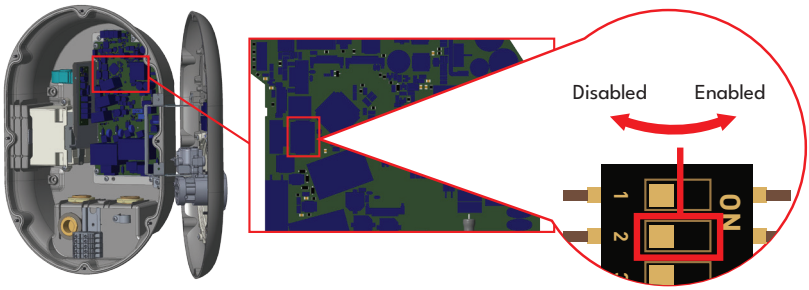


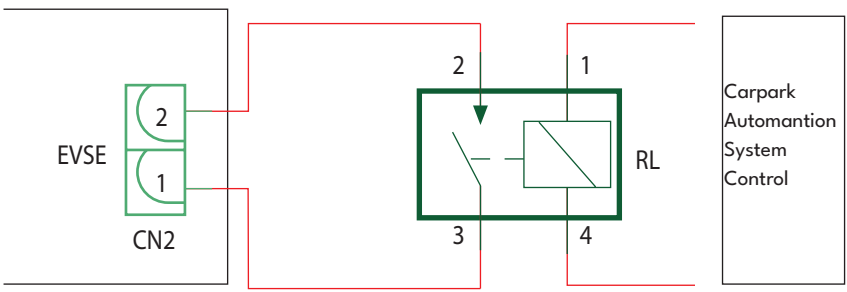




6.2.7.2 - EXTERNAL ENABLE INPUT FUNCTIONALITY

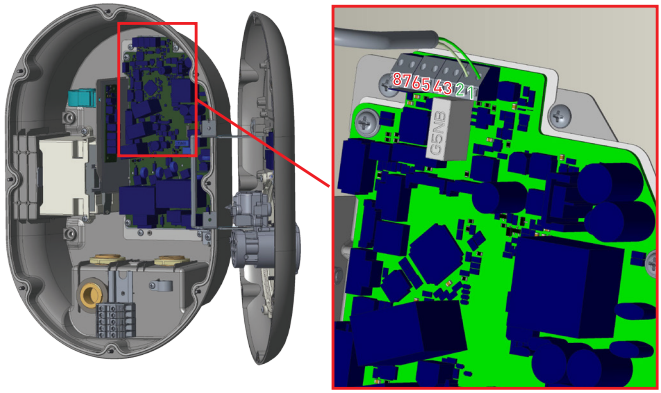
Your charging station has external potential free enable / disable functionality which can be used for integration of your charging station to an carpark automation systems, energy supplier ripple control devices, time switches, photovoltaic inverters, auxiliary load control switches, external key lock switches etc. DIP switch position 2 is used for enabling and disabling this functionality.





If the external relay (RL) is in non-conducting (open), the charging station will not be not be able to charge the electric vehicle.

You can connect potential free input signals as shown in above circuitry (see figure).



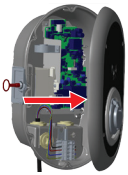
Cable Terminal	Cable Color
1 (CN2-1)	Green
2 (CN2-2)	Green + White Green

6.2.7.3 - LOCKED CABLE FUNCTION (Model With Socket)

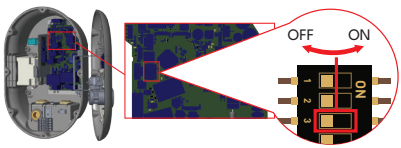
This charging station has functionality for fixing the charging cable of the user, to the charging socket of the unit. The cable becomes locked and socket model charging station behaves as a cabled model. For this functionality, the steps in table can be followed.

1- Turn off the power of your charging station.

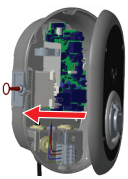
2- Open the product cover as described in the installation manual.



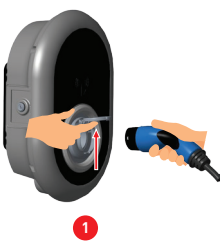
3- To enable locked cable function, toggle DIP switch pin 3 to ON position using pointed spudger or a plastic pointed tool. The DIP switch location is as shown in below figure.



4- Close the product cover as described in the installation manual.



5- Open the front cover of the socket outlet and plug the charging cable to the socket outlet.



6- Turn on the power to your charging station. The cable becomes locked and the charging station starts behaving as a cable model.

6.2.7.4 - POWER OPTIMIZER (REQUIRES OPTIONAL ACCESSORIES)

The EV charger has option to make single load balancing with different accessories.

1. Power Optimizer with External MID meter
2. Power Optimizer with External Current Transformer (CT)

To adjust the power optimizer, the slide switch (mode selection switch - SW3) on the control board should be in position to 1 or 2 as shown in figure. If the switch is set to position 3, power optimizer does not work.

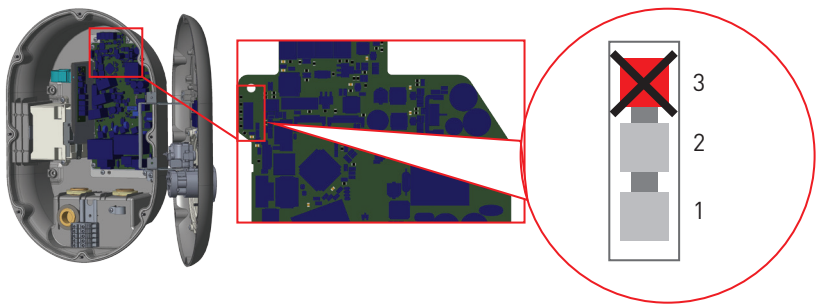
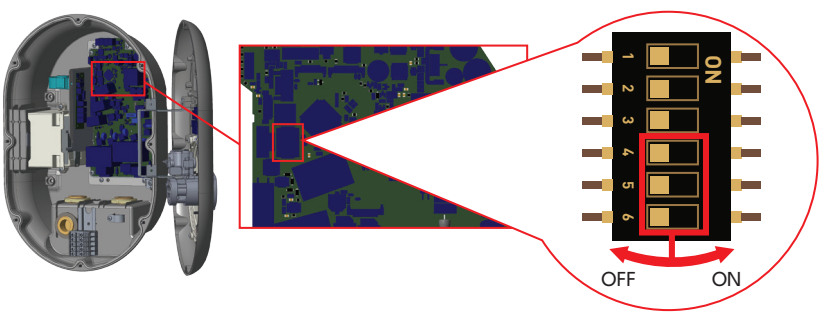


Figure.1

This feature is provided with an optional metering accessories which are sold separately. In power optimizer mode, the total current drawn from the main switch of the house by charging station and other household appliances is measured with current sensor integrated to the main power line. Current limit of the main power line of the system is set through the DIP switches inside the charging station. According to the limit set by the user, charging station adjusts its output charging current dynamically according to the measurement of main power line.



Last 3 DIP switch pins (4,5,6) shown in figure below corresponds to binary digits of the maximum current value as shown in the table (Table 2 is valid for France). When 4, 5, 6 pins are in OFF position, power optimizer functionality is disabled.

DIP Switch Positions			Current Limit Value
4	5	6	
OFF	OFF	OFF	Power Optimizer Disabled
OFF	OFF	ON	16
OFF	ON	OFF	20
OFF	ON	ON	25
ON	OFF	OFF	32
ON	OFF	ON	40
ON	ON	OFF	63
ON	ON	ON	80

Table-1

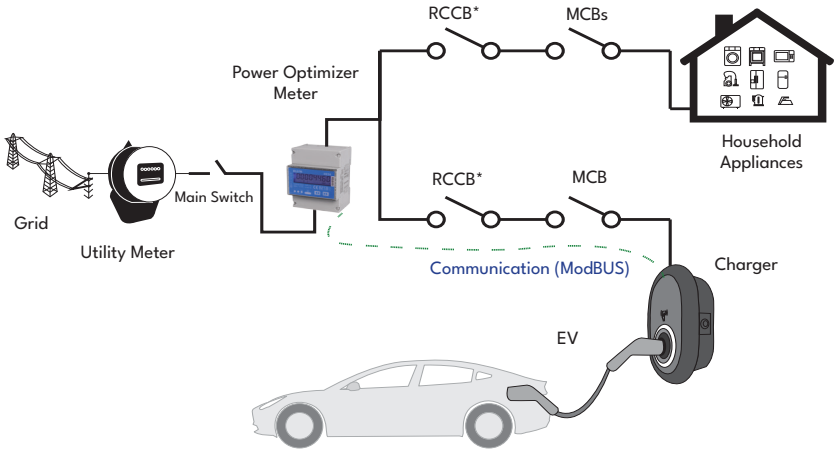
DIP Switch Positions			Current Limit Value
4	5	6	
OFF	OFF	OFF	Power Optimizer Disabled
OFF	OFF	ON	25
OFF	ON	OFF	30
OFF	ON	ON	40
ON	OFF	OFF	45
ON	OFF	ON	50
ON	ON	OFF	60
ON	ON	ON	90

Table-2 (Valid for France)

DIP Switch Positions			Current Limit Value
4	5	6	
OFF	OFF	OFF	Power Optimizer Disabled
OFF	OFF	ON	14
OFF	ON	OFF	21
OFF	ON	ON	28
ON	OFF	OFF	32
ON	OFF	ON	40
ON	ON	OFF	63
ON	ON	ON	80

Table-3 (Valid for Italy)

6.2.7.4.1 - POWER OPTIMIZER WITH EXTERNAL MID METER

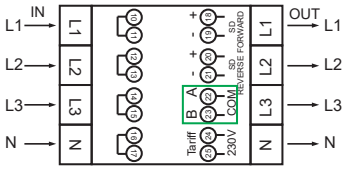


Visual representation is provided

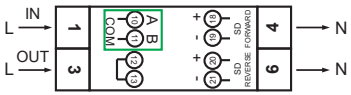
*This figures valid for variants which do not have integrated RCCB. If the charging station has integrated RCCB, there is no need to add additional RCCB in power line.

Power Optimizer Meter should be placed just after the main switch of the house as shown in the figure. Power Optimizer Meter wiring connections can be made according to the information below.

Three Phase

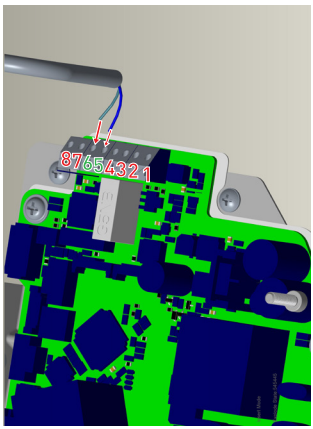


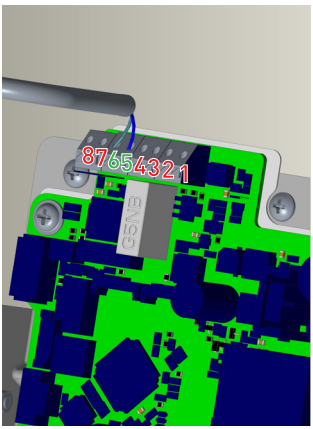
Single Phase



- 22-23: A-B (COM) Modbus connection over RS485 for three phase charging station models.
- 10-11: A-B (COM) Modbus connection over RS485 for single phase charging station models.

