VESTEL
MOBILITY

ELECTRIC VEHICLE CHARGER
EVC15 VEGA DUAL SERIES

Installation Guideline

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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 –25 ˚C and +50 ˚C without direct sunlight and at a relative humidity of between 5 % and 95 %. Use the charging station only within these specified operating conditions.
- 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. This device is not support ventilation.
- 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 30 mm above ground level.
- Adaptors or conversion adapters are not allowed to be used. Cable extension sets are not allowed to be used.
- Use this product at an altitude of less than 3000 meters above sea level.
- This charging station is floor mounted.
- Do not place items filled with liquid, such as cups, bottles, etc., on the product.
- Keep the plastic packing materials out of the reach of babies, small children, and pets to avoid the danger of suffocation.
- Do not wash the device with water.
- Do not use abrasive clothes, wet clothes, alcohol, or detergents. A microfiber cloth is recommended.
- It should be kept in its original box in order not to damage the components of the device during transportation.
- Defects and damage that occur during transportation after the delivery of the product to the customer are not covered by the warranty.
- The product should be used under the porch.

“MANUFACTURER DOES NOT WARRANT THAT THE OPERATION OF THE PRODUCT WILL BE UNINTERRUPTED OR ERROR-FREE.”

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

- This product must be connected to a grounded, metal, permanent wiring system. or an equipment-grounding conductor must be run with the circuit conductors and connected to the equipment grounding terminal or lead on the product.
- 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 charging cable is well positioned thus; it will not be stepped on, tripped over, or subjected to damage or stress.
- Do not forcefully pull the charging 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 - REQUIRED UPSTREAM PROTECTIONS

- MCCB (Thermic Magnetic Adjustable) must be connected to the upstream distribution box.

Model	AC Socket1	AC Socket2	Power Output	Input Max AC Current	Recommended Cross Section for AC Mains	Required Circuit Breaker
EVC15-AC44	22	22	44 kW	64A	25-35 mm2	80A Curve-C

For distances of 50 meters and below, recommended cross section for AC mains can be applicable. For the distances more than 50 meters, the cable section calculation should be made by the electrical installer.

When selecting the installation location, take into consideration the minimum space needed for operating and maintenance. Note that EVC does not have hinges on the maintanance door!

When installing the unit, respect the minimum distances space for maintenance and safety reasons.

Please comply accordingly to your country specifications.

The next picture shows how it should be installed.

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

2 - DESCRIPTION

This product was developed for charging electric vehicles with a suitable charging system in accordance with the IEC 61851-1 standard for the pilot standard signal. This document describes the specific functions and characteristics of the corresponding variants of charging stations and measuring devices in relation to electrical energy in accordance with § 46 of the German Measurement and Verification Ordinance (MessEV), taking into account PTB-A 50.7 and PTB-REA document 6-A.

Only the following models are certified in accordance with MessEG and MessEV:

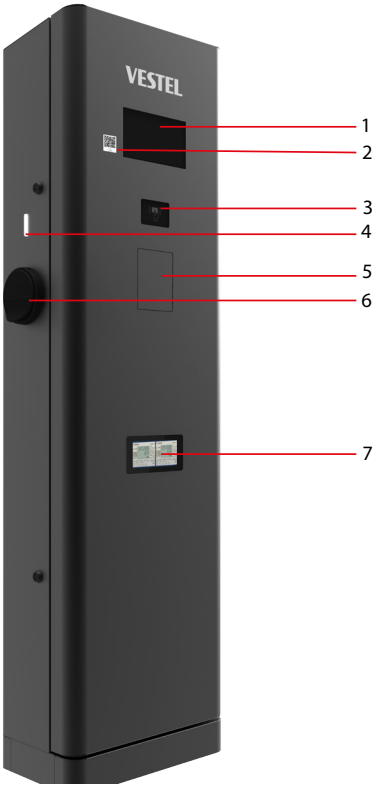
EVC15-AC-EICH**

In accordance with the German Measurement and Calibration Act, the charging station can be billed according to kWh. You can consult the German Measurement and Verification Act, which is described in chapter 17.

Model Name	**MODEL DESCRIPTION: EVC15-AC****-* EVC15 : Electric Vehicle AC Charger (Mechanical Cabinet 15) 1st Asterisk (*) : Rated Power 44 : 2 × 22 kW total power for both charging points (22 kW per charging point) 2nd Asterisk (*) Communication module Blank : No connectivity module except RFID reader W : Wi-Fi module L : LTE / 3G / 2G module P : ISO 15118 PLC module (Plug & Charge is not included in Eichrecht certification)
Cabinet	EVC15

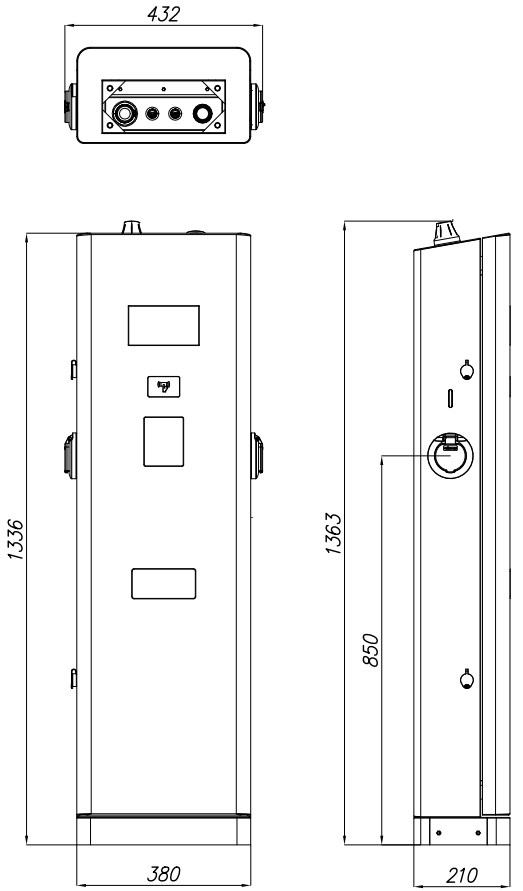
3 - GENERAL INFORMATION

3.1 - INTRODUCTION OF THE PRODUCT COMPONENTS

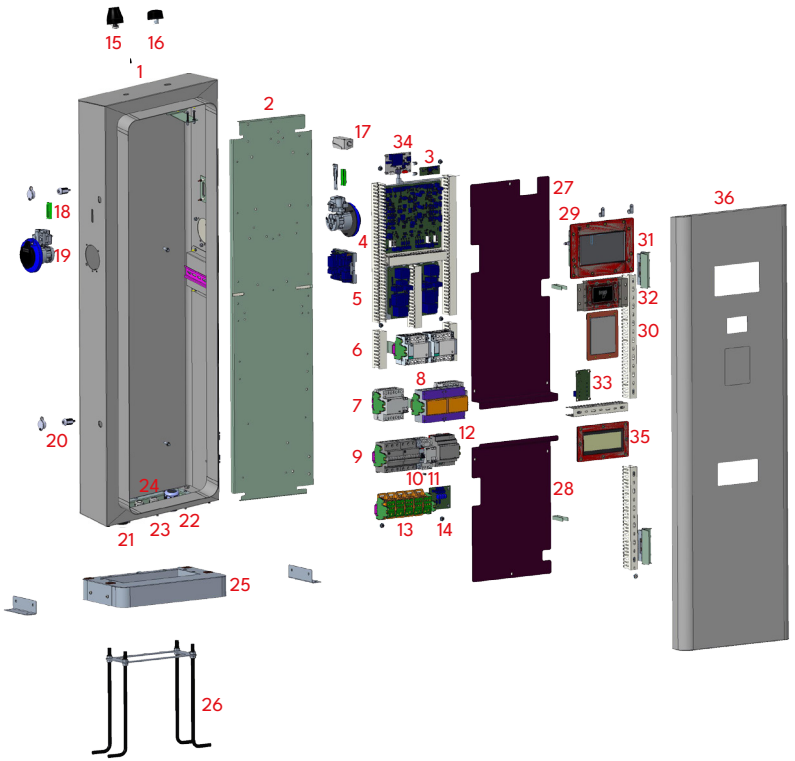


1- Informative Display
2- QR code label for the User Manual
3- RFID Card Reader
4- Status Indicator LED
5- Payment Terminal Area
6- AC Type-2 Socket Outlet
7- Eichrecht-compliant MID meter display

3.2 - DIMENSIONAL DRAWINGS



3.3 - ELECTRIC VEHICLE CHARGING STATION EXPLODED PICTURE



NO	PART DESCRIPTION	NUMBER
1	Back Cover	1
2	Mounting Plate	1
3	Wifi Card	1
4	AC Control Card	1
5	MCT & DC6 Card	2
6	Contactor	2
7	RCCB (3P)	2
8	MID	2
9	MCB (3P)	2
10	PSU MCB (1P)	1
11	PSU RCCB (2P)	1
12	PSU	1
13	AC Bar / Connectors	5
14	SPD Card	1
15	LTE Antenna	1
16	Wi-Fi Antenna	1
17	Door Switch	1
18	Notification LED	2
19	Type-2 AC Socket	2
20	Door Lock	2

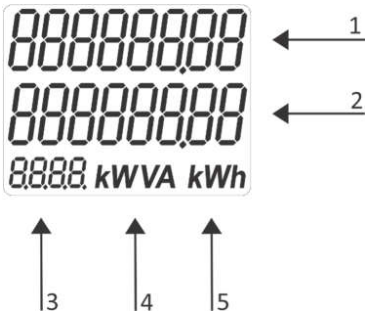
NO	PART DESCRIPTION
21	M40 Cable Gland
22	M32 Cable Gland
23	M20 Cable Gland
24	Cable Gland Plate
25	Base Cover
26	Anchor
27	Top Acrylic
28	Bottom Acrylic
29	HMI
30	Retrofit
31	Screen Glass
32	RFID Glass
33	Ethernet Card
34	LTE Card
35	MID Glass
36	Front Cover

3.4 - LCD DISPLAY

3.4.1 - Device Information Display

The energy meters have a LCD with the following layout.

1 Total kWh
2 User settable line
3 4 digit label
4 kWVA display
5 kWh display



3.4.2 - Start Screens

LCD segment test

FW identification window and MID relevant counters:

1 MID unlock counter
2 FW upgrade counter
3 CRC of main FW
4 CRC of measuring modules FW
5 FW version

3.4.3 - LCD Display Information

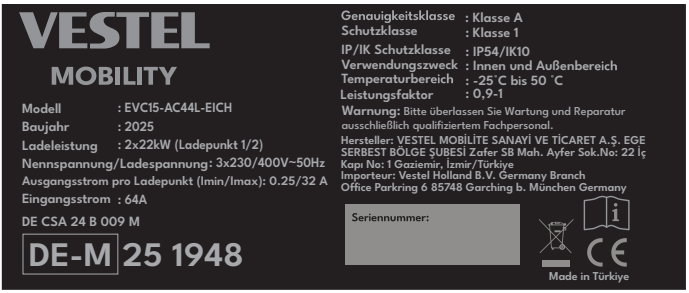
In end, standby, and charging modes, the meter display automatically cycles through the predefined parameters at 6-second intervals; example display screens are shown below, and the parameters actually displayed on the device are described accordingly in this document.

No.	End and Standby mode rolling each 6 seconds	Charging mode rolling each 6 seconds
1		
2		
3		
4		
5		

3.5 - TYPE PLATE

The type plate is located in the right-middle corner EV charger. It includes the CE marking, serial number and electrical properties of the charger. Read the instructions before first use.

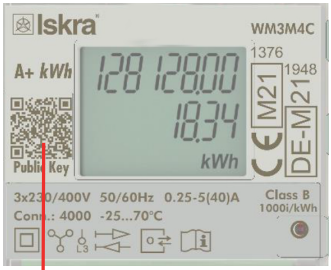
Example of a Type Plate for EVC15:



EVC15 Type Plate on the back of the product:

3.6 - PUBLIC KEY

A QR code is printed on the front of the meter, which contains the public key in full format. The signature can be verified by means of a public key.



Public Key Information

Public key (for the measurement capsule, imaged on the type plate of the meter of the charging station in the form of a QR code).

