DC Quick Charger
Installation Manual

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V1.0.2

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INTRODUCTION

The DC Quick Charger is the top choice to power battery electric vehicles (BEV) today. It is designed for quick charging in retail and commercial parking spaces, fleet charging stations, highway rest areas, etc.

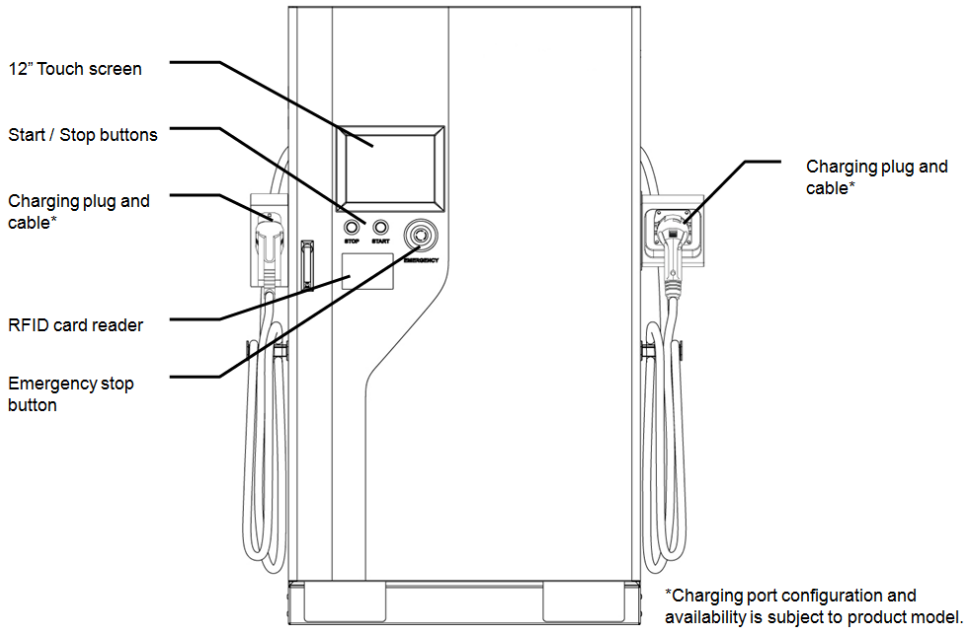
The DC Quick Charger has network communication capability and is able to connect with remote network systems and provide drivers of electric cars real-time information, such as the location of charging stations, charging progress and billing information. DC Quick Charger has a clear and straight forward user interface, safety system of power supply and excellent waterproof and dust proof technology to provide the best choice for outdoor environments. It can also integrate with renewable energy, such as solar power and wind power technology to provide the most energy saving infrastructure for EV system development.

Features

- Offers customers the convenience of full start and stop charging control from an authorized RFID smart card.
- Built on latest industry standards for DC charging.
- Carries an IP55 protection rating capable of withstanding solid and liquid intrusions in outdoor settings making the unit more stable and highly reliable.
- Provides a high-contrast, user-friendly 12" LCD touch screen interface.

Applications

- Public and private parking areas
- Community parking areas
- Parking areas of hotels, supermarkets and shopping malls
- Charging stations
- Highway rest areas



IMPORTANT SAFETY AND GROUNDING INSTRUCTIONS

Safety and Compliance

- Read the manual before installation or usage of device.
- Do not put tools, material or body parts into the electric vehicle connector.
- Do not use the DC Quick Charger if the chassis, power cord or charging cable are frayed, have broken insulation, or any other signs of damaged.
- Do not install or use the DC Quick Charger if the enclosure is broken, cracked, open or has any other indications of damage.
- The DC Quick Charger should be installed only by a qualified technician.
- Make sure that the materials used and the installation procedures follow local building codes and safety standards.
- The information provided in this manual in no way exempts the user of responsibility to follow all applicable codes or safety standards.
- The manufacturer is not responsible for physical injury, damage to property or equipment caused by the installation of this device.
- This document provides instructions for the DC Quick Charger and should not be used for any other product. Before installation or use of this product, you should review this manual carefully and consult with a licensed contractor, licensed electrician, or trained installation expert to make sure of compliance with local building codes and safety standards.