Related board wiring of Power Optimizer connections can be made as shown below:





Cable Terminal	Cable Color	Description
6 (CN20-2)	White Blue	A (COM)
5 (CN20-1)	Blue	B (COM)

6.2.7.4.2 - POWER OPTIMIZER WITH EXTERNAL CURRENT TRANSFORMER (CT) (Optional)

In external CT transformer usage; for Power Optimization (dynamic load management) to be used with household appliances and EV Charger together, 1 piece of External Current Transformer (FATS16L-100) is used for monophase EV Charging installation and 3 pieces of External Current Transformers are used for three-phase installation. In power optimizer mode, the total energy drawn from the main switch of the house by charging station and other household appliances is measured with the help of this current transformer installed to the main power line. The charging station regulates the charging power of the electric vehicle according to the load on main switch of the house.

To make the related installation, below steps should be followed:

- Slide Switch (SW3) on the power board (21ACPW01) shown in figure-1 should be in position 1 or 2.
- Cabling from external CT's and the "embedded power optimizer module" (21PO01) inside the EV Charger should be done as shown in figure-2.

  Note: If the installation is monophase, external current transformer should be connected to CT1 connector on the embedded power optimizer module.
- The Slide switch (SW2) on the "21PO01" should be adjusted as shown in Figure-2 and table-1 or table 2.

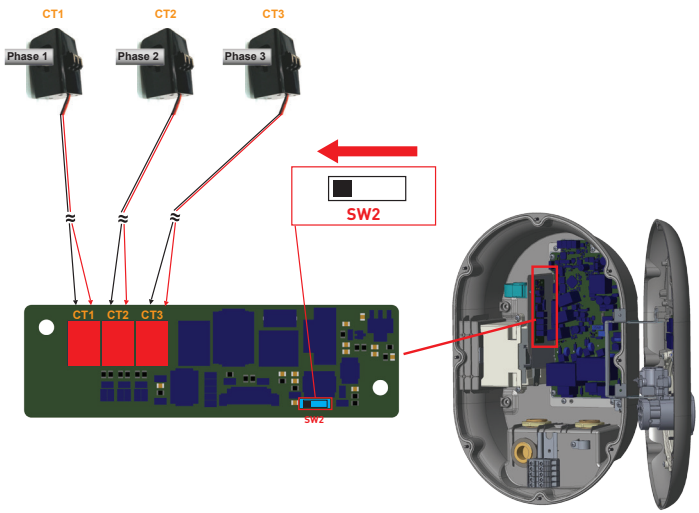
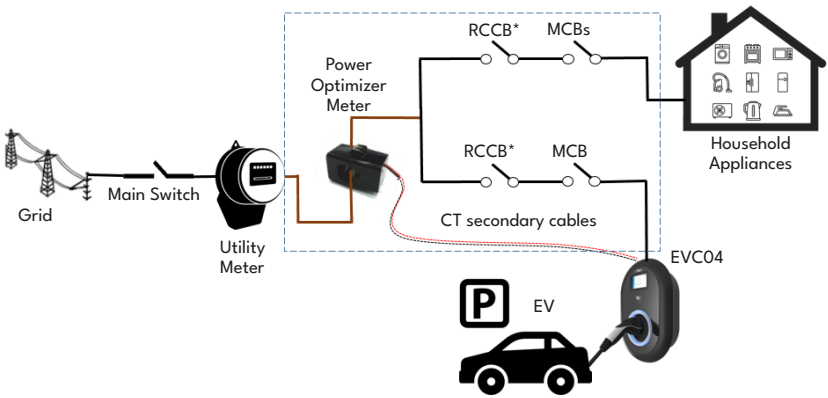


Figure.2

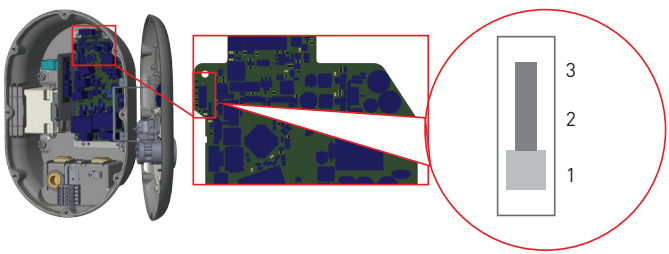
*This figure is valid for variants that do not have an integrated RCCB. If the charging station has an integrated RCCB, there is no need to add an additional RCCB in the power line.

The power optimizer with external CT should be placed as shown in the figure below.

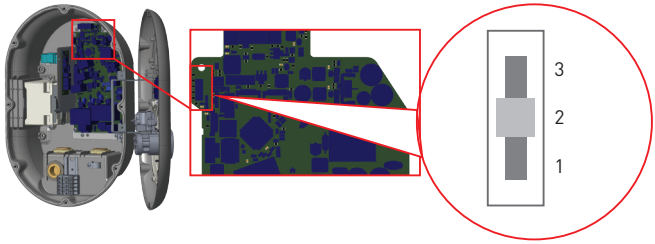


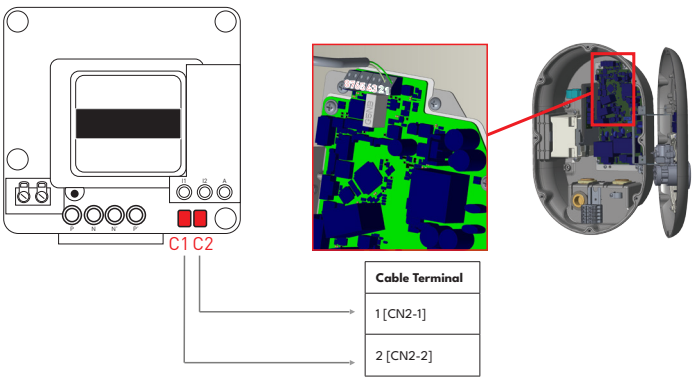
6.2.8 - MODE SELECTION SWITCH SETTINGS

This charging station has 3 operating modes. You need to make switch settings on the motherboard as shown in the figure below to make the configurations below:



- Operating Mode 1 (Standard Load): This mode is the factory default configuration. When this mode is selected, the charging station can charge continuously and at full power (no dynamic charge management). In this mode, “Conditional Input 1” can be used as the potential free on/off functionality.
- Operating Mode 2 (Delayed): For this mode, the slide switch shown in Figure below should be positioned as 2. When this mode is selected, the charging station supports signaling input “C1-C2 Peak/Off-Peak” and reacts accordingly for the Peak/Off-Peak load. The “Dry Contact Input 1” is used as the Linky meter’s C1-C2 dry contact signal, as shown in Figure below. To perform the corresponding installation, follow the steps below.
  1. The slide switch on the control panel shown in the figure below should be positioned at
  2. The wiring of the Linky meter and the control board inside the EV charger must be carried out as shown in the figure below.





• Operating mode 3 (dynamic load of TIC) (Optional)

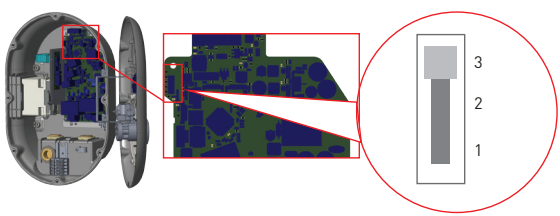
In this operating mode, the charging station is connected to the TIC (Customer Remote Information) output of the Linky meter. This allows dynamic charging of your vehicle by adapting the power delivered by the terminal according to the electricity consumption in your home.

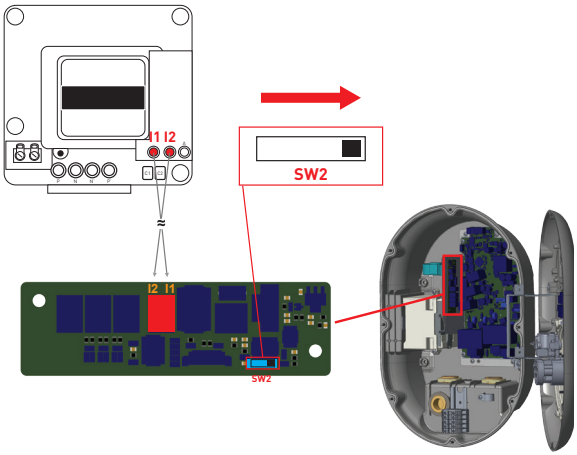
Depending on your subscription, the HP/HC information is transmitted via the TIC.

To select this mode, the slide switch SW3 must be positioned on 3.

You must also connect the I1 and I2 terminals of your Linky meter to the I1 and I2 terminals of the charging station's communication card.

Switch SW2 must be positioned as in the figure below.





The Summary Table of Operating Modes

Mode selector switch position	Operating mode	CN2 contact functionality (1-2)	Dynamic load management on the power optimization unit
1	Permanent	**Activate/deactivate charging point** Contact closed: Charge point activated Contact open: Charging point deactivated	Supported
2	Prices for peak hours / off-peak hours (postponed pricing)	**Input C1-C2** Closed contact: Off-peak hours Contact Open: Peak Hours	Supported
3	TIC (Dynamic Load)	**Activate/deactivate charging point** Contact closed: Charge point activated Contact open: Charging point deactivated	Non supported

Table of behavior of the load points according to the dry contact input1

		Dry contact input 1 Toggle switch activation	
		0	**1**
Position mode of operation	**1 - Standard**	**Normal demeanor**	Contact closed: Charge point activated Contact open: Charging point deactivated
	2 - Peak hours/ Off-peak hours	Closed contact: Off-peak hours Open Contact: Rush Hours	
	3 - TIC	**Attitude TIC**	Contact open: Charging point deactivated Closed Contact: TIC Attitude

6.2.9 - BUILT-IN TIC RECEIVER / POWER OPTIMIZATION MODULE (OPTIONAL)

For product variants with a TIC signal receiver (SR) / power optimizer (PO) module, the charging station is able to receive the TIC signal from Linky meters. It can also be used with optional clamp-type current transformers, sold separately as an accessory.

To use the charging station in TIC and PO mode, the DIP switch on the TIC SR /PO module must be set as shown in the table below.