4 - TECHNICAL SPECIFICATION

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

Model	EVC15-AC44 Series
IEC Protection class	Class - I
Socket Model	2 x Socket TYPE 2 (IEC/EN 62196-1 - IEC/EN 62196-2) 2 x Shutter Socket IEC/EN 62196-1 - IEC/EN 62196-2 Type-2 (Optional)
Cable Model	2 x Cable with TYPE 2 (IEC 62196) Female Plug
Voltage and Current Rated	230/400VAC 50/60Hz- 3-phase 32A for 2 outlets
AC Maximum Charge Output	44kW
Serial Interface	Modbus / M-Bus over RS485
Power Level Control	WebConfig UI
Display	7" TFT color display
MID meter	Compliance with Eichrecht
Built-in Residual Current Sensing module	6mA DC
Built - in RCCB	4P-40A - 30mA RCCB Type- A
Built - in MCB	4P-40A MCB Type-C
Required AC Mains Cable	Min 5x16 mm^2 (< 50 m)

CONNECTIVITY

Ethernet	10/100 Mbps Ethernet
Wi-Fi	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) WCDMA: B1 (2100 MHz), B8 (900 MHz) GSM: B3 (1800 MHz), B8 (900 MHz)
Bluetooth	BT 5.1 ; BT 4.2 low energy (Optional)

WIRELESS LAN TRANSMITTER SPECIFICATIONS

Country Restrictions

This Wireless LAN equipment is intended for home and office use in all EU countries, the UK and Northern Ireland (and other countries following the relevant EU and/or UK directive). The 5.15 – 5.35 GHz band is restrictions indoor operations only in in all EU countries, the UK and Northern Ireland (and other countries following the relevant EU and/or UK directive). Public use is subject to general authorisation by the respective service provider.

Country	Restriction
Russian Federation	Indoor use only
Israel	5 GHz band only for 5180 MHz-5320 MHz range

The requirements for any country may change at any time. It's recommended that user checks with local authorities for the current status of their national regulations for both 2.4 GHz and 5 GHz wireless LANs.

Hereby, VESTEL MOBİLİTE SANAYİ VE TİCARET A.Ş.EGE SERBEST BÖLGE ŞUBESİ, declares that the radio equipment type EVC is in compliance with Directive 2014/53/EU and Radio Equipment Regulations 2017. The full text of the EU declaration of conformity is available at the following address: doc.vosshub.com.

AUTHORIZATION

RFID Reader Module	ISO/IEC 14443A/B and ISO/IEC15693

OTHER FEATURES (Connected Models)

Remote Diagnostics	Remote Diagnostics over OCPP
OCPP	OCPP 1.6 JSON
Load Management	Ethernet / Wi-Fi / RS485 OCPP Smart Charging MultiCP Local Load Balancing
Software Update	Remote software update over OCPP WebconfigUI update Remote software update with server

MECHANICAL SPECIFICATIONS

Material	Metal Panel	
Protection Degree	Ingress Protection Impact Protection	IP54 IK10
Dimensions	1363 mm (Height) x 380 mm (Width) x 210 mm (Depth)	
Dimensions (with packing)	1515 mm (Height) x 850 mm (Width) x 630 mm (Depth)	
AC Mains Cable Dimension & Cable Gland Diameters	For 16mm^2 - 35mm^2 AC Mains, suitable cable gland diameter interval is 22mm^2 - 35mm^2	
Weight	41 kg	
Weight (with packing)	62 kg	

ENVIRONMENTAL SPECIFICATIONS

Operation Condition	Temperature	-25 ˚C to + 50 ˚C
	Humidity	5 % - 95 % (Relative humidity, non-condensing)
	Altitude	0 - 3.000m

TECHNICAL CHARACTERISTICS OF THE MEASURING CAPSULE

Model	WM3M4C
Manufacturer	ISKRA d.o.o.
Mark of type-examination certificate	DE MTP 20 B 011 M
Iref [A]	5
Imin [A]	0,25
Imax [A]	60
Meter constant [imp./kwh]	1000
Un [V]	3x 230/400V
Frequency [Hz]	50Hz
Temperature range	-25...+70˚C
Accuracy class	B
Main Firmware Version	V2.05
Checksum of the Main Firmware	EEC6 6478 (hex)
Checksum of the Firmware of the Measurement Module	B5E6 (hex)

5 - REQUIRED EQUIPMENT, TOOLS and ACCESSORIES

5.1 - SUPPLIED INSTALLATION EQUIPMENT AND ACCESSORIES

1 set (x2) Lock Keys	
Steel Expansion Bolts M8x80mm (4 units)	
M12 anchor special bolt set (4 units)	
Anchor plate (1 unit)	
Artwork Kit (User and Installation Manuels)	

5.2 - RECOMMENDED INSTALLATION EQUIPMENT AND ACCESSORIES

		
Ø10 Drill Bit	Impact Drill	PC
		
Philips Screwdriver	RJ45 Crimping Tool	Cat5e or cat6 ethernet cable
		
Spanner set	Hammer	Level Indicator Ruler
		
Adjustable Wrench (0-50mm)	Allen set	

5.3 - BEFORE INSTALLATION

REQUIRED UPSTREAM PROTECTIONS

- MCCB (Thermic Magnetic Adjustable) must be connected to the upstream distribution box.

Model	AC Socket1	AC Socket2	Power Output	Input Max AC Current	Recommended Cross Section for AC Mains	Required Circuit Breaker
EVC15-AC44	22	22	44 kW	64A	25-35 mm2	80A Curve-C

For distances of 50 meters and below, recommended cross section for AC mains can be applicable. For the distances more than 50 meters, the cable section calculation should be made by the electrical installer.

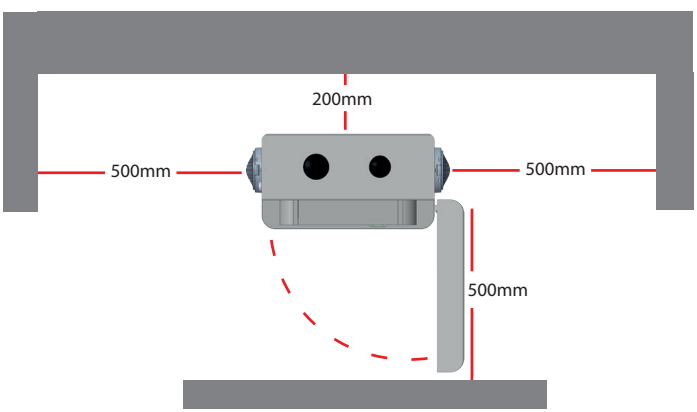
When selecting the installation location, take into consideration the minimum space needed for operating and maintenance. Note that EVC does not have hinges on the maintanance door!

When installing the unit, respect the minimum distances space for maintenance and safety reasons.

Please comply accordingly to your country specifications.

Minimum 500mm in two sides, 200mm from back side, it is recommended to have space around the charging station. Also to open the front cover completely, it is needed to have minimum 500mm of space in front of the station.

It is also recommended to place a mechanical barrier in front of the charger against the vehicle hits or etc. Between the charging station and this barrier, minimum 500mm is needed.



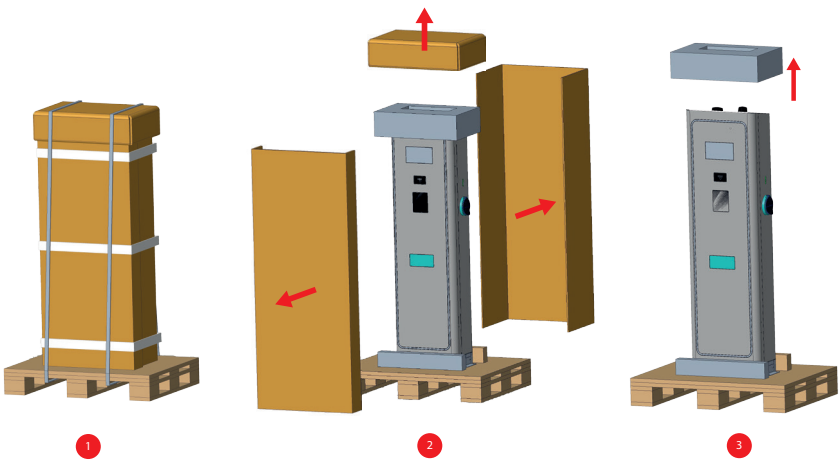
6 - INSTALLING CHARGING STATION

6.1 - UNPACK CHARGING STATION AND BOTTOM PALETTE REMOVAL

1- Remove the ropes and films around the package.

2- Remove the carton box upwards and front and back carton boxes.

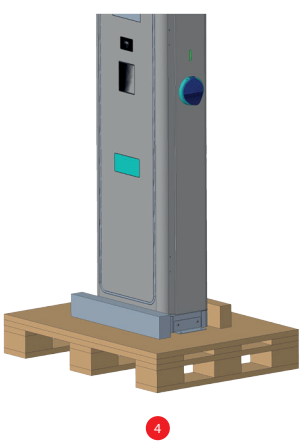
3- Take supplied equipments from the box.

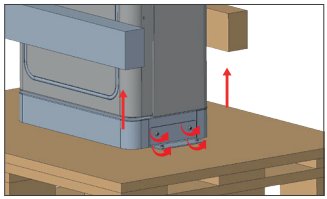


4- The station is pre-assembled with the bottom base and pallet to allow easy transportation to the installation area.

5- The wooden blocks at the front and back must be removed.

6- Remove the M5 screws from the brackets at the bottom left and right sides (as shown in the figure) using a screwdriver. The product is now ready for installation.





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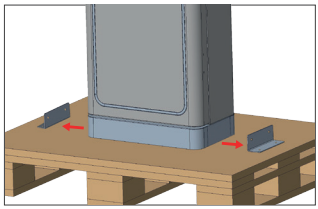

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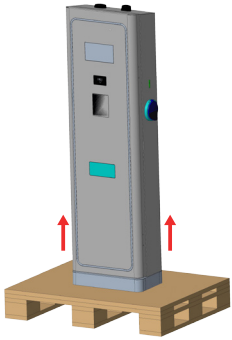
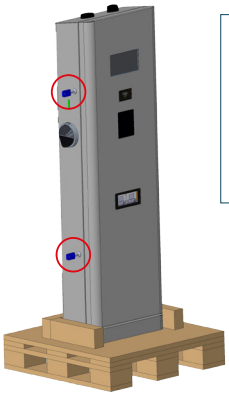
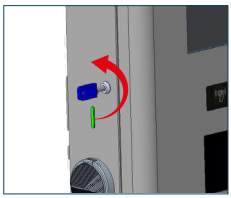
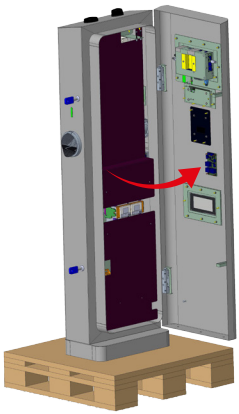


6.2 - OPENING THE FRONT COVER

1- Use the keys provided to unlock the front cover as shown in the figure. Pull the front cover.

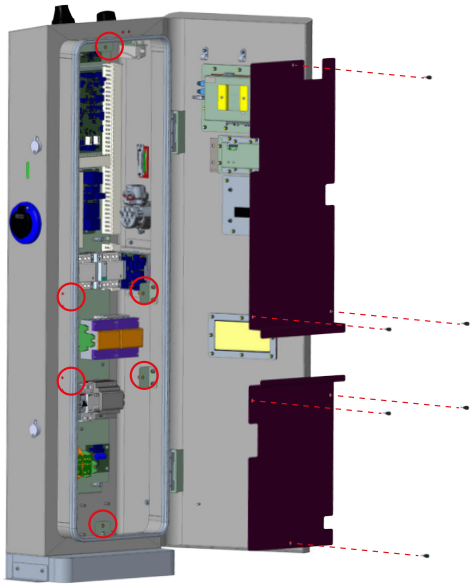






2- Remove the screws and isolater plate covering the AC Mains cable in the left side.

NOTE: After completing the installation, you can reinstall the isolating cover and close the cover by applying the given instructions in reverse order.



6.3 - INSTALLING THE STATION BY PREPARING THE CONCRETE AND ANCHOR PLATE

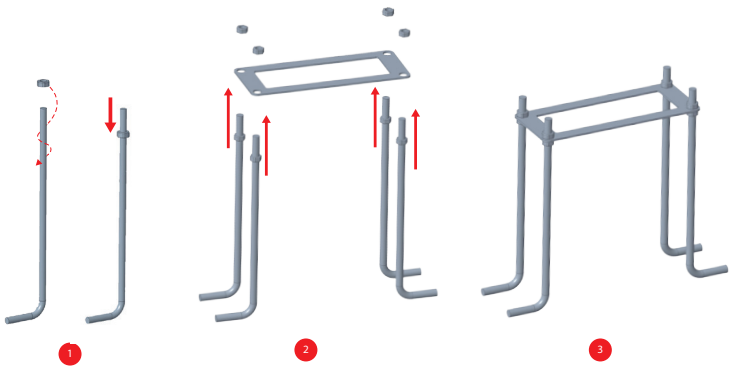
Make sure that the materials used for the concrete foundation and the installation procedures follow local building regulations and safety standards.