Grounding Instructions

An equipment grounding conductor or a grounded, metal, and permanent wiring system is required for the DC Quick Charger connection. This should be run with circuit conductors and connected to the equipment grounding bar or lead on the DC Quick Charger.

BEFORE INSTALLATION

Safety Requirements

Be sure to preview the standard operating procedures (SOP) and ensure local building and electrical codes are reviewed before installing the DC Quick Charger.

The DC Quick Charger should be installed by a trained technician according to the instruction manual and local safety regulations.

Use appropriate protection when connecting to the main power distribution cable.

Recommended Tools

The following tools are recommended for the DC Quick Charger installation:

- (1x) No.2 Philips screw driver
- (1x) No.3 Philips screw driver
- (4x) M12 expansion bolts
- (1x) Concrete drill
- (1x) Wire cutters
- (1x) 16mm ratcheting wrench for the base

Important Safety Instructions

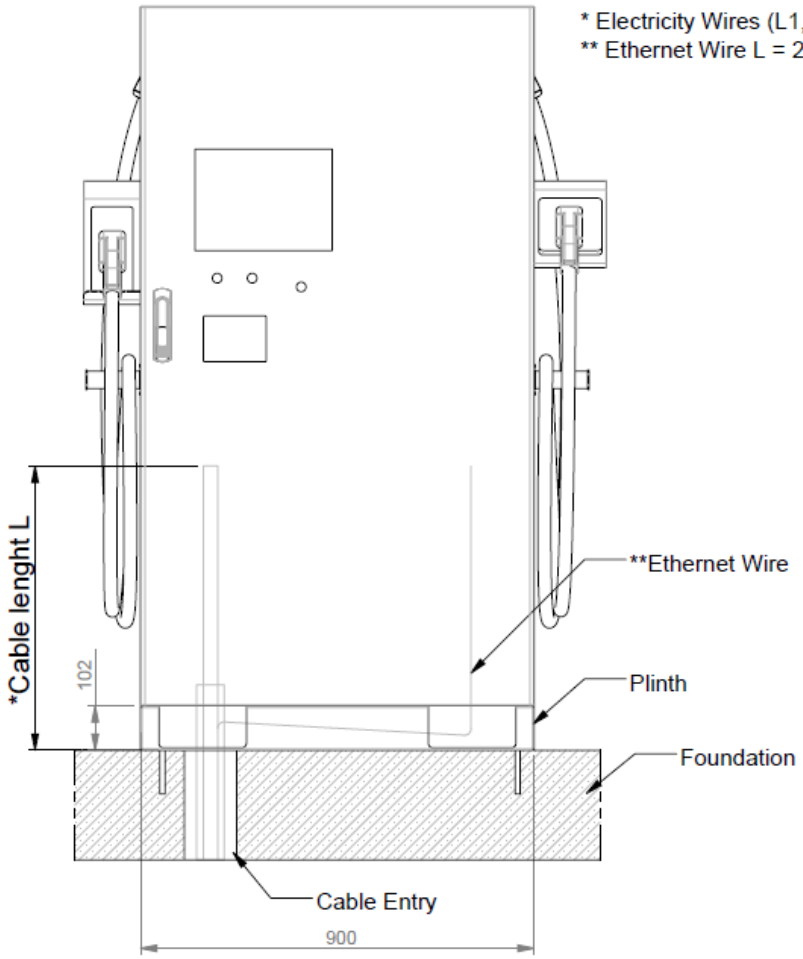
- **Save these Instructions**
- **The DC Quick Charger should be installed only by a licensed contractor, and/or a licensed electrician in accordance with all applicable state, local and national electrical codes and standards.**
  Before installing the DC Quick Charger, review this manual carefully and consult with a licensed contractor, licensed electrician and trained installation expert to ensure compliance with local building practices, climate conditions, safety standards, and state and local codes.