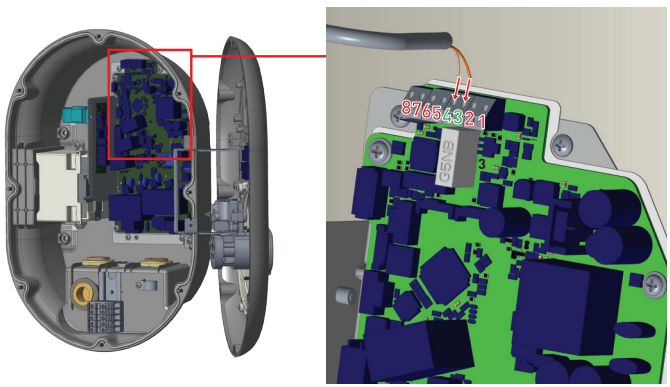
Mode	**Description**	**Figure**
TIC	Slide Switch Right Position	
Power optimization by external CT	Slide Switch Left Position	

6.2.10 - LOAD SHEDDING

This charging station supports load shedding functionality which provides immediate charging current reduction in case of limited supply. Load shedding functionality can be used in any mode including Standalone and OCPP conntected modes. Load shedding triggering signal is a dry contact signal which must be provided externally and connected to the terminals 3 and 4 on the power board as shown in figure below.

When load shedding is activated by closing the contacts with an external device (Eg. ripple control receivers etc.) charging current reduces down to 8A. When load shedding is deactivated by opening the contacts charging continues with maximum available current. In normal use case when there is no signal connected to the load shedding input (contacts open between terminal 3 and 4) charging station supplies maximum available current.

You can connect dry contact (potential free) load shedding signal as shown in below. See figure below,table below.



Cable Terminal	Input
3	Load Shedding Input +
4	Load shedding Input –

Load Shedding Input State	Behaviour
Opened Contact	Charge with max. available current
Closed Contact	Charge with 8A

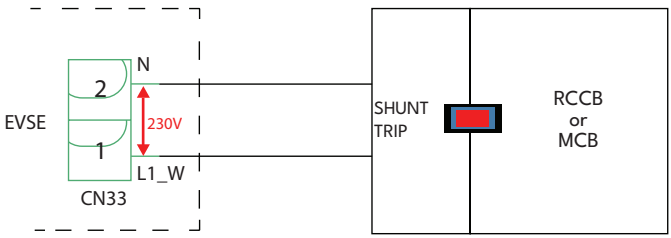
6.2.11 - MONITORING OF WELDED RELAY CONTACTS FAILURE

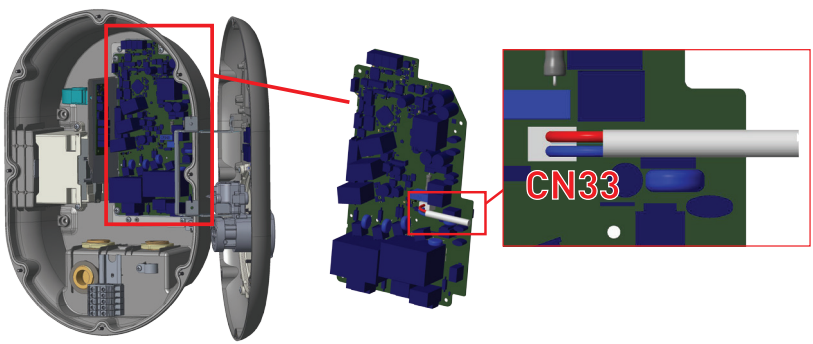
According to IEC 61851-1 and EV/ZE Ready requirements, EVC04 EV Charging Station has welded contactor sensing function and in case of welded contact occurs, shunt trip 230V signal is provided from the main board. To detect welded contact failure for the relays, CN33 connector output terminals must be used.

In case of a welded contact for the relays CN33 connector output will be 230V AC. The output which has 230V AC should be connected to a shunt trip for RCCB triggering as shown in figure. The cabling should be done as shown in figure.

Connector (CN33) terminals must be connected to a shunt trip module. Shunt Trip module is mechanically coupled to RCCB (or MCB) at the fuse box of the charging station.

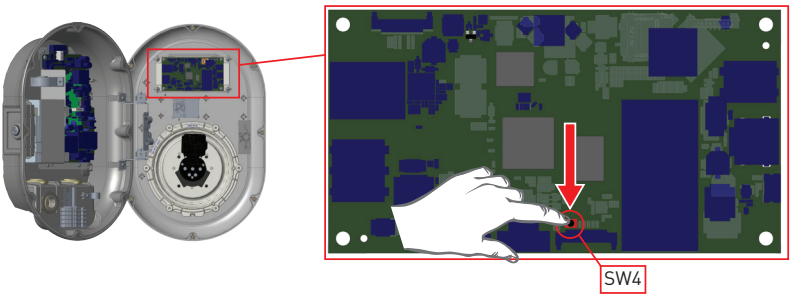
The circuitry block diagram that must be used at the fuse box of the charging station is shown below.





6.2.12 - FACTORY RESET

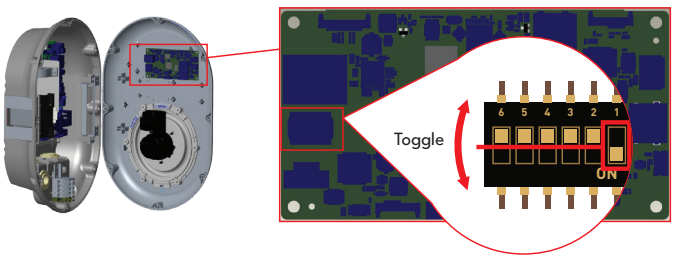
You must push the button on HMI board shown in figure below for factory reset. When you hold the button for 5 seconds user configuration will be reset to factory configuration. (e.g OCPP config, Network Config will be back to factory configuration.)



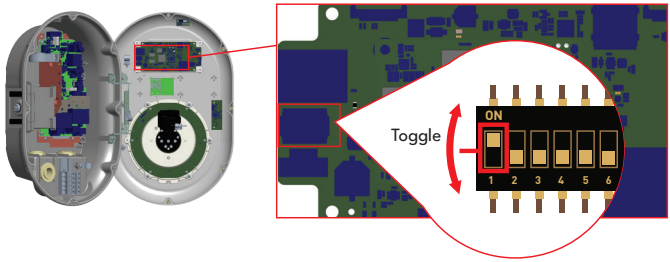
6.2.13 - RESETTING LOCAL RFID CARD LIST AND REGISTERING NEW MASTER RFID CARD IN STANDALONE USAGE MODE

If you loose your master RFID card and need to define a new master RFID card, below steps should be followed by your authorised service technician.

- Make sure the charging station is powered-off and open the front cover of your charger which is mentioned in installation guideline.
- Toggle the first position of DIP switch which is on the smart board of the charger shown in figure below. After that please turn on the charger again.



NON-HS EVC04



HS EVC04

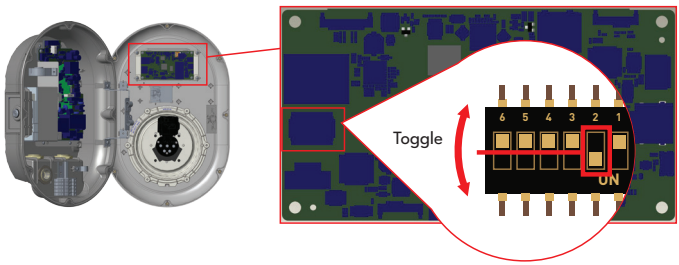
When the charger is powered on again please note that;

- Previously stored master card and user card list, if any exists, are deleted from charging station while entering the configuration mode. In configuration mode, the charger indication LED blinks red.
- If master card had not been registered during 60 seconds then configuration mode expires and charging station behaves as autostart product.
- The first RFID card which is registered within this 60 seconds of duration will be the new master RFID card. Please follow instructions to register RFID user card which is used during charging process.

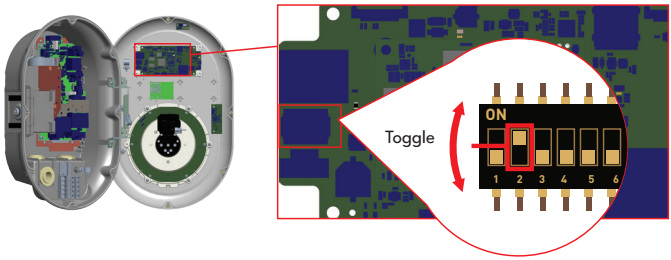
6.2.14 - SETTING ETHERNET PORT OF CHARGER TO STATIC IP IN STANDALONE USAGE MODE

The charging station is preconfigured to DHCP mode in factory. If you need to connect to the charging station's web configuration interface directly using a computer, rather than using a router having DHCP server, steps below should be followed:

- Make sure the charging station is powered-off and open the front cover of your charger which is mentioned in installation guideline.
- Toggle the second position of DIP switch which is on the smart board of the charger shown in figure below. After that please turn on the charger again.
- Charging station sets the Ethernet port to 192.168.0.10 adress statically and subnet mask will be set to 255.255.255.0



NON-HS EVC04



HS EVC04

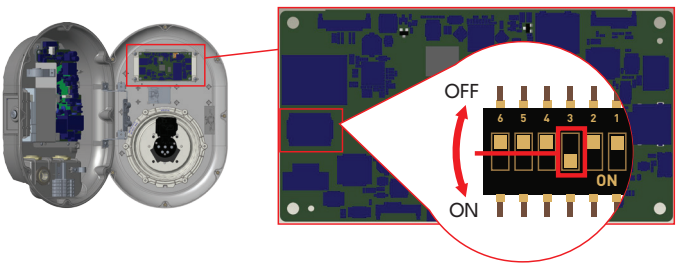
If the charger's LAN interface is needed to be set back to DHCP mode again this can be done from the web configuration interface.

Note: You can also use factory reset function to set the LAN interface back to DHCP mode again but please well note that all other parameters will be set to factory default parameters.

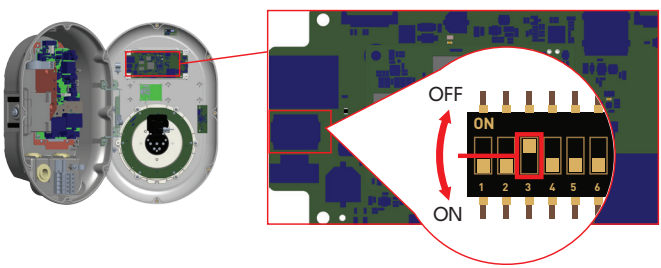
6.2.15 - WEB CONFIGURATION INTERFACE ENABLE / DISABLE

If you need to enable/disable the Web Configuration interface below steps should be followed:

- Make sure the charging station is powered-off and open the front cover of your charger which is mentioned in installation guideline.
- If you want to enable the web configuration interface, third position of DIP switch should be in “OFF“ position as shown in figure below.
- If you want to disable the web configuration interface, third position of DIP switch should be in “ON“ position as shown in figure below.