For Preparing and Mounting the Anchor Plate, below three steps should be followed

1- Insert each nut to each bolt one by one as shown in figure.

2- Insert the anchor plate to the bolts as shown in figure.

3- Assemble the nuts over the anchor bolt to fix it with the bolts.



For Preparing Installation area and cabling, below steps should be followed as also shown in figures:

1- Dig a pit (dimensions 310x480x300– DxWxH in mm) for anchor bolts and plate assembly. The pit floor should be trampled and horizontal

2- Place anchor assembly in the pit.

3- Cables must be placed in the middle and should be pulled through the plate hole, before concrete applied. Pull the supply cable and possible data cable through the ground mounting box cable glands and further through the mounting box cable hole. For AC mains cable minimum 500 mm, for ethernet cable minimum 2 meters from the ground surface of the mounting box should be left.

4- Fill the pit with concrete. Then adjust the assembly as seen in the picture. 2nd bolt top surface must be on the concrete level. Level indicator ruler can be used while adjusting.

5- Let the concrete solidify, make sure the surface stays solid and level during the process.

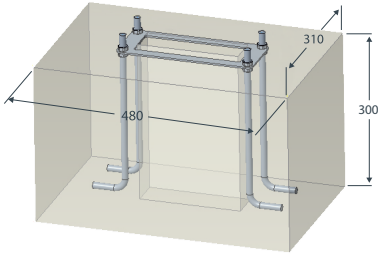
6- Place the base onto the anchor plate as shown.

7- Put the washers and nuts on and fasten the base to the anchor plate as illustrated.

8- Mount the charging station onto the base.

9- Pass the cables through the cable glands and tighten the glands.

10- The bottom of the charging station must be at least 30 mm above the ground



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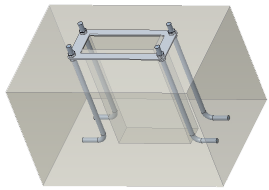

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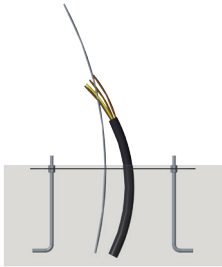

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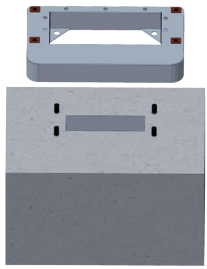

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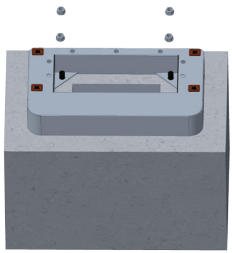

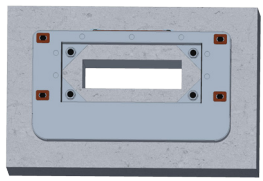

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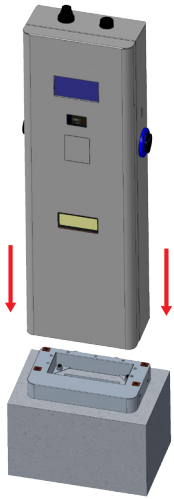

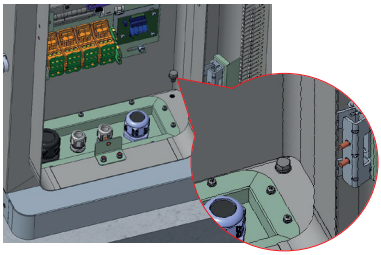

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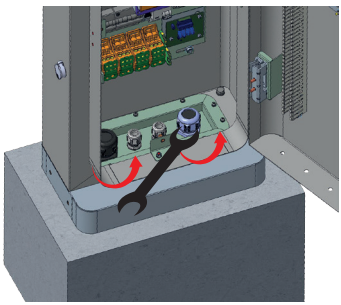
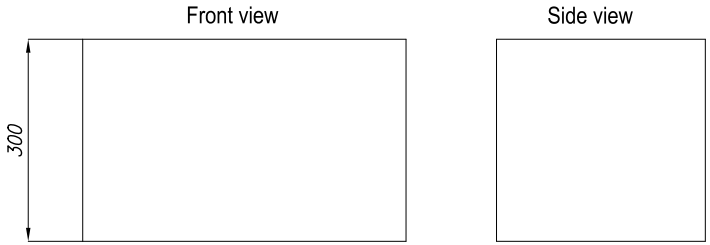
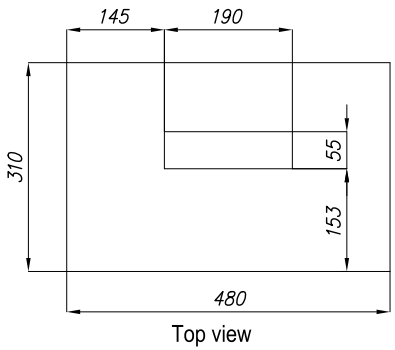


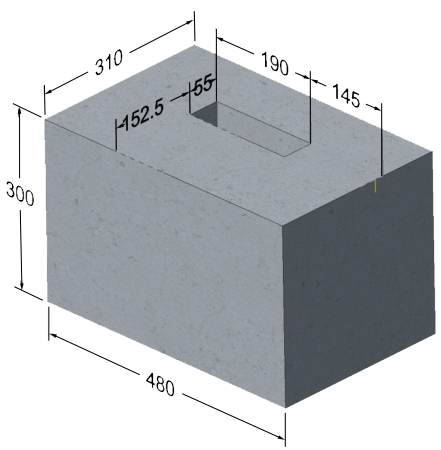
9

10

ANCHOR DIMENSIONS IN INSTALLATION AREA



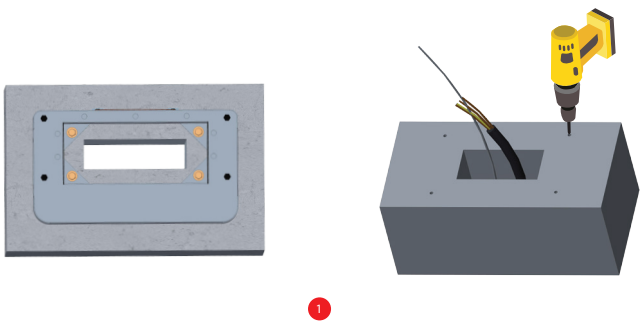




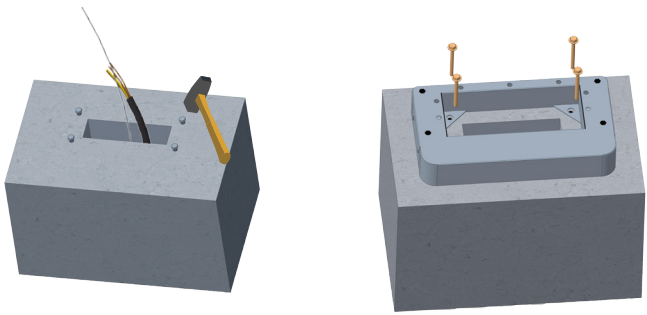
6.4 - INSTALLING THE STATION OVER THE READY CONCRETE SURFACE (With Pre-Installed Cabling)

For Preparing Installation area and cabling, below steps should be followed as also shown in figures. Before this, please be sure that cables are placed in the middle and the cables should be prepared before the installation. For AC mains cable minimum 500 mm, for ethernet cable minimum 2 meters from the concrete surface of the mounting box should be left.

1- Open holes over the surface by using the bottom cover of the charging station as drilling template and use the impact drill with metricØ10 drill pit as in dimensions shown in figure below. (235x81,6 mm). You can use the base as template.
2- Place bottom cover of the charger over the opened holes and assemble the steel expansion bolts (M8x80) which are supplied in package of the charging station, as shown figure below. Use a hammer slightly to well position the bolts and then use the approprate spanner to tighten the bolts.
3- The product will be mounted on the base.
4- The cables will be passed through the glands and tightened.



1



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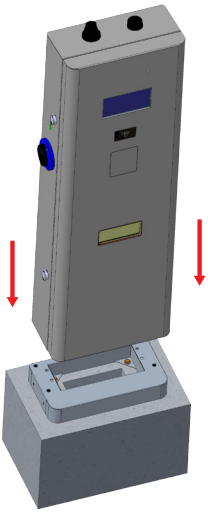

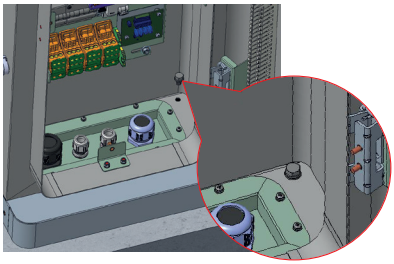

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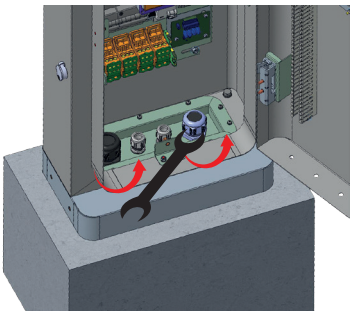
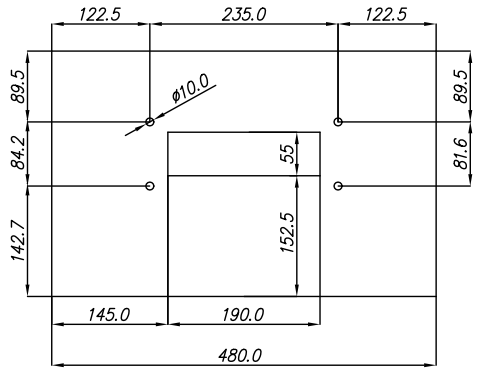
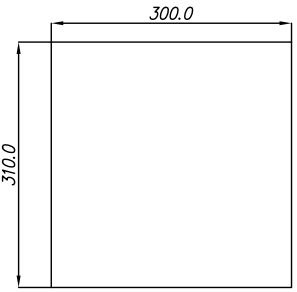
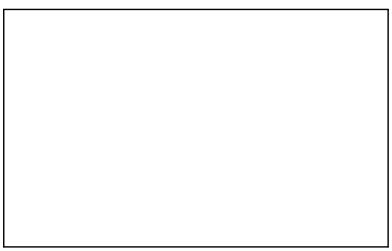


4

DIMENSIONS ON READY CONCRETE SURFACE

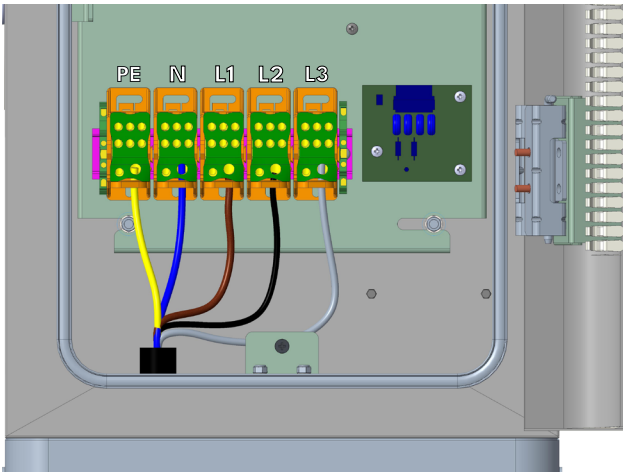






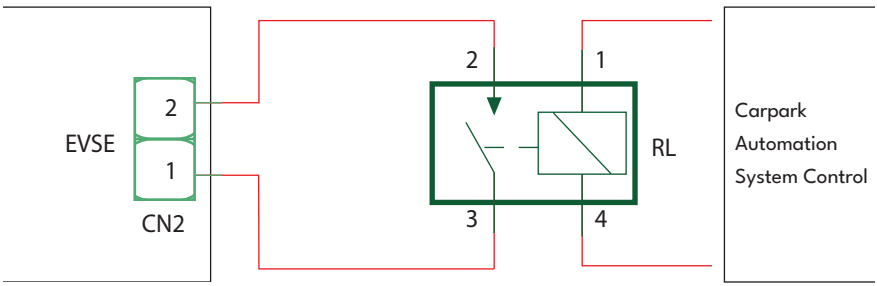
6.5 - AC MAINS CABLE INSTALLATION

Connect the AC Mains cables, from left to right as; First connect “Line PE” cable, then “Line N” cable, finally three phase cables (“Line 1”, “Line 2”, “Line 3”) as shown below.