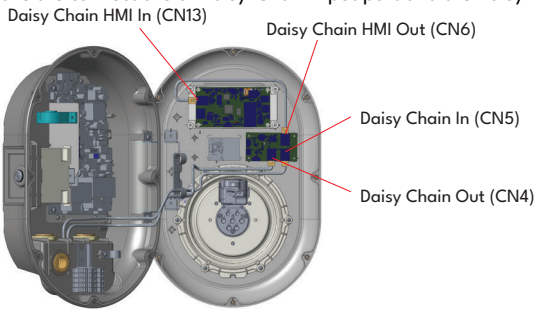
NON-HS EVC04



HS EVC04

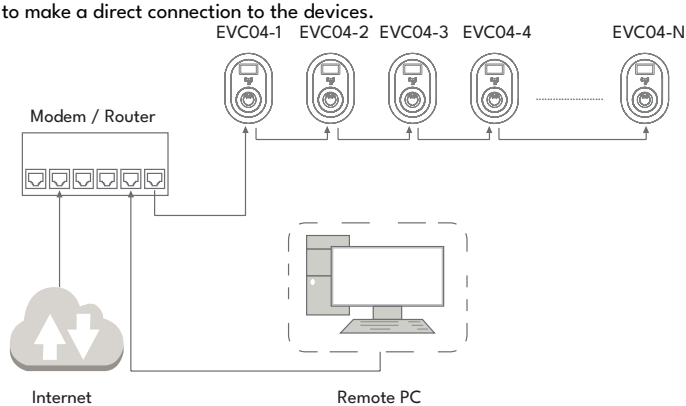
6.2.16 - ETHERNET DAISY-CHAIN CONNECTION (OPTIONAL)

Daisy-Chain is a wiring method of the devices in a network. It gives an opportunity to add/remove devices to/from network very easily. In order to make Daisy-Chain connection, an Ethernet hub board is used in EV Charger system. Basically it distributes all the Ethernet connection among the devices. Ethernet line cable coming from a device, a router or a hub needs to be connected to other device Daisy-Chain input port (CN5) as shown in Figure. Here, HMI Ethernet connection is made over CN6 port (Daisy-Chain HMI Out), and Daisy-Chain out connection is made over CN4. Internal Ethernet connection (Between HMI and Ethernet Hub Board) has been made during the production stage. So all is needed to make the connections of Daisy-Chain Input port and the Daisy-Chain Output port.



EV Charger Internal Ethernet Daisy Chain Cable Connections

Daisy chain connection can be used to share internet access between the devices. For internet access sharing, a Daisy-Chain connection can be done as shown in Figure. Here, Ethernet router/switch/hub is used to route the traffic in the medium and any device can communicate with the back-end server directly. Remote PC can be used to reach out “Web Config UI” of each device in the network without any need to make a direct connection to the devices.



Daisy-Chain Connection based on Linear Topology

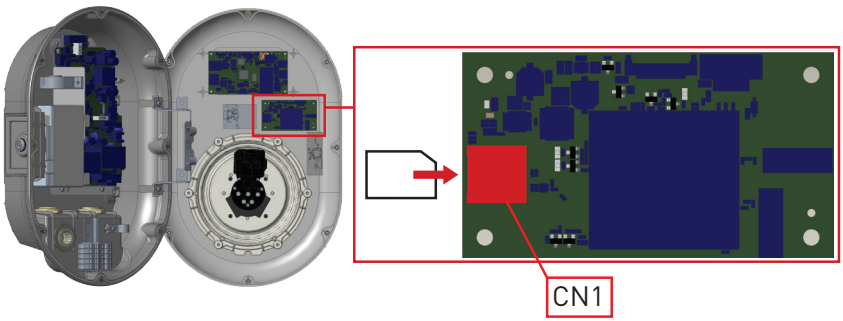
In linear topology, since devices are connected to each other in series, if one of them is switched off or has a power outage, the remained devices which are getting main network connection from this device will loss the connection with other devices. Thus, there will be two subnetworks if one of the devices has a connection problem.

6.3 - OCPP CONNECTION

Make sure the charging station is powered-off.

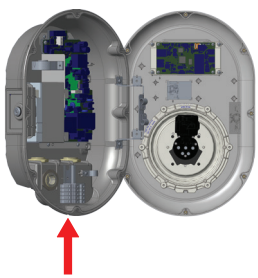
6.3.1 - CONNECT OCPP OVER CELLULAR NETWORK (Optional)

Insert the micro SIM card in the SIM card slot on cellular module as shown in the below figure.

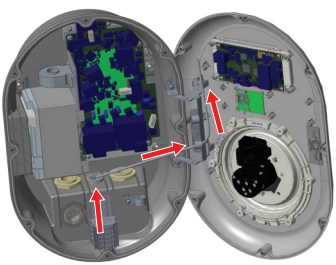


6.3.2 - CONNECT OCPP OVER ETHERNET

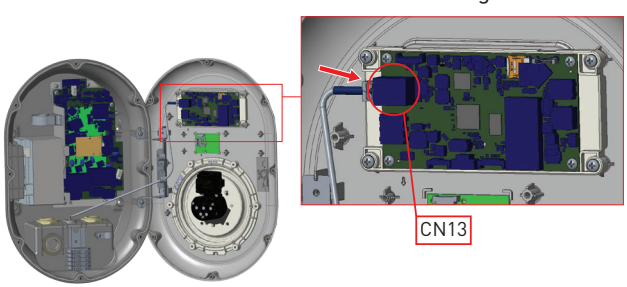
1- Insert cable through the cable gland.



2- Pull the cable through the cable clamps as indicated by arrows in below figure.



3- Insert the RJ45 connector to the socket as shown in figure below.



6.4 - COMMISSIONING

If you want to connect the charging station's web configuration interface, you have two options;

a. You can directly connect your PC to the charging station using a patch Ethernet cable. If you follow this option, please make sure that you have properly configured your charging station's LAN interface to static IP by following steps in section "SETTING ETHERNET PORT OF CHARGER TO STATIC IP IN STANDALONE USAGE MODE" and your charging station's web configuration interface is enabled via DIP switch which is mentioned in section "WEB CONFIGURATION INTERFACE ENABLE / DISABLE". By default, web configuration interface is enabled.

b. You can use a router having DHCP server. In this option, both the charging station and the PC should be connected to the router. Please be sure that you need to check the IP adress from the router to be able to make the connection.

6.4.1 - CONNECT PC TO THE SAME NETWORK WITH SMART BOARD

In order to access web configuration interface, first you need to connect your PC and EV charger to the same ethernet switch or connect EV charger to your PC directly.

Default IP address of HMI board is 192.168.0.10. For this reason, you need to give static IP to your PC in the same network with HMI board.

You should assign static IP address to your PC in 192.168.0.0 network which means that IP address should be in a range of between 192.168.0.1 and 192.168.0.254.

6.4.2 - OPENING WEB CONFIGURATION INTERFACE VIA WI-FI HOTSPOT

For this unit, when accessing to Wi-Fi Hotspot settings in the WEB User Interface, under Network Settings tab, Wi-Fi Hotspot can be enabled or disabled. Also, optionally timeout activated can be changed as 5-30 minutes or continuous.
During the Wi-Fi Hotspot timeout duration, it is possible to connect a smart device (mobile phone, tablet or laptop) to the charging station.
Each product has a Wi-Fi Hotspot SSID and Wi-Fi Hotspot password set as factory configuration. Wi-Fi Hotspot SSID and Wi-Fi Hotspot password informations are located on the label pasted to the Quick Start Guide or Installation Guideline. You can log in to the Web configuration interface via Wi-Fi Hotspot by entering the network information written on the label.
After connecting to the "Wi-Fi Hotspot" network, the user can open the WEB browser from the computer or mobile device and type the IP address of the charging station, Wi-Fi Hotspot at IP-Address is written on the label.

For Android mobile devices, it is necessary to configure the browser to download and display the desktop site from the menu in the upper right corner of the Chrome browser. For iOS mobile devices, it is necessary to configure the browser to download and show the desktop site from the menu in the top right corner and also set the text size to 50%in the AA setting in the top left corner of the Safari browser.

Note: Maximum 3 users can connect to WEB Configuration Interface via Wi-Fi hotspot. It supports 2.4Ghz.

6.4.3 - OPENING WEB CONFIGURATION INTERFACE WITH BROWSER

Open your web browser and type 192.168.0.10 which is IP address of HMI board.

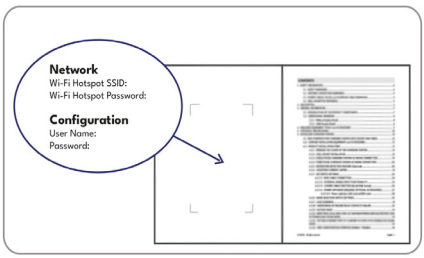
You will see login page on your browser;

Each product has a user name and password set as factory configuration.

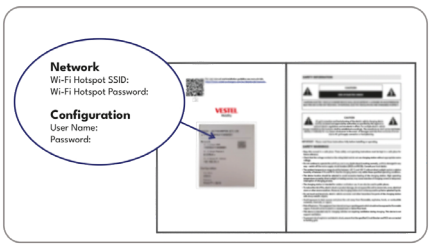
In this section you can log in to the Web configuration interface by entering the configuration information printed on the label. User Name and Password informations are located on the label pasted to the Quick Start Guide or first page of Installation Guideline as shown below.

Only for the first login you will be forced to change your password.

You can change password with Change Password Button in WEB UI login page or Administration Password section in the System Maintenance tab.



Visual representation is provided



Visual representation is provided

Attention: For web configuration interface accessibility problems; Web browsers usually save some information from websites in its cache and cookies. Forcing Refresh or Clearing (depending on your operating system and browser) them fixes certain problems, like loading or formatting issues on web page.

In case of security warning via web browser due to expired SSL certificate, please proceed to webpage connection.

After logging in for the first time using the default credentials, you will be prompted to review and confirm the Privacy Policy.

You must check the box “I read, I understand” and click “Confirm” to continue to the interface.

6.5 - WEB CONFIGURATION INTERFACE

MAIN PAGE	The Main page provides an overview of the key system information and connection status of the EVC device. Below are the descriptions of each displayed parameter: **User Name:** Username of the logged-in user. **CP Serial Number:** Unique serial number of the device. It is used for device authentication and remote management. **HMI Software Version:** The software version of smart board (HMI) that runs the device's touchscreen interface. **OCPP Software Version:** The version of the Open Charge Point Protocol (OCPP) software, which enables communication with the charging network management system. **Power Board Software Version:** The version of the software that controls power management and charging operations of device. **Duration after Power On:** The total time (in hours, minutes, and seconds) that has passed since the device was last powered on. Useful for uptime tracking and performance monitoring. **Connection Interface:** The current communication method used by device. It can be Ethernet, WLAN (Wi-Fi), or Cellular. **Ethernet Interface IP:** The IP address assigned to device when connected via a wired Ethernet connection. **WLAN Interface IP:** The IP address assigned when device is connected via Wi-Fi. (If not connected, this field will be empty.) **Cellular Interface IP:** The IP address assigned when device is connected via a mobile network. (If not connected, this field will be empty.) **OCPP Device ID:** Unique identification number used by device when communicating with OCPP server. **Connector State:** Indicates current status of device's charging connector. This information helps users better understand the details displayed on the main page of the web configuration interface. You can also change the web configuration interface language and log out of the web configuration interface with the buttons in the upper right corner of the page. The following languages are available: Turkish, English, German, French, Romanian, Spanish, Italian, Finnish, Norwegian, Swedish, Hebrew, Danish, Czech, Polish, Hungarian, Slovak, Dutch, Greek, Bulgarian, Montenegrin, Bosnian, Serbian, Croatian.