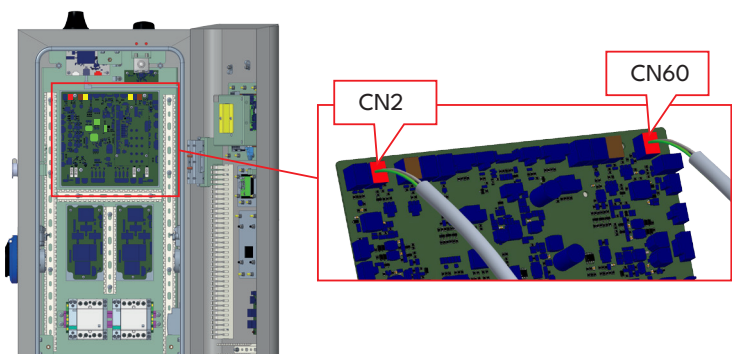
6.6 - EXTERNAL ENABLE INPUT FUNCTIONALITY

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. To enable and disable this functionality, select External Enabled Inputs under Installation Settings from the WEB UI.



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.

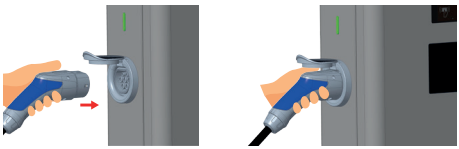


Cable Terminal	Cable Color
1 (CN2-1)	Green
2 (CN2-2)	Green + White Green

Cable Terminal	Cable Color
1 (CN60-1)	Green
2 (CN60-2)	Green + White Green

6.7 - LOCKED CABLE FUNCTION

The cable becomes locked and your socket model charging station starts behaving as an attached cable model.

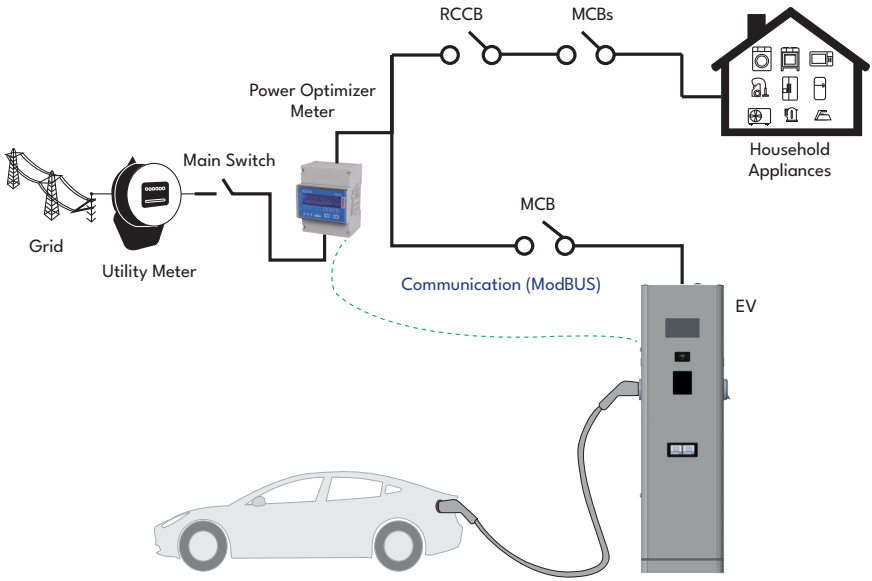
1- To enable locked cable function you need to access to WEB Configuration Interface and Enable the part "Lockable Cable" under "Installation Settings" menu.	**2-** Insert the charging cable to the socket of the unit. 

6.8- POWER OPTIMIZER

6.8.1 - CHARGING MODE SELECTION AND POWER OPTIMIZER CONFIGURATION

The Charging Mode Selection and Power Optimizer Configuration settings are described in detail under the section **16 - INSTALLATION SETTINGS** in the WEB USER INTERFACE.

6.8.2- POWER OPTIMIZER WITH EXTERNAL MID METER

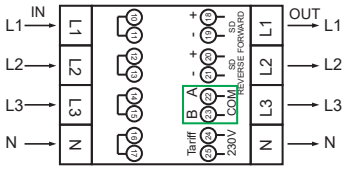


The charging station has integrated RCCB and MCB, there is no need to add additional RCCB and MCB in power line.

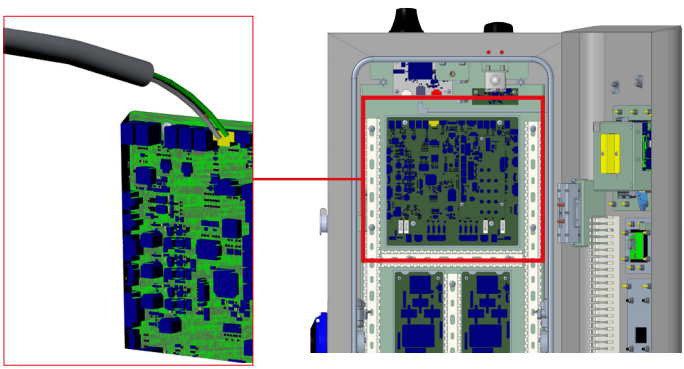
Power Optimizer Meter should be placed just after the main switch of the house as shown in the figure.

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

Three Phase



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



Cable Terminal	Description
(CN69-2)	A (COM)
(CN69-1)	B (COM)

6.8.3- POWER OPTIMIZER WITH EXTERNAL CURRENT TRANSFORMER (CT)

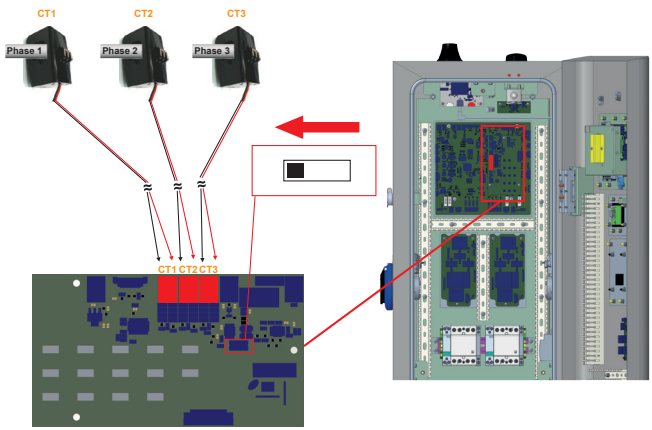
This function is provided with an optional external current measurement accessory, which is sold separately. In power optimizer mode, the total current drawn from the main house switch by the charging station and other home appliances is measured by a current sensor built into the main power line. The system main power line current limit is set by the DIP switches inside the charging station. Based on the limit set by the user, the charging station dynamically adjusts its output charging current based on the measurement of the main power line.

To perform the corresponding installation, follow the steps below.

- The slide switch (SW3) on the control board shown in Figure"Running Power Optimizer" should be set to 1 or 2.
- The wiring of the external electrical circuits and the "The Embedded Power Optimization Module" inside the EV charger should be done as shown in Figure below.
- The slide switch on " The Embedded Power Optimization Module" should be set as shown in Figure below. (Left side.)

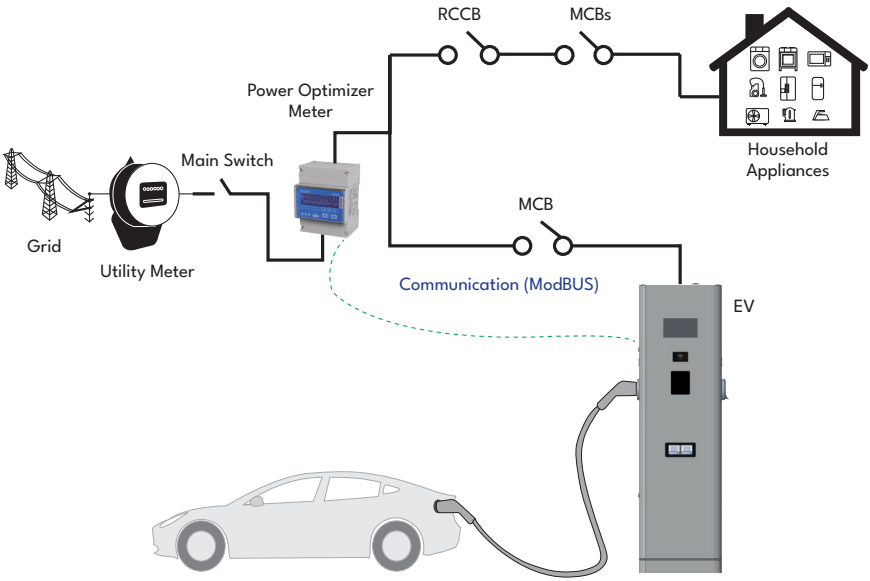
NOTE : CAT5 cable length to use should be below 100 meters.

Three Phase:



The charging station has integrated RCCB and MCB, there is no need to add additional RCCB and MCB in power line.

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

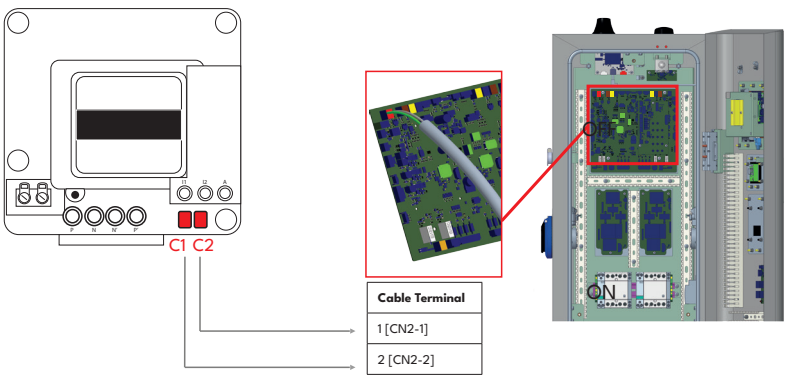


6.8.4- MODE SELECTION SWITCH SETTINGS

You can select the operating mode from the Web Configuration Interface. See section **14.2 – INSTALLATION SETTINGS.** This charging station has 3 operating modes.

- **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):** 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. The wiring of the Linky meter and the control board inside the EV charger are shown below.

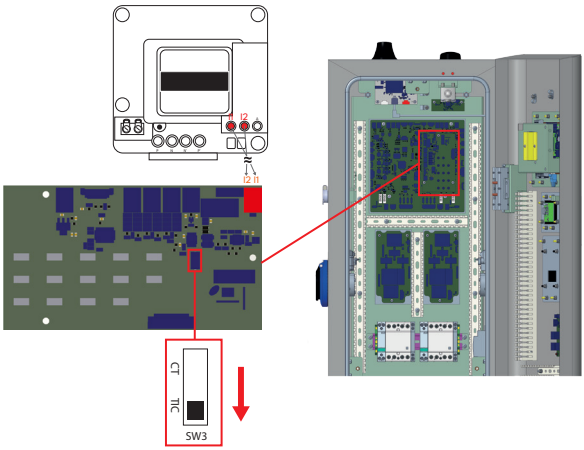


- **Operating mode 3 (dynamic load of TIC) (Optional)**

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.

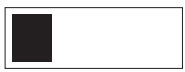
You must also connect the I1 and I2 terminals of your Linky meter to the I1 and I2 terminals of the charging station's communication card.



6.8.5- 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.

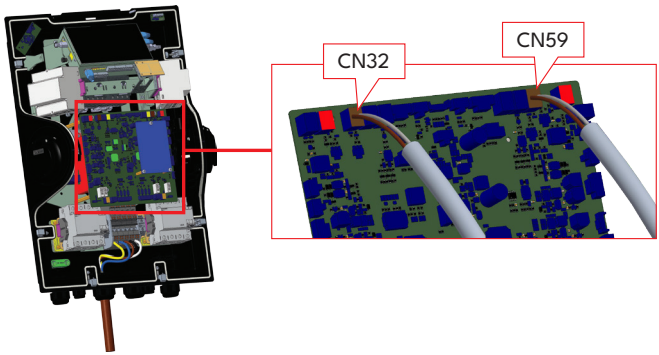
Mode	Description	Figure
TIC	Slide Switch Right Position	
Power optimization by external CT	Slide Switch Left Position	

7- 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 CN32 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 CN32-1 and CN32-2) 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
CN32-1	Load Shedding Input +
CN32-2	Load shedding Input –

Cable Terminal	Input
CN59-1	Load Shedding Input +
CN59-2	Load shedding Input –

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

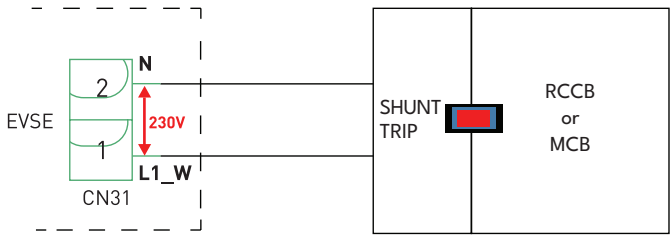
8- MONITORING OF WELDED RELAY CONTACTS FAILURE

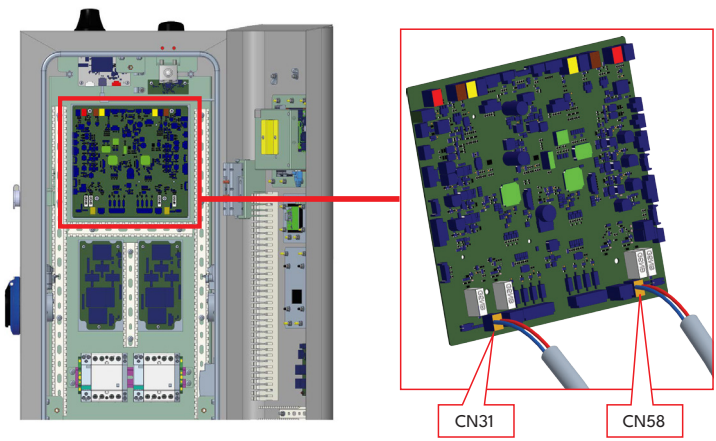
According to IEC 61851-1, EVC15 EV Charging Station has welded contactor sensing function and in case of welded contact occurs, shunt trip 230V signal is provided from the main board. To detect welded contact failure for the relays, CN31 connector output terminals must be used.

In case of a welded contact for the relays CN31 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 first figure below. The cabling should be done as shown in second figure below.

Connector (CN31) 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.

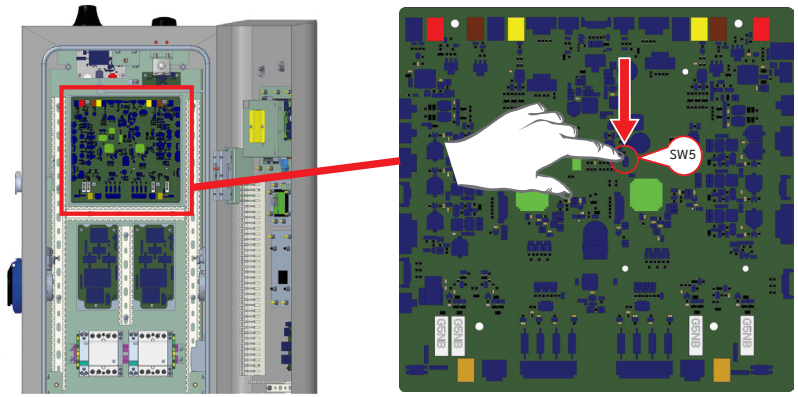




9- FACTORY RESET

You must push the button on ACPW 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.)

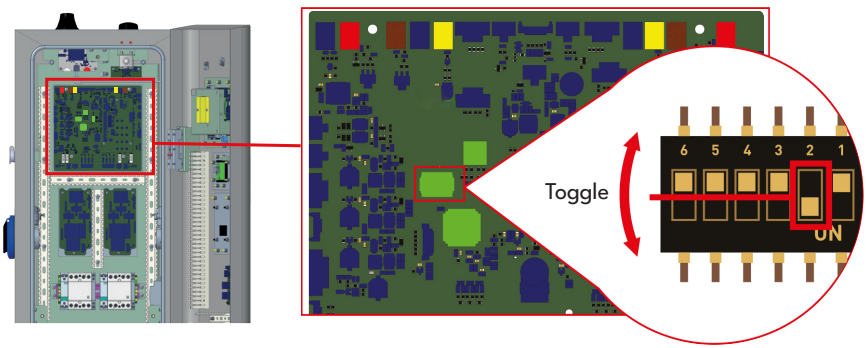
You can reset your device to its factory settings via Web Configuration User Interface, **please refer to Section 20. MAKING SYSTEM MAINTENANCE.**



10- 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 that the charging station is turned off and open the front cover of your charger as indicated in the installation manual "**OPENING AND CLOSING THE FRONT COVER ON THE CHARGING STATION**".
- 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



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.

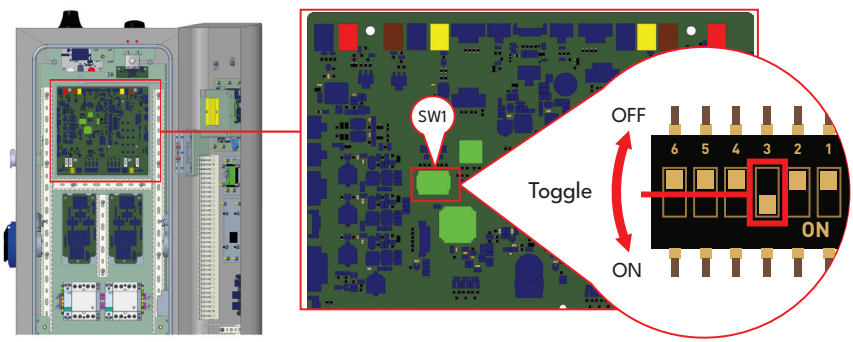
Note: You can also use factory reset function to set the LAN interface back to DHCP mode again but please well note that all other parameters will be set to factory default parameters.

11- WEB CONFIGURATION INTERFACE ENABLE / DISABLE

The WEB Configuration interface is "Enable" by default.

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 "**OPENING AND CLOSING THE FRONT COVER ON THE CHARGING STATION**".
- 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.

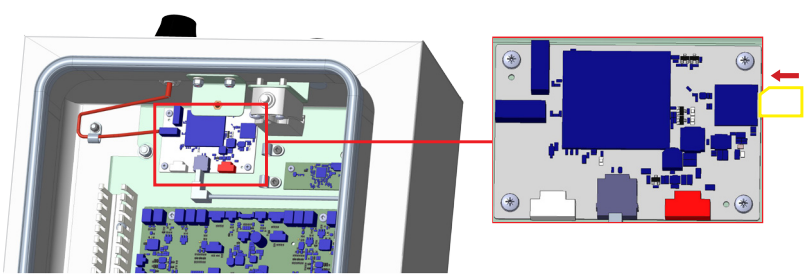


12- OCPP CONNECTION

Make sure the charging station is powered-off.

12.1- 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.



13- COMMISSIONING

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

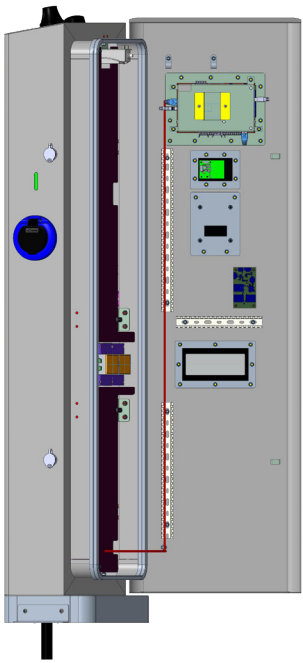
a. You can directly connect your PC to the charging station using a patch Ethernet cable. If you follow this option, please make sure that you have properly configured your charging station's LAN interface to static IP by following steps in section "SETTING ETHERNET PORT OF CHARGER TO STATIC IP IN STANDALONE 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.

13.1- DATA CABLE CONNECTION AND CONNECT OCPP OVER ETHERNET

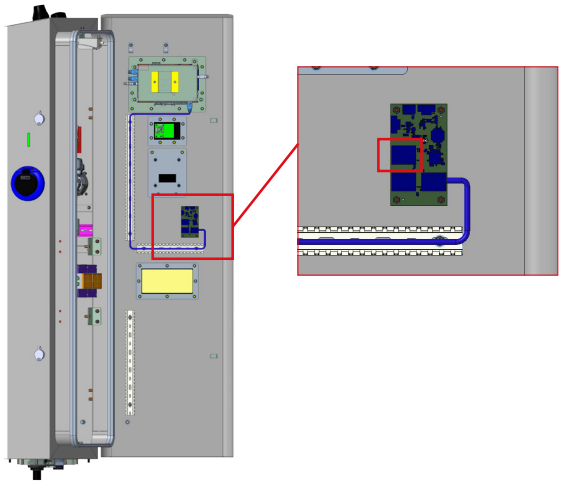
In order to connect your device to the internet over the cable and make the necessary adjustments, you must first prepare the ethernet cable and plug this cable into the locales that should be on the device.

Insert Ethernet cable through the cable gland. Terminate the Ethernet cable with RJ45 terminal and connect the cable to the Ethernet port as shown below.



13.2- 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.

13.3- 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.

13.4- OPENING WEB CONFIGURATION INTERFACE WITH BROWSER

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

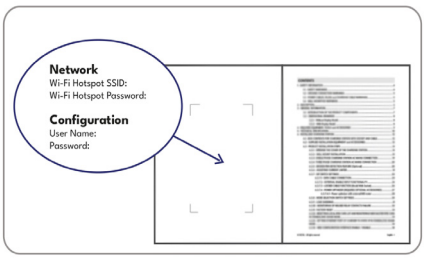
You will see login page on your browser;

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

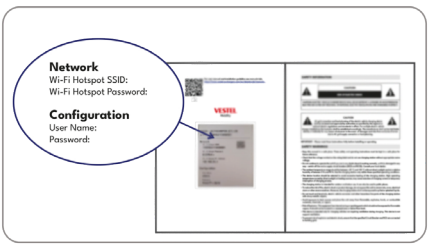
In this section you can log in to the Web configuration interface by entering the configuration information printed on the label. User Name and Password informations are located on the label pasted to the Quick Start Guide or first page of Installation Guideline as shown below.

Changing password is recommended.

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.

When accessing the device's web interface, your browser may show a security warning because the connection uses a local device certificate. Please follow the browser instructions to proceed to the page.

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.

14 - 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.

14.1 - CHANGE GENERAL SETTINGS OF THE DEVICE

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.
Display Screen Saver Settings	**Screen Saver on Available State** In the Screen Saver on Available State section, there are "Enabled" and "Disabled" options. In the "Enabled" state, the screen saver image is activated on the EVC15 screen when the device is not used for a certain period of time. If it is "Disabled," the screen is always on. **Automatic Screen Saver** In the Automatic Screen Saver section, a value between 1 and 30 can be selected to set the number of minutes. Sets how long the device waits before activating the screen saver when inactive. **Screen Saver Image** In the Screen Saver Image section, the screen saver can be uploaded or removed. The added image must be in ".png" format and the image size must be "1024x600". If not, the image will fail to upload. The processes in all sections become active when the Save button is pressed.
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.

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.

14.2 - 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.
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 Operation Mode, Power Optimizer Total Current Limit and Power Optimizer External Meter. 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.

14.3 - CHANGE OCPP SETTINGS OF THE DEVICE

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.

14.4 - CHANGE NETWORK INTERFACES SETTINGS OF THE DEVICE

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 Traffic** 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 outgoing traffic. The "Allow" option accepts all outgoing traffic, while the "Deny" option rejects all outgoing 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.

14.5 - CHANGE STANDALONE MODE SETTINGS OF THE DEVICE

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 14.7.

14.6 - 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.

14.7 - LOCAL LOAD MANAGEMENT OF THE DEVICE

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

GENERAL SETTINGS

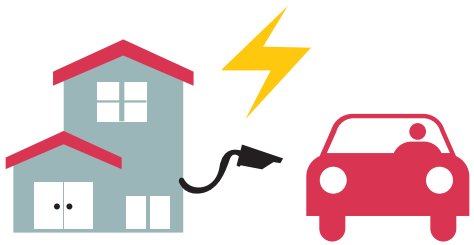
If the device with dynamic local load management; local management option can be disabled, Modbus TCP or Master/Slave.

14.7.1- Modbus TCP/IP Protocol Parameters

EVC15 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 EVC15 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.