6.5.1 - GENERAL SETTINGS

Display Language	Available languages will be listed, if display is available. The EV charger display language can be adjusted as desired.
Display Backlight Settings	To optimize visibility of display according to daylight conditions, Sunrise Time and Sunset Time can be selected when Backlight Level is time based.
Display Service Contact Info	Customer care number to be shown on "Out of Order" screen. When the device gets an error, the Display Service Contact Info entered in this field will be displayed on the screen to assist with resolving the problem. If you want to show display service contact information on another screens like "Connect Charging Cable", "Preparing for Charging", "Initializing", "Waiting for Connection" screens you can enable the config from Show Extra Service Contact Info setting. (If charging station has a display.)
Display QR Code	QR code can shown on screen or disabled. QR Code Delimiter, between CPID and ConnectorID of the text inside QR code.
LED Dimming Settings	To optimize visibility of status indicator LED according to daylight conditions, Sunrise Time and Sunset Time can be selected when Led Dimming Level is time based.
Standby LED Behaviour	Standby status indicator LED behaviour can be set as On or Off.
Display Theme	EV charger's display theme color can be set from this tab.
Logo Settings	Logo on the top-right corner of the display. You can change the Display logo with the upload button, You can only upload in png format and the size of the logo you choose must be 80x80. You can also remove the logo with the remove button.

Scheduled Charging	If the device is in Standalone Mode, you can only set Randomised Delay Maximum Duration and Continue Charging After Power Loss settings. Randomised Delay Maximum Duration is the setting that allows device to apply a random delay time before charging starts and can take values between 0 and 1800. The device waits for a random time before starting the charging process. For example, if Randomized Delay Maximum Duration = 60 seconds, the device will apply a random delay between 0 and 60 seconds. **Off- peak Chargig:** If the device is in OCPP Mode, for this mode you should enabled OCPP Connection in OCPP Settings. In OCPP Mode you can make all Off-Peak Charging settings. Off-Peak Charging is a feature that allows an electric vehicle to be charged during off-peak hours, when the grid is less busy. **Off- peak Charging at the Weekends:** Time period of charging at weekends when the electricity demand is low (off-peak hours). **Off- peak Charging Second Time Period:** Refers to charging in the second of the low electricity demand time periods. Some electricity tariffs offer more than one low-price time slot during the day. For example: First Off-peak time: 00:00 - 06:00 at night 2nd Off-peak time: 13:00 - 16:00 in the afternoon This expression means that charging is done during the second off-peak hour. So you are charging during the second off-peak time slot instead of the first off-peak time slot. **Off- peak Charging Periods:** User can determine set off-peak hours. Randomised Delay At Off Peak End: When the low tariff hours end, charging is delayed for a random period of time. Off-Peak End → End of low tariff (off-peak) hours Randomized Delay → Random delay **Timezone:** Refers to the local time zone in a particular region. **Continue Charging End Peak Interval:** Continue charging at the end of the peak interval. **Continue Charging Without Reauth After Power Loss:** Charging process will continue without requiring reauthorization after a power loss.

6.5.2 - INSTALLATION SETTINGS

Earthing system	In web configuration interface, earthing type is “TN/TT” by default. If Earthing Type is selected as IT, the protective earth error check is disabled.
Current Limiter Settings	Current Limiter Phase information can be adjusted in this menu. Also Current Limiter Value can be written manually between 6-32A. If a value below 6A is written, a warning will be shown to write minimum 6A. **Note:** The current limiter of the charging station can be set in hardware via the rotary switch or manually in the web configuration interface. There is no hardware or software configuration interface priority. The charging station uses the current value last set by the installer from either interface.
Unbalanced Load Detection	You can enable or disable the Unbalanced Load Detection. If enable option is selected, Unbalanced Load Detection Max Current can be selected. Unbalanced Load Detection Minimum value is 6, max value is Current Limiter Value. Current Limiter Value can be set on Current Limiter Settings.
External Enabled Input	You can enable or disable the External Enable Input.
Lockable Cable	You can enable or disable the Lockable Cable.
Charging Mode Selection and Power Optimizer Configuration	In this part, you can select Follow The Sun, Follow The Sun Mode, Auto Phase Switching, Operation Mode, Power Optimizer Total Current Limit and Power Optimizer External Meter. **For a detailed explanation of Follow The Sun, please refer to section 6.5.2.1.** Operation Mode can be Normal, Peak / Off-Peak, TIC without Peak / Off Peak. TIC Power Optimizer Total Current Limit can be Disabled or can take values between 10 and 100. When TIC selected in Operation Mode , Power Optimizer Total Current Limit and Power Optimizer External Meter can not be selected. When Power Optimizer Total Current Limit is Disabled, Power Optimizer External Meter can not be selected. Power Optimizer External Meter. can be selected Auto Selected, Klefr 6924 / 6934, Garo GNM3T / GNM3D, Embedded Power Optimizer with CT, P1 Slimmemeter. If Power Optimizer External Meter is Auto Selected, Power Optimizer value reads from main board.
Load Shedding Minimum Current	Load Sheddding Status is reading from main board, you can select Load Shedding Minimum Current from Web configuration. This parameter can take values between 0 and Current Limiter Value. Current Limiter Value can be set on Current Limiter Settings.

G100 Settings	G100 settings allows you to enable or disable **G100 Mode** and select the Installation Type as either Domestic or Commercial. When the **Installation Type** is set to Domestic, the **G100 OP State** automatically changes to State - 3 which means the device has entered safety mode beacuse the grid voltage or frequency has exceeded its limits. In this case, you can restart the device by pressing the **G100 STATE-3 RESET** button. However, this action can only be performed a limited number of times. If the G100 State-3 reset limit is reached to maximum, the admin can press the **G100 LOCKOUT RESET** button and confirm the action to exit the Excursion condition. In this part, to change the Installation Type to Domestic, ensure the following: 1. If using Local Load Management, the Maximum Grid Current must be 100 or less. 2. If using Power Optimizer, the Total Current Limit of the Power Optimizer must be 100 or less.

6.5.2.1 - FOLLOW THE SUN

6.5.2.1.1 - Inverter Type and Mode Configurations with Different Measurement Methods

6.5.2.1.1.1 - Export Mode with the usage of CTs

Export Mode with the usage of CTs at the inverter output and input of the electrical consumer devices of the house. Inverter may only be single phase for CT usage and also supports energy export to grid.

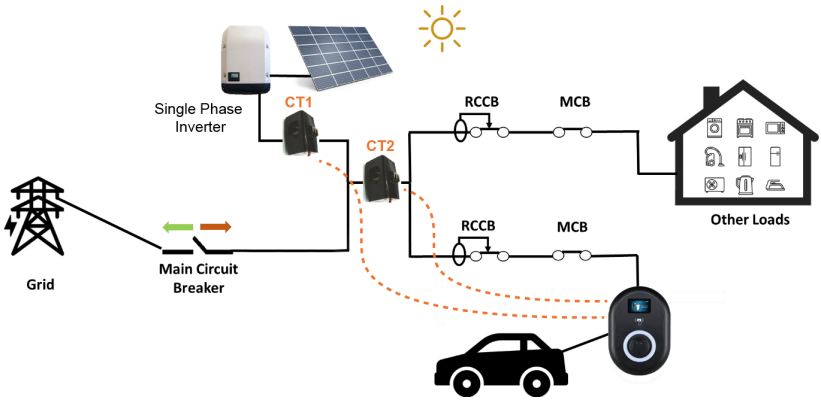


Figure 1

Connection of CT1 and CT2 in Figure-1 to the power optimizer board (21PO01-r5) in the EVC device is shown in Figure-2.

Power Optimizer with external current transformer (CT) should be placed to the main lines as shown in Figure-2:

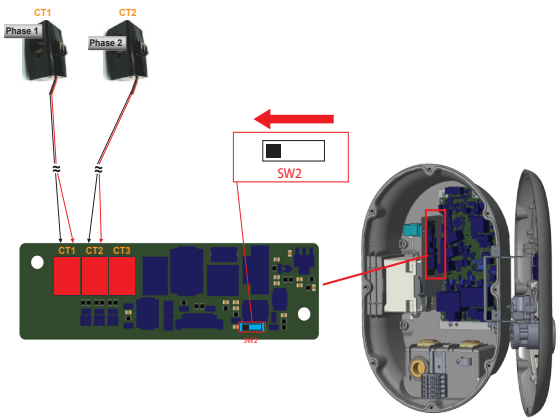


Figure 2

• The slide switch (SW2) on " The Embedded Power Optimization Module" should be set as shown in Figure-2. (Left side.)

NOTE: CAT5 cable length to use should be below 100 meters.

6.5.2.1.1.2 - Export Mode with the Usage of Utility Meter

Export Mode with the usage of Energy Meter at the Grid output.

Energy meter may be single phase or three phase for supports energy export to grid.

The energy meter KLEFR 6934 is used for a 3-phase installation or the model KLEFR 6924 for a 1-phase installation.

The total energy drawn from the main switch of the house by charging station and other household appliances is measured with this device integrated to the main power line. The charging station regulates the charging power of the electric vehicle according to the load on main switch of the house.

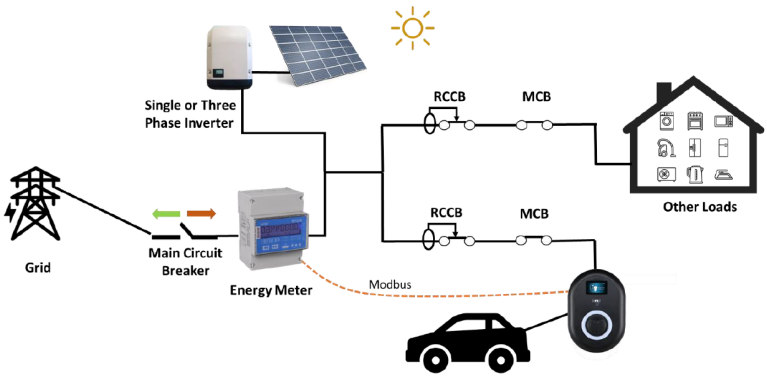


Figure 3

Energy Meter is connected to the CN20 port of the power board(ACPW) inside the device as shown in Figure-5.

The figures are just generic examples of power optimizer meter installation to a distribution box of the house, not to be exactly the same for the actual house installation.

Energy Meter wiring connections can be made according to the information below.