14.7.2- 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.



14.7.3- 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 EVC15 charging stations in master/slave clusters. According to the customer needs, one of these alternatives can be chosen.

14.7.4- Star Topology

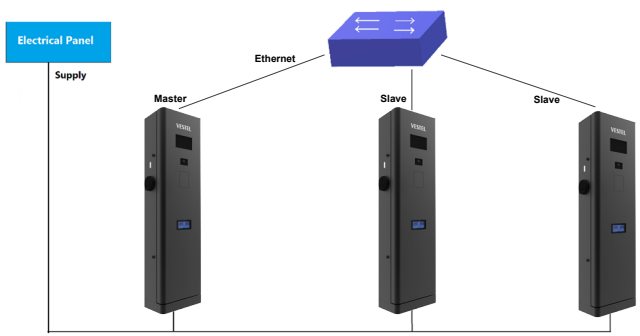
In star network topology, all chargers are connected to the master station via a network switch or router. This topology needs cabling between each charging station and the central switch. This topology is more reliable than daisy chain topology since each charging station has its own connectivity to 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 configure all 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 configure master 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.

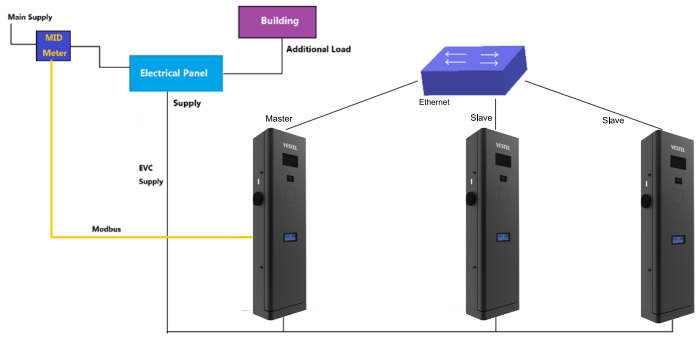
Block diagrams for static and dynamic supply in star network topology are provided as below.

14.7.4.1- Static Supply Star Topology:



Local Load Management configuration of static supply.

14.7.4.2- Dynamic Supply Star Topology:



14.7.5- Daisy Chain (Serial)

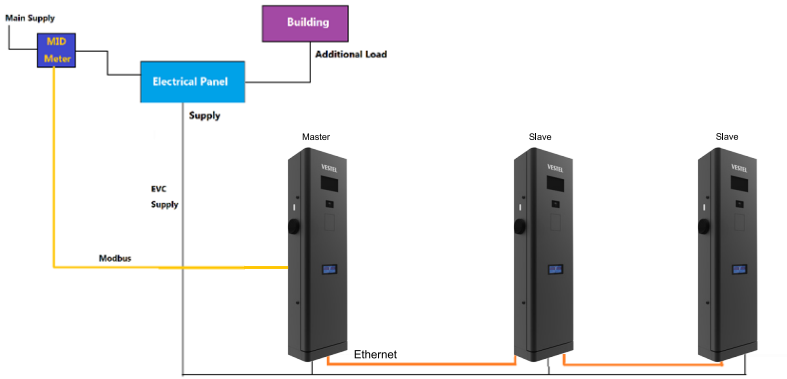
Daisy chain topology needs cabling between each charging station as in and out connection. To be able to use daisy chain topology, the charging station needs optional daisy chain two port switch board inside. For the connection of each charging station in series topology, Cat5e or Cat6 Ethernet cables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

14.7.5.1- Static Supply Daisy Chain Topology :

14.7.5.2- Dynamic Supply Daisy Chain Topology :



14.7.6- Configuration of Charge Point Roles

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. Master
b. Slave
c. Backup Master

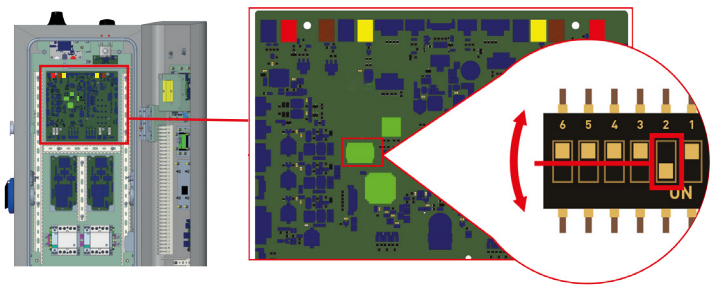
14.7.6.1- Configuration of Slave Charging Stations

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 ACPW board of the charger shown in -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



To log in to the WEB Configuration User Interface, please refer to Section 13.3.

Local Load Management option in General Settings 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"**.

Master/Slave: In systems where multiple charging stations are connected to a single common power supply, Master/Slave architecture is used for charging without exceeding the grid power. It establishes the master-slave relationship in load management. One device becomes the **"master"** and manages the others, the others become **"slaves"** and only execute the given commands. This determines who is the administrator in the system.

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 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. This must be same for both Slave and Master.

NOTE:

To apply WLAN/WiFi for networking, you need to enable WLAN option from Network Interfaces tab settings and provide the SSID, Password, Security, IP Setting as DHCP of router.

For Ethernet(LAN) opting the settings needs to be done in Network Interfaces tab.

The slave charging stations should be set as DHCP client. 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.

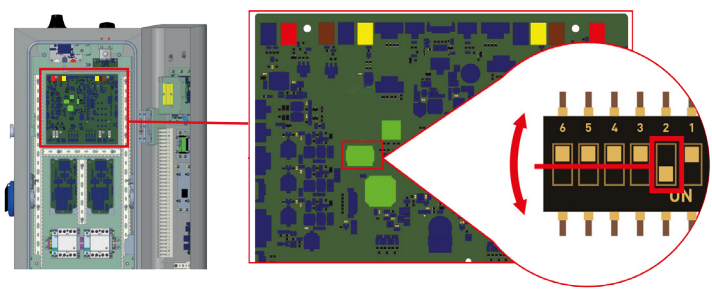
14.7.6.2- Configuration of Master Charging Station

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 ACPW 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



To log in to the WEB Configuration User Interface, please refer to Section 13.3.

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.

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"**.

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.

Multi Master feature allows multiple DLMs to operate simultaneously on the same network, supporting up to 10 distinct clusters.Each cluster corresponds to a master node, and each master node manages its own dedicated grid to handle the current workload.

By default, the MultiMaster option is disabled.If the user wants to enable this option, they can do so via the web UI by enabling the MultiMaster feature and selecting the desired cluster value.

Note: It is important to remember that two multimaster configurations with the same cluster values cannot coexist on a single network.

The multimaster and cluster settings can be configured via the Master Configuration Settings page and the Slave Configuration Settings page in the web UI.

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.

In the Supply Type option;

Static, Klefer 6924/6934 (The energy meter KLEFR 6934 is used for a 3-phase installation or the model KLEFR 6924 for a 1-phase installation.), **TIC** (TIC is a communication interface used in the smart meter Linky systems provided by distribution companies in France.), **GARO GNM3T/GNM3D** (Digital energy meters for 3-phase system, supports the Modbus protocol.) and **P1** (Power optimizer) can be selected.

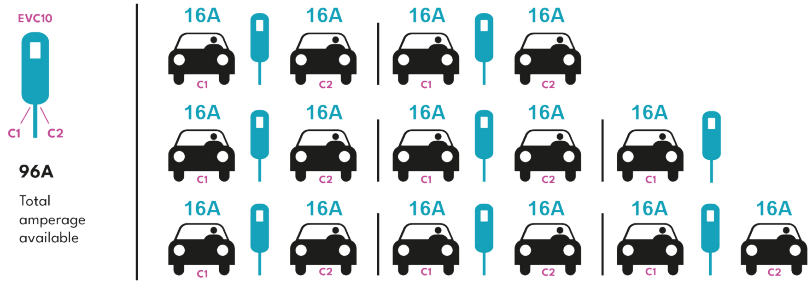
Load Management Mode, can be selected from three options as **"Equally shared"**, **"First in First out"** and **"Combined"** modes. Combined mode needs extra configuration as **"FIFO Charging Percentage"** which effects the share between equally shared and first-in first-out calculations of the load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

There are 3 different scenarios of load Management usage:

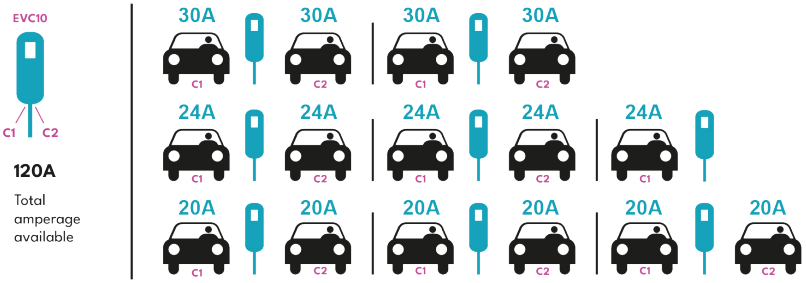
14.7.6.2.1 - Equally shared

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

EV10-2x11kwh:



EV10-2x22kwh:



14.7.6.2.2 - 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. If only one connector connected to EV it can draw maximum 32A but if both connectors connected with EV, each connector will draw maximum 16A.

EV10-2x11kwh:

				Gm = 60A				Gm = 56A
EVSE/Tp	conn	T1	T2	T3	T4	T5	T6	T7
1	C1	32A	16A	16A	16A	8A ↓	6A	6A
	C2	32A	16A	16A	16A	16A	8A ↓	6A
2	C1	32A	28A	16A	16A	16A	16A	8A ↓
	C2	32A	12A	12A	6A	14A	16A	16A
3	C1	32A	12A	6A	6A	6A	20A	32A

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

EV10-2x22kwh:

			Gm = 120A					Gm = 80A
EVSE/Tp	conn	T1	T2	T3		T4	T5	T6
1	C1	32A	32A	32A	32A	16A ↓	6A	6A
	C2	32A	32A	32A	32A	32A	32A	32A
2	C1	32A	32A	32A	32A	32A	32A	32A
	C2	32A	24A	24A	18A	32A	32A	6A
3	C1	32A	24A	6A	6A	8A	24A	6A

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

14.7.6.2.3 - 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.

EV10-2x11kwh:

F% =50		Gm = 60A						Gm = 80A		Gm=29A	Gm = 30A
EVSE/ Tp	conn	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10
1	C1	32A	16A	16A	16A	8A↓	6A↓	6A			6A
	C2	32A	16A	16A	16A	16A	8A↓	7A↓	6A↓	6A	6A
2	C1	32A	28A	28A	16A	16A	16A	11A↓	8A	6A↓	6A
	C2	32A	28A	6A	12A	14A	16A	16A	15A	15A	8A↓
3	C1	32A	28A	6A	6A	6A	14A	16A	32A	10A	6A

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

You can see the "FIFO share" and "Equally Charging Share" distribution of each CP below:

F% =50		Gm = 120A						Gm = 80A		GM =29A	Gm = 30A
EVSE/Tp	conn	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10
1	C1	32A	1+15A	6+ 10A	8.5+7.5A	2+6A↓	6A↓	6A			6A
	C2	32A	1+15A	6+ 10A	8.5+7.5A	10+6A	2+6A↓	7A↓	6A↓	6A	6A
2	C1	32A	28A	18+ 10A	8.5+7.5A	10+6A	10+6A	4+7A↓	1+7A	6A↓	6A
	C2	32A	28A	6A	4.5+7.5A	8+6A	10+6A	9+ 7A	8+7A	8+7A	2+6↓A
3	C1	32A	28A	6A	6A	6A	8+ 6A	9+ 7A	25+7A	3+7A	6A

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

EV10-2x22kwh:

F% =50		Gm = 120A						Gm = 80A		GM =29A	Gm= 30A
EVSE/Tp	conn	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10
1	C1	32A	32A	32A	32A	20A↓	6A↓	6A	8A		6A
	C2	32A	32A	32A	32A	32A	32A	32A	32A	11A	6A
2	C1	32A	32A	32A	32A	32A	32A	26A	32A	6A	6A
	C2	32A	24A	24A	12A	24A	32A	8A	10A	6A	6A
3	C1	32A	24A	12A	12A	12A	18A	8A	10A	6A	6A

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

14.7.6.3 - Configuration of Backup Master

The "Backup Master" role provides redundancy in a Dynamic Load Management (DLM) network. In the event of the primary "Master" CP becoming unavailable, the "Backup Master" will automatically take over the master functions, ensuring continued operation and load balancing for connected slave CPs.