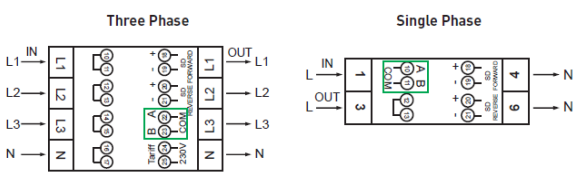


Figure 4

22-23: A-B (COM) Modbus connection over RS485 for three phase charging station models. (See the following section “DATA CABLE CONNECTION TO EVC04 CHARGING STATION“)

10-11: A-B (COM) Modbus connection over RS485 for single phase charging station models. (See the following section “DATA CABLE CONNECTION TO EVC04 CHARGING STATION“)

Related board wiring connections can be made as shown below:

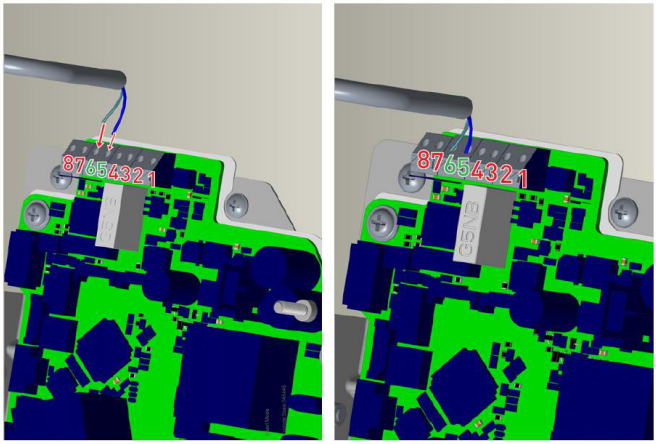


Figure 5

Cable Terminal	Cable Color	Description
6 (CN20-2)	White Blue	A (COM)
5 (CN20-1)	Blue	B (COM)

6.5.2.1.2 - Modes of Operation

Follow The Sun mode functionality can be enabled and disabled. If Follow The Sun mode is enabled; there are 3 options for the Follow The Sun;

6.5.2.1.2.1 - Sun Only

This mode is used for pure solar charging of the electric vehicle for least carbon footprint. When the user activates this mode, charging is only with energy from solar power generation. Vehicle can be charged with whatever solar generation is currently available, without using grid support at all. Charging is possible only with solar surplus. If solar generation is low, charging will not be possible.

6.5.2.1.2.2 - Sun Hybrid

This mode is used for solar charging with limited support from the grid when there is no solar generation. If solar generation is high enough, grid support won't be used. If solar generation is low, charging station will use grid support to be able to start charging. Eg. Solar generation is 3A and minimum charging current of the charging station is 6A, 5A will be used from the grid (minimum charging current is calculated as 8A because 6A + 2 A hysteresis). (CP min charging current is 6A for IEC 61851, 8A for ZE Ready 1 phase charging, 13A for ZE Ready 3 phase charging.)

Sun Only and Sun Hybrid modes can be overridden (forced charge) from Drive Green App and charging station will switch to max available charging current mode for that single charging session and will fallback to Sun Only mode after active charging session is finished.

6.5.2.1.2.3 - Max Hybrid

When the user activates this mode, the charging process should be a normal charging process that can charge at maximum power regardless of solar generation or grid support option.

6.5.2.1.3 - Auto Phase Switching

When the user activates the Follow the Sun, the charging station can automatically switch 1 phase/3 phase according to the amount of solar production and consumption.

6.5.3 - OCPP SETTINGS	
OCPP Connection	If you select mode as “Enabled”; you should type all fields in the connection settings and configuration parameters sections are enable. For now, the only available OCPP version is OCPP 1.6, so it will be selected as default. The Central System Address and Charge Point Id are mandatory fields for saving this page. You can set OCPP configuration parameters to their default values by clicking “Set to Defaults” button. **OCPP Ciphers Support:** A cipher suite is a set of algorithms that help secure a network connection. If “Ocpp Security Profile” is selected as 2 or 3, OCPP specification enforces one of two cipher suites to be used. If your backend uses a different cipher suite you can change this setting as “All Ciphers” but it will be incompatible to OCPP standard. You can select the OCPP settings type you want from the menu which is at the left side of the page. For example OCPP Connection, OCPP Version, OCPP Ciphers Support, Connection Settings and OCPP Configuration Parameters. Then, click “Save” button. **Note:** Be careful for your entered values because the system does not accept the unsuitable values and gives warning. In this case, values will not be saved. Then you will not be redirected to the main page so you should check your values. **PLUG & CHARGE (Optional):** ISO15118-2 PLUG&CHARGE function can be enabled/disabled under the “OCPP Settings” page by “ISO15118PnCEnabled” item. To be able to charge with PLUG&CHARGE function, EV shall also support the PLUG&CHARGE function.

6.5.4 - NETWORK INTERFACES SETTINGS

There are four types of network interfaces in this page; Cellular, Ethernet, Wi-Fi and Wi-Fi Hotspot.

Select interfaces' modes as "Enabled" if you want to activate it.

You should fill all spaces in suitable formats.

CELLULAR	If "Static" is selected; "IMEI", "IMSI" and "ICCID" fields are mandatory. When cellular getaway is enabled, the LAN interface IP setting mode will be set to static and DHCP Server will be enabled.
LAN	If you select Ethernet or Wi-Fi IP Settings as "Static"; "IP Address", "Network Mask", Default Gateway"and "Primary DNS" spaces are mandatory.
WLAN	If you set Wi-Fi as enabled, "SSID", "Password" and "Security" are mandatory. A list of available wireless networks is displayed in the WLAN section.
WIFI HOTSPOT	Details are described in section "OPENING WEB CONFIGURATION INTERFACE VIA WIFI HOTSPOT".
FIREWALL	Input and output policies determine how the network is operated. Default policies in this area should be adjusted as needed by authorized people. Access to the device may be completely blocked after incorrect settings. This is not a software issue but a configuration error. These policies should be adjusted according to the whitelist or blacklist logic and the necessary rule configuration should be made for the desired situations. **Status** This setting controls the firewall status: "Enable" activates it, while "Disable" deactivates it. The "Disable" option turns off the firewall, preserving the status of all settings. **Incoming Trafic** This policy determines the default behavior for incoming traffic. The "Allow" option accepts all incoming traffic, while the "Deny" option rejects all incoming traffic. **Outgoing Trafic** This policy determines the default behavior for incoming traffic. The "Allow" option accepts all incoming traffic, while the "Deny" option rejects all incoming traffic. **Adding Custom Rules:** Users can add custom firewall rules and select and delete them. To delete a rule, check the box in the "Select" column and click the "Delete" button. Rules are prioritized from top to bottom. The "Add" button will open a pop-up and the rules will be added to the list by making the necessary settings and pressing "Add".

	Policy: This setting determines whether to accept or reject a certain type of traffic. The “Allow” option allows the traffic, while the “Deny” option blocks the traffic. **Direction:** This setting determines which direction of traffic the rule applies to. The “Input” option targets incoming traffic, while the “Output” option targets outgoing traffic. **Interface:** This setting determines which network interface the rule is applied to. Options include “LAN”, “wlan”, “Cellular”, and “lo”. **Protocol:** This setting determines which communication protocol the rule is applied to. Options include “tcp”, “udp”, and “None”. **Port:** This setting determines which port number the rule is applied to. Users can add as many rules as they want and can edit or delete them as needed. This enhances the flexibility and convenience of your firewall application.
WEBCONFIG ACCESS PROTOCOL	HTPP does not provide encrypted communication.Sensetive data such as passwords may be exposed to attackers. HTTPS is recommended for secure communication.

6.5.5 - STANDALONE MODE SETTINGS

If you have set OCPP as enabled in OCPP settings before, standalone mode cannot be selected. Otherwise, you can select standalone mode. There are three modes in the list;

Select “RFID Local List” mode to authenticate a RFID local list which will be entered by you. You can make an addition or deletion from the RFID local list later.

Select “Accept All RFID’s” mode to authenticate all RFID’s.

Select “Autostart” mode to allow charging without the need for authorization. It will be enough to plug to start charging.

If you are done with mode selection, click “Save” button and reboot the device.

For an in-depth overview of the LOCAL LOAD MANAGEMENT configuration settings, please refer to Section 6.5.7.

6.5.6 - MAKING SYSTEM MAINTENANCE OF THE DEVICE

Log Files	**In the Log Files page**, you can download device event logs for a selected date range (maximum 5 days) using the Start Date and End Date fields. Device logs are automatically deleted every 30 days. You can also click CLEAR to permanently delete all event logs stored on the device. **Download Change Logs:** Within the scope of Personal Data Protection, all changes made to the device settings are kept. Saved logs of which users and which actions were taken can be downloaded with the "Download Change Logs" button.
Firmware Updates	You can upload the firmware update file from your PC, after the file is uploaded, click on "Update" button to start the firmware update. When update is started, your charger's LED indication will be seen as constant red. With Display Models, the firmware update process is shown on the screen as follows: **1-**The firmware is sent, and the device begins uploading it. **2-** While updating, the following warning will appear on the screen: "Updating Firmware! Please do not start charging while updating." **3-** After 5 seconds, the display will automatically return to the home screen and the indicator "Connect charging cable" will appear on the screen. After the firmware update is finished, your charger will restart automatically. You can see the latest firmware version of your charger from webconfig UI in main page.
Configuration and Backup	You can backup of the sytem. If you want to restore you can click the Restore Config File button and upload the backup file. The system only accepts the .bak files.
System Reset	You can proceed to this section to make Hard Reset and Soft Reset.
Administration Password	A password is required for administrative access.
Factory Default Configuration	You can reset your device to its factory settings.
Local Charge Sessions	From this page, you can download and view the full session log and charging summary, including the duration of charging and the RFID card used, in Excel format.

6.5.7 - LOCAL LOAD MANAGEMENT OF THE DEVICE

The Local Load Management tab includes two parts: **General Settings** and **Load Management Group.**

GENERAL SETTINGS

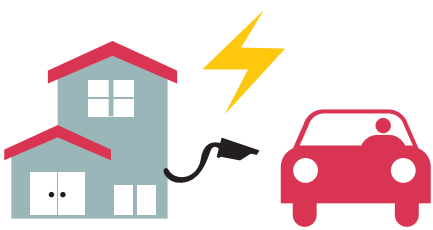
If the device with dynamic local load management; local management option can be disabled, Modbus TCP or Master/Slave.

6.5.7.1 - Modbus TCP/IP Protocol Parameters

EVC04 charging station acts as a slave device in the Modbus TCP/IP communication. Charging station should be in the same network with the master device or a proper routing should be applied to provide communication between slave and the master devices in different sub networks. Each charging station should have different IP address. Modbus TCP communication port number is 502 and Modbus Unit ID is 255 for EVC04 charging stations. There can be only one active Modbus master connection at any time. When a new Modbus connection is established, the master is expected to set the Failsafe Current, Failsafe Timeout and Charging Current registers immediately. The master also periodically sets the Alive register to indicate that the connection is still alive. If the master does not update the value of the alive register until the failsafe timeout, the device switches to the failsafe state; TCP socket is terminated and failsafe current becomes active. As the update period of the Alive register, half of the failsafe timeout is recommended.

6.5.7.2 - Static Management

For static management, a power limit can be set to the load management group and the charger won't go above the power limit.