To configure a CP as a "Backup Master":
Ensure "Load Management Option" is set to "Master/Slave". (This is the default and necessary for both Master and Backup Master roles). From the "Charge Point Role" dropdown menu, select "Backup Master".

Read-Only Settings (Important):
Once "Backup Master" is selected, all other configuration settings on the "Local Load Management" page will become read-only. This is a critical design feature to ensure consistent and predictable behavior for the Backup Master, as its primary function is to replicate the Master's configuration and assume its role if needed.

DLM Master and Backup Master Switching
If the Main Master becomes unavailable, the Backup Master automatically takes control to ensure continuous system operation.

- Once the Main Master is active again, it checks the status of the Backup Master to confirm its readiness.
- If the Backup Master is still active, the Main Master resumes communication directly with it to synchronize the network.
- The Backup Master then returns to standby mode, allowing the Main Master to fully take over again.
- All connected nodes automatically reconnect to the Main Master without requiring user intervention.

DLM Master and Backup Master Data Synchronization

The "Master" and "Backup Master" are designed to continuously synchronize DLM settings and slave data to ensure a seamless failover experience. This synchronization occurs:

- **During Power-Up:** The "Backup Master" requests and receives the latest settings and slave data from the "Master".
- **During Runtime:** The "Master" pushes updated DLM settings and slave data to the "Backup Master" whenever changes occur.

Backup Master Operational Behavior:

When in Standby Mode (Main Master active): When the Main Master is operational and recognized by the Backup Master, the Backup Master remains in a standby state, continuously synchronizing data from the Main Master. The WebUI will display 'Backup Master' as the CP Role, and all other Local Load Management settings will be read-only.

When Operating as the Active Master (after failover): If the primary Master becomes unavailable (e.g., due to power loss or network disconnection), the configured Backup Master will automatically detect this and assume the active Master role after a set timeout. While functioning as the active Master, it will control the DLM network and allow disconnected Slave CPs to reconnect. The WebUI configuration for this CP will still show 'Backup Master' as the selected role, and all other settings will remain read-only.

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 slave one by one. After selecting the slave serial number the respective slave information will be visible.

If the selected slave 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.

15 - VERIFICATION OF THE VALIDITY OF MEASUREMENT DATA USING TRANSPARENCY SOFTWARE

This section is describing charging, transfer of legally relevant data and billing of charging process in accordance with the German Measures and Verification Ordinance (MessEV).

In this charging station, the progressing kWh display information is shown on the display.

What is transparency software?

Transparency software allows you to verify digital signatures. Depending on its technical design, a charging station creates digitally signed meter readings in connection with the charging procedure you are carrying out at the charging station. These digital signatures enable you to check the readings with a time delay so that you can ensure noone has manipulated the readings at any point during their transfer to your invoice.

In order to use the transparency software you must first download and then open it on your desktop PC system.

You can download transparency software from the link below. Installation is explained on this site.

https://www.safe-ev.de/en/transparency_software.php

How does the transparency software work?

Transparenzsoftware 1.2.0

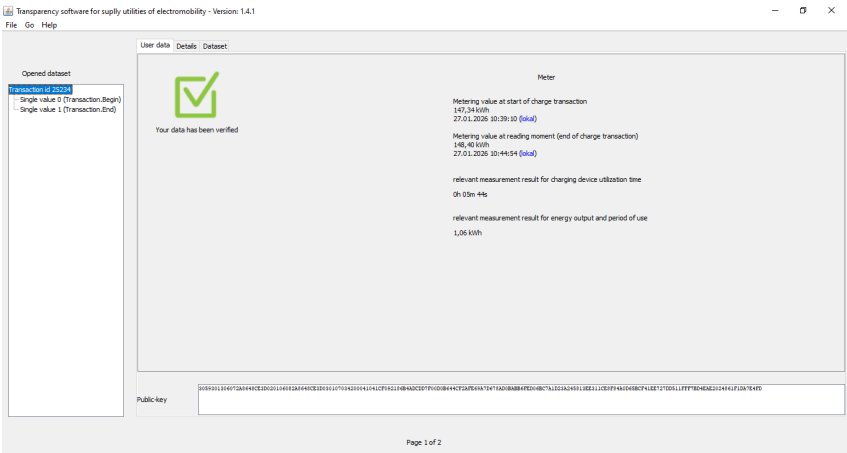
With the use of this software, it's possible to verify a digital signature. Depending on the technical setup, a charging station will produce a digitally signed meter reading that is linked to the charging station where an EV is being charged. With this digital signature, you can check the measured values with a delay. In this way, as a consumer, you always know for sure that the charged kWhs are correct and that the measured values can no longer be adjusted when the charged kWhs are invoiced.

LOADING DIGITAL SIGNATURE DATA

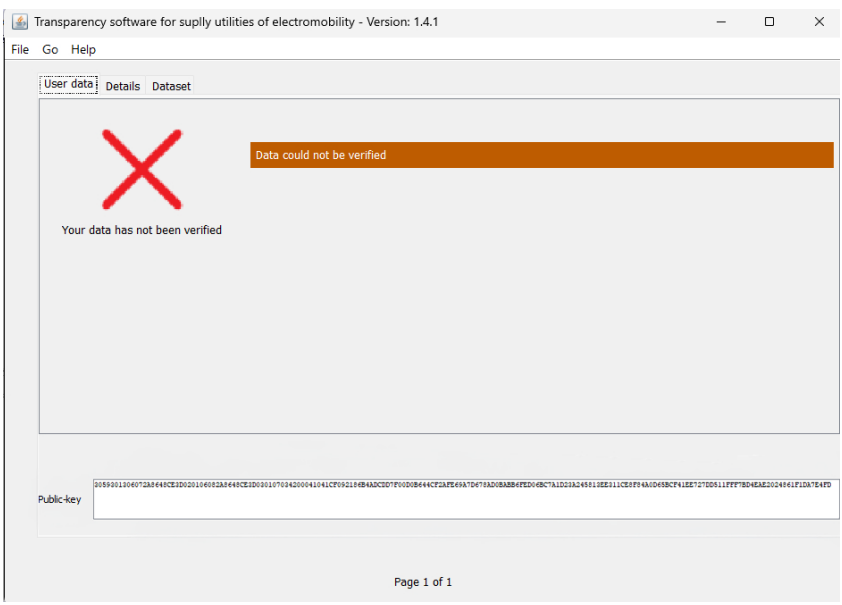
Select the meter readings available to you using the 'File' / 'Open' function and enter the charging station's public key.

CHECKING THE RESULT

Check the output as to whether the results of digital signature verification match the information on your invoice or charging receipt.



If you enter the wrong public key, it will give an error message as below.



Remote transmission of metering data to a OCPP backend

Charging station connecting to an OCPP backend, the corresponding signed measurement and log data record is provided to the OCPP backend automatically at the end of a charging session.

Forwarding data records to customers

Forwarding data records to customers is the job of the charge point operator and is not within the scope of influence of the charging station manufacturer. After the charging session, signed metering data records are transmitted to an OCPP central system and this data is available to an end user via web interface, e-mail, smart phone application or similar.) The data records are preferably in .xml format. If you need to verify the charging session data by using transparency software please request signed measurement data from your charge point operator or e-mobility provider.

Verification of measurement data using the transparency and display software

Using the transparency and display software, users can check whether the measurement data comes from a certain charging station and whether its authenticity has been maintained.

The charging station has a public key. The public key is openly available and indicated on the type plate of measurement unit of the charging station in the form of a QR code. The charging station creates a measurement data record in the measurement capsule. The charge point operator then uses the signed measurement data record to create the bill. Both the signed measurement data and the public key, in a format that is compatible with the transparency and display software, must be provided on the bill or in a customer portal.

After receiving the bill, the consumer can input the digitally signed measured values along with the public key into the transparency and display software. The signature verification enables the consumer to check the validty of the measured values. To do so, the consumer compares the values displayed in the transparency and display software with the contents of the bill. If the measurement record is validated by transparency software , this confirms that the data record was not changed and valid for billing.

The transparency and display software checks the following data:

Public key, as identifier of the charging station. The public key can also be read on the type plate of measurement unit of the charging station.

Correct measured energy value

Correct user/transaction ID

Checking the signed measurement data record

To check the measurement data record, proceed as follows:

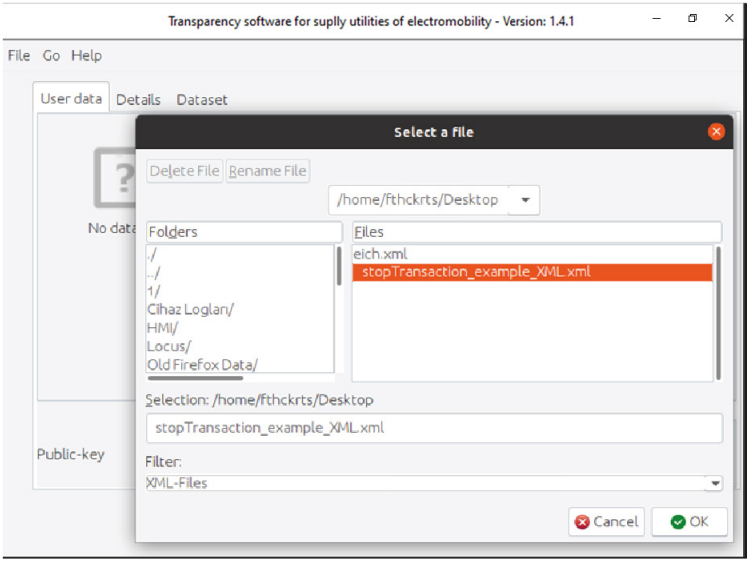
1) Download and install a Java Runtime Environment (available for all operating systems, usually already present, e.g. Oracle).

2) Download the transparency and display software from

https://www.safe-ev.de/en/transparency_software.php

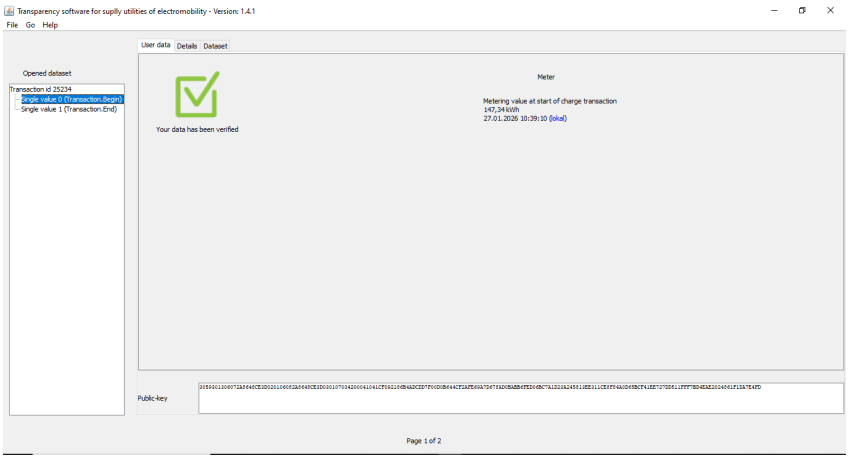
3) Input the following data into the transparency and display software:

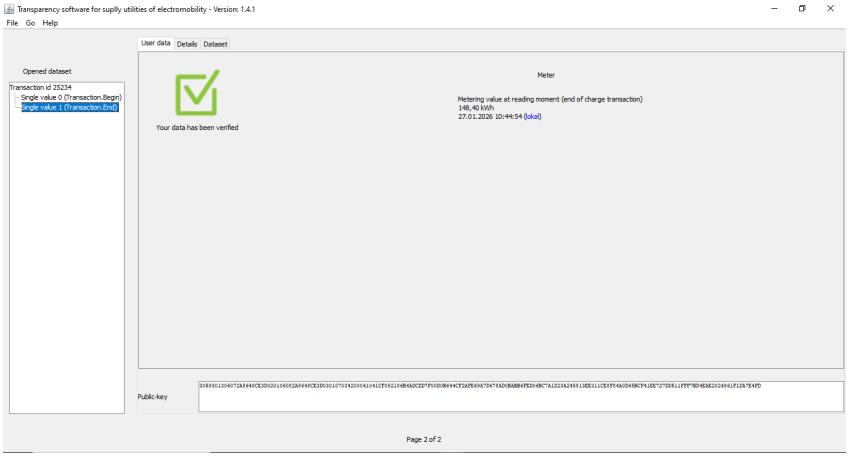
– Signed measurement data record
– Selection of the “OCMF” format
– Public key of the corresponding charging station



4) After entering the necessary data, the check can be started.