6.5.7.3 - Dynamic Management

With the help of dedicated power optimizer option, EV Charging station can manage the power limit based on the available power. When the household appliances consumes more, the charger consumes less and doesn't overload the main switch.

There are 2 different types of network topologies available for connecting multiple EVC04 charging stations in master/slave clusters. According to the customer needs, one of these alternatives can be chosen.

6.5.7.4 - Star Topology

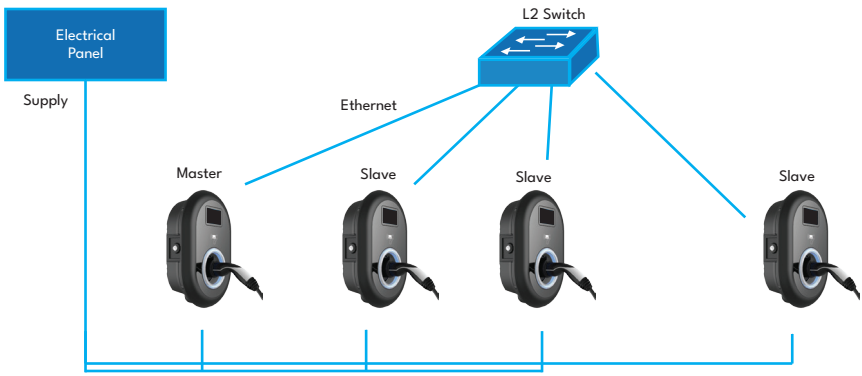
In star network topology, all chargers are connected to the master station via a network switch or router. This topology needs cabling between each charging station and the central switch. This topology is more reliable than daisy chain topology since each charging station has its own connectivity to the network switch. For connection of each station to the central switch, Cat5e or Cat6 Ethernet cables can be used up to 100 meters each.

For the IP configuration of the network, either the router may have DHCP server or the master charging station can be configure as DHCP server. If you use a router with a DHCP server, you need to configureall charging stations including the master station LAN IP address setting as “Dynamic” from “Network Interfaces” menu. In this scenario, all the charging stations get their IP addresses from central DHCP server.

If you use a router or a L2-switch without DHCP server, you need to configuremaster charging station LAN IP settings to DHCP server and slave charging station LAN IP setting to “Dynamic” from “Network Interfaces” menu. In this scenario, slave charging stations get their IP addresses from master charging station.

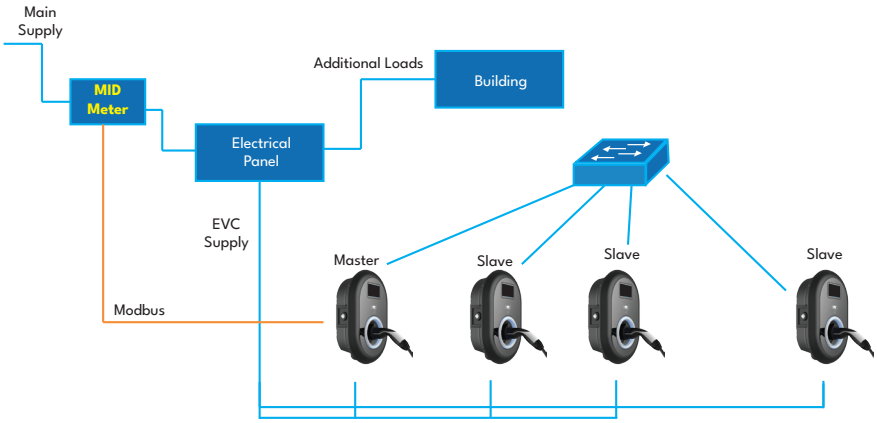
Block diagrams for static and dynamic supply in star network topology are provided as below.

6.5.7.4.1 - Static Supply Star Topology:



Local Load Management configuration of static supply.

6.5.7.4.2 - Dynamic Supply Star Topology:



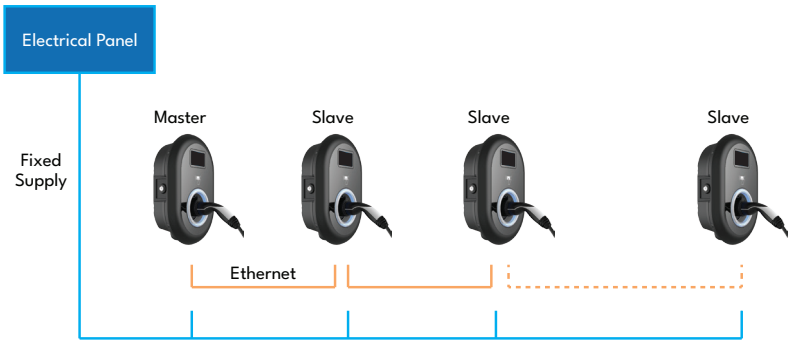
6.5.7.5 - Daisy Chain (Serial)

Daisy chain topology needs cabling between each charging station as in and out connection. To be able to use daisy chain topology, the charging station needs optional daisy chain two port switch board inside. For the connection of each charging station in series topology, Cat5e or Cat6 Ethernet cables can be used up to 100 meters each.

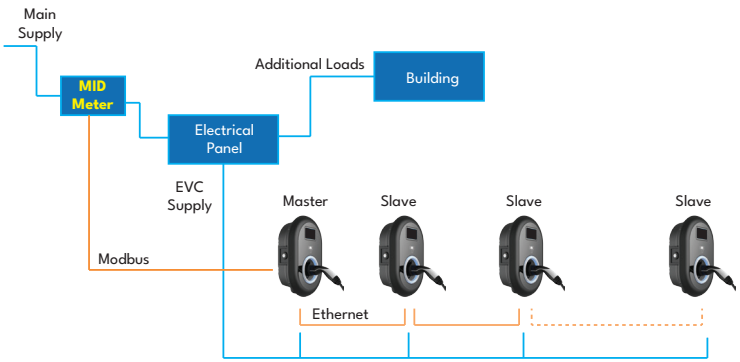
For the IP configuration of the network, master charging station should be configure as DHCP server. You need to configureslave charging stations' LAN IP address setting as "Dynamic" from "Network Interfaces" menu. In this scenario, all the charging stations get their IP addresses from the DHCP server inside master charging station.

Block diagrams for static and dynamic supply in daisy chain network topology are provided as below.

6.5.7.5.1 - Static Supply Daisy Chain Topology:



6.5.7.5.2 - Dynamic Supply Daisy Chain Topology:



6.5.7.6 -Master/Slave

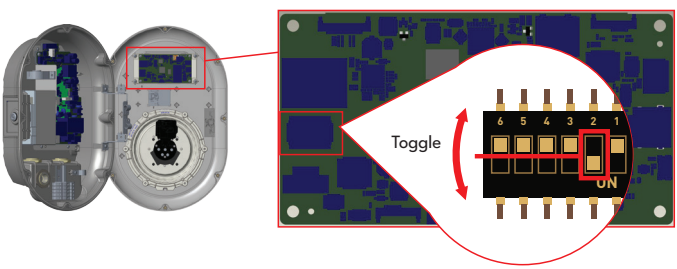
If Load Management Option is selected as Master/Slave, there will be two part in this page; General Settings and Load Management Group.
Operation Selection on Web-UI
Users can select one of the following options:

a. Slave
b. Master

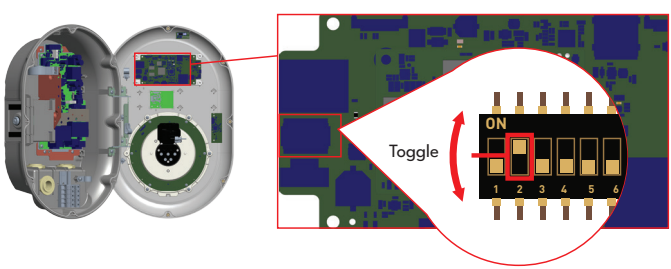
6.5.7.6.1 - Configuration of Slave Charging Stations

The charging station is preconfigure to DHCP mode in factory. If you need to connect to the charging station's web configuration interface directly using a computer, rather than using a router having DHCP server, steps below should be followed:

- Make sure the charging station is powered-off and open the front cover of your charger which is mentioned in installation guideline.
- Toggle the second position of DIP switch which is on the smart board of the charger shown in figure-below After that please turn on the charger again.
- Charging station sets the Ethernet port to 192.168.0.10 address statically and subnet mask will be set to 255.255.255.0



NON-HS EVC04



HS EVC04

Open your web browser and type 192.168.0.10 which is IP address of smart board.

You will see login page on your browser;

When you want to enter to the web configuration interface in the first time, you will see the warning as “We recommend you to change your default password from system maintenance menu”.

You can enter the system with:

Default username = xxxxx

Default password = xxxxx

You can change password with Change Password Button in login page or Administration Password section in the System Maintanence tab.

Attention: For web configuration interface accessibility problems; Web browsers usually save some information from websites in its cache and cookies. Forcing Refresh or Clearing (depending on your operating system and browser) them fixes certain problems, like loading or formatting issues on web page.

Load management option is **“disabled”** by default. After accessing to configuration web interface, you need to tab **“Local Load Management”** menu and select **“Master/Slave”** in **“Load management Option”**. **“Charge Point Role”** should be selected as **“Slave”**.

Charge Point Role: Should be selected as “Slave”. This setting allows the device to operate as a “slave” (connected device).

DLM Network Selection: You can select the DLM communication type from the DLM Network Selection dropdown. The available options are Ethernet and WLAN, depending on how the slave will communicate with the master. This must be same for both Slave and Master.

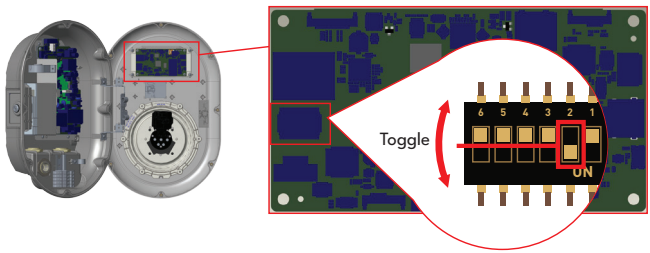
You can also set the slave charging stations as DHCP client.

Note that, this setting causes disconnection from configuration web interface of the charging station, so this setting should be the latest setting in slave configuration of the charging station.

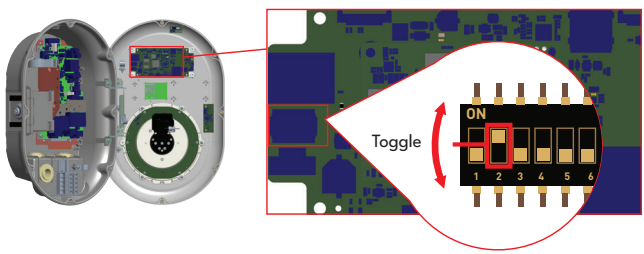
6.5.7.6.2 - Configuration of Master Charging Station

The charging station is preconfigure to DHCP mode in factory. If you need to connect to the charging station's web configuration interface directly using a computer, rather than using a router having DHCP server, steps below should be followed:

- Make sure the charging station is powered-off and open the front cover of your charger which is mentioned in installation guideline.
- Toggle the second position of DIP switch which is on the smart board of the charger shown in figure below After that please turn on the charger again.
- Charging station sets the Ethernet port to 192.168.0.10 address statically and subnet mask will be set to 255.255.255.0



NON-HS EVC04



HS EVC04

Open your web browser and type 192.168.0.10 which is IP address of smart board.

You will see login page on your browser;

When you want to enter to the web configuration interface in the first time, you will see the warning as "We recommend you to change your default password from system maintenance menu".

You can enter the system with:

Default username = xxxxx

Default password = xxxxx

You can change password with Change Password Button in login page or Administration Password section in the System Maintanence tab.

Attention: For web configuration interface accessibility problems; Web browsers usually save some information from websites in its cache and cookies. Forcing Refresh or Clearing (depending on your operating system and browser) them fixes certain problems, like loading or formatting issues on web page.

The master charging station should be set as DHCP server with a valid static IP address E.g. 192.168.0.10 with DHCP start and end IP addresses 192.168.0.50 and 192.168.0.100, respectively.

Note that if there is an external DHCP server in the local network, you also need to set master charging station to DHCP client.

You can also select the DLM communication type from the **DLM Network Selection** dropdown. The available options are Ethernet and WLAN, depending on how the slave will communicate with the master.

Master charging station has additional configuration settings for dynamic load management group.

Load management option is **"disabled"** by default. After accessing to configuration web interface, you need to tab **"Local Load Management"** menu and select **"Master/Slave"** in **"Load management Option"**. **"Charge Point Role"** should be selected as **"Master"**.

Grid Settings:

"Maximum Grid Current " value should be set to the maximum allowed current which can be drawn from the upstream electrical circuit.

"Grid Protection Margin Percentage" A safety margin is set for grid (electrical network) protection. It is usually used to prevent overloads or imbalances. The device limits itself to a certain percentage (%) to avoid damaging the network.

You must increase the **Maximum Grid Current** or decrease the **Grid Protection Margin Percentage** before saving the settings. The Maximum Grid Current limit cannot be lower than 10A when using the Grid Protection Margin Percentage.

The Cluster Max Current defines the maximum current that can be distributed among the connected nodes within the DLM system except home load in dynamic supply.
Cluster FailSafe Current represents the total available current when the external meter is no longer connected or has lost connection.

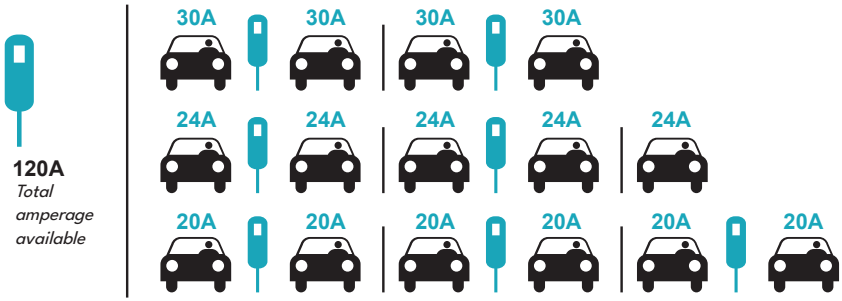
"Supply Type" should be set according to the load management type such as **"static"** current limit or **"dynamic"** current limit. For static current limit, "static" option should be selected. For dynamic current measurement, **"MID"** should be selected in "supply type". Note that dynamic current limit setting needs optional current measurement accessories. Supply type can be "Static", "Klefr", "TIC", "GARO", "P1".

Load Management Mode, can be selected from three options as **"Equally shared"**, **"First in First out"** and **"Combined"** modes. Combined mode needs extra configuration as **"FIFO Charging Percentage"** which effects the share between equally shared and first-in first-out calculations of the load management algorithm.

There are 3 different scenarios of load management usage:

6.5.7.6.3 - Equally shared

All available power is distributed equally to all EVs connected. This is more suitable for workplace or condominium chargings where the cars are parked for a considerable period of time.



6.5.7.6.4 - FiFo (First in - First Out)

This type of load management is more oriented for fleets in order to let them have more fully charged EVs when they need. The available power is redistributed and when a new EV arrives, it waits until an EV finishes its charge or leaves the charging point.

			Gm = 120A				Gm = 80A
EVSE/Tp	T1	T2	T3		T4	T5	T6
1	32A	32A	32A	32A	16A ↓	6A	6A
2	32A	32A	32A	32A	32A	32A	32A
3	32A	32A	32A	32A	32A	32A	32A
4	32A	24A	24A	18A	32A	32A	6A
5	32A	24A	6A	6A	8A	24A	6A

** Tp: Time Period, Gm = Maximum Grid dlocated for the chargers. Available maximum current for each EVSE in a certain Tp is indicated in black color. Charging current which is drown by EV is indicated in Blue color. An EV drawing less current is incated by " ↓ " symbol.*

6.5.7.6.5 - Combined Load Management

Combined load management is a combination of FiFo and Equally shared methods. A percentage of total power allocated for EV charging cluster can be set and this percentage of total power distributed to all EVs according to FiFo and the remaining power will be delivered as equally shared principal to all EVs.

F% =50			Gm = 120A				Gm = 80A		Gm=29A	Gm = 30A
EVSE/Tp	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10
1	32A	32A	32A	32A	20A↓	6A↓	6A	8A		6A
2	32A	32A	32A	32A	32A	32A	32A	32A	32A	6A
3	32A	32A	32A	32A	32A	32A	26A	28A	32A	6A
4	32A	24A	24A	12A	24A	32A	8A	10A	32A	6A
5	32A	24A	24A	12A	12A	18A	8A	10A	32A	6A

** Tp: Time Period, Gm = Maximum Grid dlocated for the chargers. Available maximum current for each EVSE in a certain Tp is indicated in black color. Charging current which is drown by EV is indicated in Blue color. An EV drawing less current is incated by " ↓ " symbol.*

LOCAL LOAD MANAGEMENT - LOAD MANAGEMENT GROUP

After the basic load management configurations are finished, be sure to connect all of the slave charging stations to the master charging station through daisy chain or star network topology.

When all the charging stations are ready to communicate with the master charging station, click “UPDATE DLM GROUP” button in “Load Management Group” menu. When “UPDATE DLM GROUP” button is clicked, master charging station starts slave discovery mode and automatically finds and lists slave charging stations in the list including master charging station itself as connector.

After master charging station discovers all the slave charging stations, then you can make other required settings of each connector one by one. After selecting the slave serial number the respective slave information will be visible.

If the selected connector is required to be prioritized over the other charging stations, you can set “VIP Charging” as enabled.

For setting the actual phase connection sequence of each charging station, you need to select correct sequence from the dropdown menu.

Note that if the charging station has only one phase supply, then you just need to select correct phase number from the drop down menu.

Until connection is alive operating with available current, when connection lost with network then operating with fallback current it is not compulsory until click in the block.

Other parameters of slave are just read only information from the connectors, which can be updated to the latest values by refreshing the configuration web interface.

Similar to slave list for each slave we have connector list and can select specific connector number from list of connectors and It will show updated information of respective connector as connector state, Instant Current and Available.

7 - UK REGULATION CHANGES ACCORDING TO SMART CHARGING (OPTIONAL)

CONFIGURATION WEB INTERFACE SETTINGS

Randomised Delay and Off-Peak Charging Behaviour

a. Randomised delay won't be repeated if applied in a charging period (except after power off and second transition to off peak hour, E.g: charging starts at 15:00 and paused at 16:00, when starting at 22:00 again randomized delay will be applied again.)

b. Randomised delay and waiting for off-peak charging will be cancelled if user tap RFID card for forced charging (first tap if charging station is in autostart mode, second tap if the charging station is in authorized mode). If the unit is in autostart mode any RFID card will force a charge, if the unit is in authorized mode the authorizing card of that charging session will force charge. Forced Charge will cancel both off-peak hour waiting period and randomized delay for that charging session.

c. While starting a charge session, if the time is in a peak period, the charging start will be delayed to the upcoming off-peak period start time.Randomized delay will be applied when the charging (actual energy transfer) starts.

d. If the time is in off-peak period, the randomized delay will be applied (if enabled) and then charging will start after delay. (It is only a numerical value and should be 600 by default). During the charging session if the time shifts from off-peak to peak, charging will continue or pause according to the setting "ContinueAfterOffPeakHour".

e. If unit has a screen "Waiting for off-peak hour, charging will start at hh:mm" will be shown on the screen while OCPP mode is active.

f. If unit has a screen, "Waiting for random delay, Charging will start at hh:mm" will be shown on the screen while OCPP mode and random delay mode are active sync of the time information from the server.

g. If a unit can connect to a central system, it will show exact charging start time on the screen. If a unit can not sync local time from the server due to either a connection issue or the unit is used locally without connection, it will only show the remaining time to start the charging session**.**

h. If unit does not have screen then waiting for off-peak hour will be shown on LED as Blue-Red blinking. (will be shut of after 5 mins)

i . If unit does not have a screen then randomised delay will be shown on LED as Green blinking.

OCPP mode change config items:

i. RandomisedDelayMaxSeconds: [0, 1800] (default:600, can be set to "0" for disabling)

ii. CurrentSessionRandomDelay: random delay value calculated for active charging session.

The value will be decremented by 1 minute intervals with time passes. (subject to change)

iii. OffPeakCharging: TRUE / FALSE (Default: TRUE)

iv. OffPeakChargingWeekend: TRUE / FALSE (Default: FALSE)

v. OffPeakChargingTimeSlots: 11:00-16:00, 22:00-08:00 (default: 11:00-16:00, 22:00-08:00)

vi. ContinueAfterOffPeakHour: TRUE / FALSE (Default: FALSE)

vii. ContinueChargingAfterPowerLoss: TRUE / FALSE (Default: TRUE)

viii. ForcedCharging: TRUE / FALSE (Default: False, OCPP CS may set this to TRUE for overriding randomised delay and off-peak and after the charging session charging station will set this to FALSE again.)

Standalone / Local RFID List:

Webconfig General Settings menu “Smart Charging” tab:

i. Randomised delay maximum duration (seconds) Editable for admin user, readonly for end user credentials [0, 1800] (default: 600, can be set to “0” for disabling)

ii. Off-peak Charging (Enabled / Disabled)

iii. Off-peak Charging at the Weekends (Enabled / Disabled) (default:Enabled for UK, Disabled for rest)

iv. Off-peak Charging Periods: 11:00-16:00, 22:00-08:00 (default: 11:00-16:00, 22:00-08:00)

v. Continue charging at the end of off-peak interval (Enabled / Disabled)

vi. Continue charging without re-authentication after power loss (Enabled / Disabled)

Off-peak charging function will be active if and only if device is connected to the central system.

For the unit in standalone mode the settings will be as above. For Standalone modes, off peak charging will be hidden because of the time sync issue.

Randomised Delay Maximum Duration, can take values between 0 and 1800.

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