5) After this check is complete, it must be checked whether the results of the signature verification match the information on the bill.

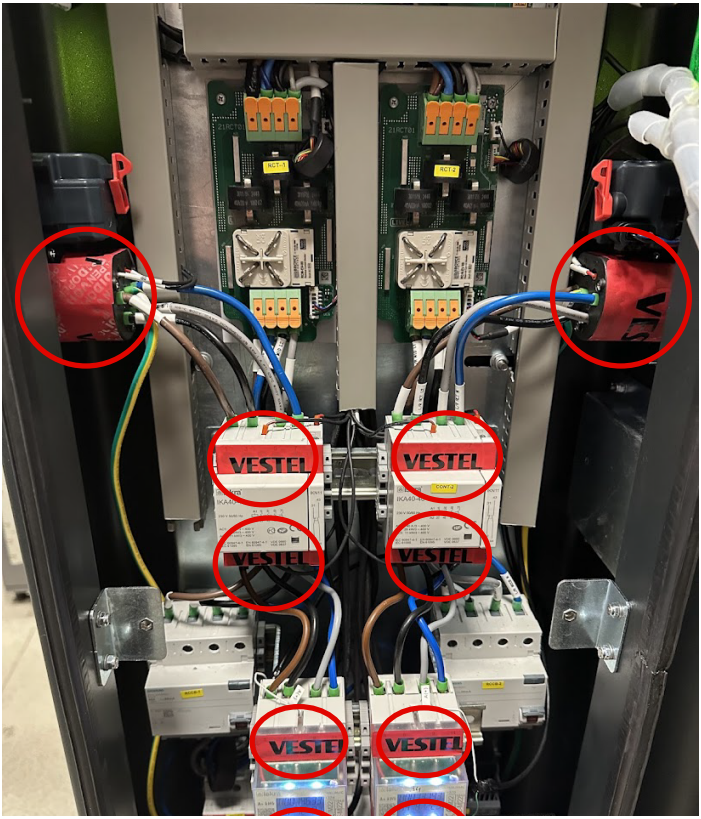




16 - OVERVIEWS OF THE CHARGER CONSTRUCTION WITH DESCRIPTION OF MANUFACTURER'S/OPERATOR'S SEALS

16.1 - MANUFACTURER'S SEALS

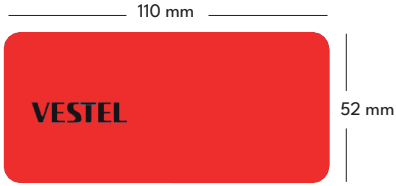
The manufacturer's seals are applied to the measurement units of the charger during production. The front and rear views of the internal components of the EVC15 Eichrecht product are shown in the figure below. The parts circled in red indicate the manufacturer's seals.



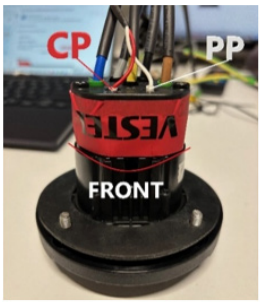
1. To ensure product safety, the cables are sealed in such a way that they cannot be removed from the socket (see below). Two sealing labels are shown below. These are applied to the left and right sides of the socket so that they completely enclose it. The installation of the left and right socket seals is identical.

First, a label measuring 80 × 25 mm is wrapped around the socket. Then, a label measuring 110 × 52 mm is wrapped and affixed. Two seals are used for each socket. A total of four label seals are used.

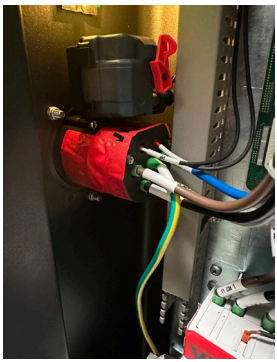
Sealing sticker dimension : 80*25 mm



Sealing sticker dimension : 110*52 mm

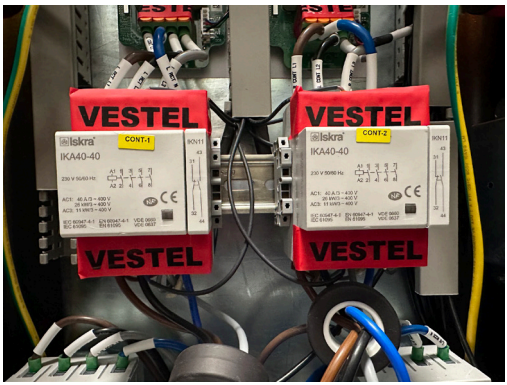


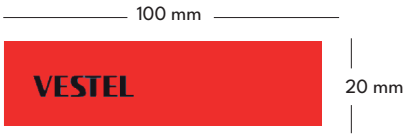
Ansicht links:



Ansicht rechts:

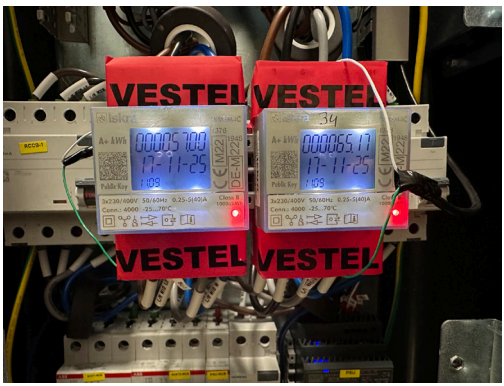
2. Four labels should be applied to the surfaces of the contactors, as shown in the figure below.

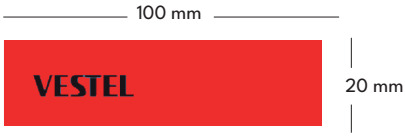




Sealing sticker dimension : 100*20 mm

3. To secure the two MID meters in the product, four sealing labels are used. The sealing labels should be applied to the left and right ISKRA MID meters of the product shown below.





Sealing sticker dimension : 100*20 mm

16.2 - OPERATOR'S SEAL

It is recommended to apply the seal to the input terminal after the cable has been connected to the product and during the installation of the electric vehicle charger.

17 - LEGAL INFORMATION

17.1 - MEASUREMENT ACCURACY NOTES ACCORDING TO CSA TYPE APPROVAL CERTIFICATE

I Requirements for the operator of the charging station, which must be fulfilled as necessary prerequisites for the proper operation of the charging station.

The operator of the charging station is, within the meaning of § 31 of the Measurement and Calibration Act (Mess- und Eichgesetz), the user of the measuring device.

1. The charging station is considered legally compliant and properly used under calibration law (Eichrecht) only if the meters installed in it are not exposed to environmental conditions other than those for which their type approval certificate (Baumusterprüfbescheinigung) was issued.

2. The charging station is considered legally compliant and properly used under calibration law only if only the authentication methods listed under Punkt 1.3.2.3.2 of the currently valid BMP of these 6.8 devices are used.

3. The user of this product must register the public key specified for the charging points in the charging station with the Federal Network Agency (Bundesnetzagentur) in their registration form when registering the charging points! Without this registration, legally compliant operation of the station is not possible. Weblink: https://www.bundesnetzagentur.de/DE/Sachgebiete/ElektrizitaetundGas/Unternehmen_Institutionen/E-Mobilitaet/start.html

4. The user of this product must ensure that the calibration validity periods for the components in the charging station and for the charging station itself are not exceeded.

5. The user of this product must ensure that charging stations are promptly taken out of service if, due to fault or error messages in the display of the calibration-relevant human-machine interface, legally compliant operation is no longer possible. The catalog of fault and error messages in this operating manual must be observed.

6. The user must store the signed data packets read from the charging station – continuously and completely according to pagination – on hardware dedicated to this purpose or, by agreement, in the possession of the EMSP or backend system (“dedicated storage”) and make them available to authorized third parties (obligation to operate the storage). “Permanently” means that the data must be retained not only until the completion of the business transaction, but at least until the expiration of any possible statutory limitation periods for the business transaction. Missing data may not be replaced by substitute values for billing purposes.

7. The user of this product must provide measurement value users, who receive measurement data from this product and use it in commercial transactions, with an electronic copy of a CSA-approved operating manual. In doing so, the user must specifically point to Nr. II “Requirements for the Users of Measurement Data from the Charging Station.”

8. To the extent required by authorized authorities, the measuring device user must provide the full content of the dedicated local storage or the storage at the EMSP/backend system with all data packets of the billing period.

II – Requirements for the Users of Measurement Data from the Charging Station (EMSP)

The user of the measurement data must comply with § 33 of MessEG:

§ 33 MessEG (Quote)

§ 33 Requirements for Using Measurement Data

(1) Values for measurement quantities may only be indicated or used in commercial or official transactions, or in measurements in the public interest, if a measuring device was properly used to determine them and the values can be traced to the respective measurement result, unless otherwise specified in the legal ordinance according to § 41 Nummer 2. Other federal regulations serving comparable protective purposes remain applicable.

(2) Anyone using measurement values must, within the scope of their possibilities, ensure that the measuring device meets the legal requirements and must obtain confirmation from the person using the measuring device that they have fulfilled their obligations.

(3) Anyone using measurement values must:

1. Ensure that invoices, insofar as they are based on measurement values, can be easily verified by the person for whom the invoices are intended (corresponding to Nummer 1); and

2. Provide, if necessary, suitable tools for the purposes mentioned in Nummer 1.

From this regulation, the following specific obligations arise for the user of measurement values to ensure legally compliant use under calibration law (Eichrecht):

1. The contract between the EMSP and the customer must clearly stipulate that only the delivery of electrical energy, and not the duration of use of the charging station, is the subject of the contract.

2. The timestamps on the measurement values come from a clock in the charging station that is not certified under the Measurement and Calibration Law and must therefore not be used for tariffing the measurement values.

3. The EMSP must ensure that the customer automatically receives a record of the measurement after completion and at the latest at the time of invoicing, including information necessary to determine the business transaction, unless the customer explicitly waives this. Such information may include:

a. Name of the EMSP

b. Location of the charging station

c. Start and end time of the charging session

d. Energy delivered (kWh)

e. Amount to be billed

4. If the customer requests proof that the measurement results were correctly transferred from the charging station to the invoice, the EMSP is obligated according to MessEG § 33 Abs. (3) to provide it. If the customer requests reliable permanent proof according to Annex 2 § 10.2 MessEV, the EMSP must provide it and inform the customer of these obligations. This can be done, for example, in the case of continuous charging contracts through the text of the contract.

This can be done, for example, in the following ways and depending on the authentication method:

a. For charging with a continuous obligation relationship via the written contract.

5. The EMSP must automatically make the billing-relevant data packets available to the customer after the completion of the measurement and at the latest at the time of invoicing, including signatures, as a data file in a manner that allows verification of their authenticity using transparency and display software. The provision of the data packets can occur via legally unverified channels in the following ways and depending on the authentication method:

a. For charging with a continuous obligation relationship via email or access to a backend system.

Additionally, the EMSP must make the transparency and display software associated with the charging station available to the customer for verifying the authenticity of the data packets. This can be done by referencing the source in the user manual for the customer or through the aforementioned channels.

6. The EMSP must be able to verifiably demonstrate which identification method was used to initiate a specific charging session. That is, for each business transaction and billed measurement value, the EMSP must prove that the measurement value is correctly assigned to the customer's identification data. The EMSP must inform its customers of this obligation.

7. The EMSP may only use values for billing purposes for which data packets exist in the dedicated storage in the charging station and/or in the EMSP/backend system. Substitute values may not be created for billing purposes.

8. The EMSP must ensure, via appropriate agreements with the charging station operator, that the data packets used for billing are stored long enough to allow the complete processing of the associated business transactions.

9. Upon justified request for calibration, verification, and usage monitoring measures, the EMSP must enable authentication on the relevant instances of the product belonging to this operating manual using suitable identification means.

10. All of the above obligations apply to the EMSP as a measurement value user within the meaning of § 33 MessEG, even if the measurement values are obtained from the charging stations via a roaming service provider.

18 - MAINTENANCE

The device is maintenance-free. The applicable validity periods for calibration must be observed for both the electricity meter and the charging station. Compliance with the points listed in the chapters Model Description, Technical Specification, and Legal Notices must be ensured throughout the entire service life of the product. The user must not exceed the validity period of the calibration for either the meter or the charging stations. If the calibration period is exceeded, please contact the manufacturer to have the meter in the charging station replaced by an authorized technical service provider.

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