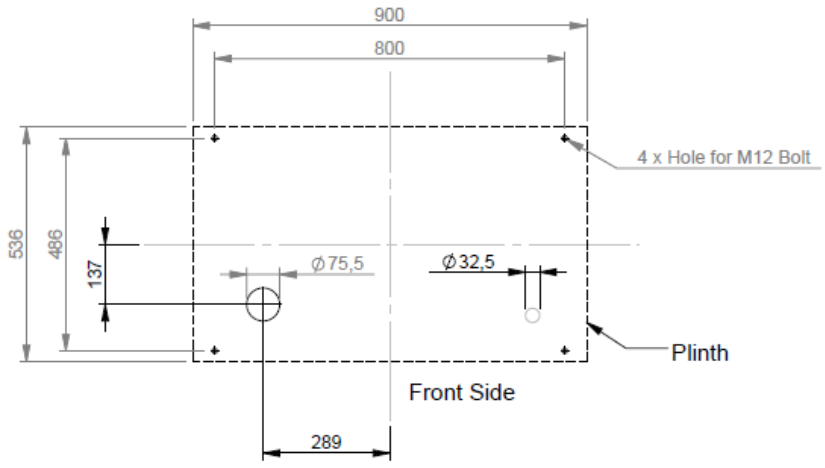
WARNING!
Danger of electrical shock or injury. Turn OFF power at the panel board or load center before working inside the equipment or removing any component. Do not remove circuit protective devices or any other component until the power is turned OFF.

CAUTION!
TO AVOID DAMAGE TO THE CHARGER OR PERSONAL INJURY, MAKE SURE THE INSTALLATION LOCATION IS ABLE TO SUPPORT THE WEIGHT OF THE DC QUICK CHARGER.

THE FOUNDATION BASE

When preparing the foundation base and cabling pay regard to positions of cable through holes and expansion bolts.



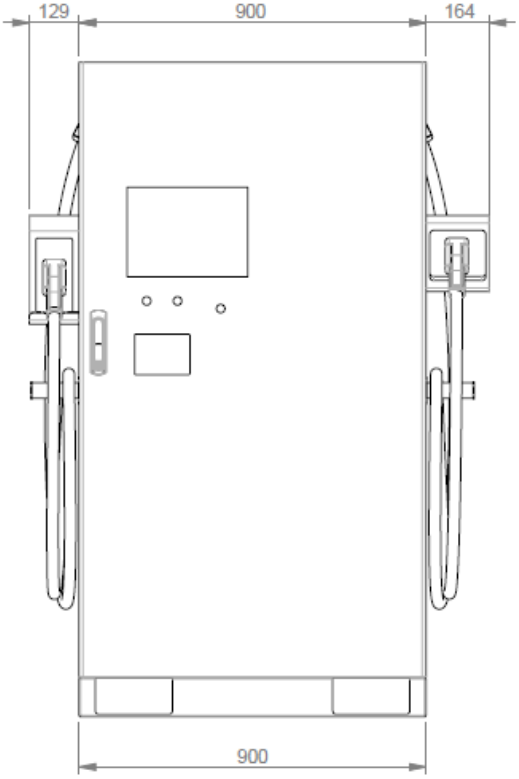


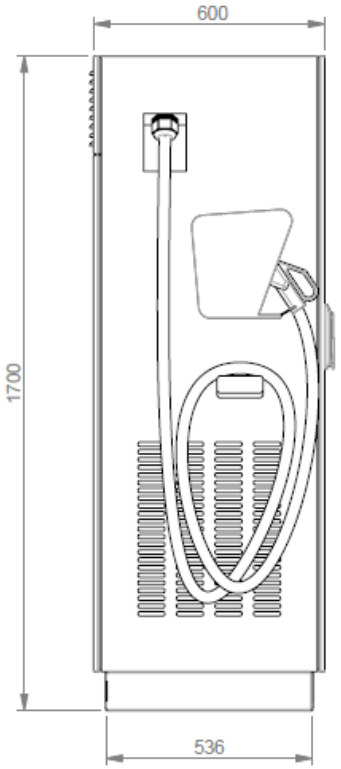
Recommended cable conduits and glands:

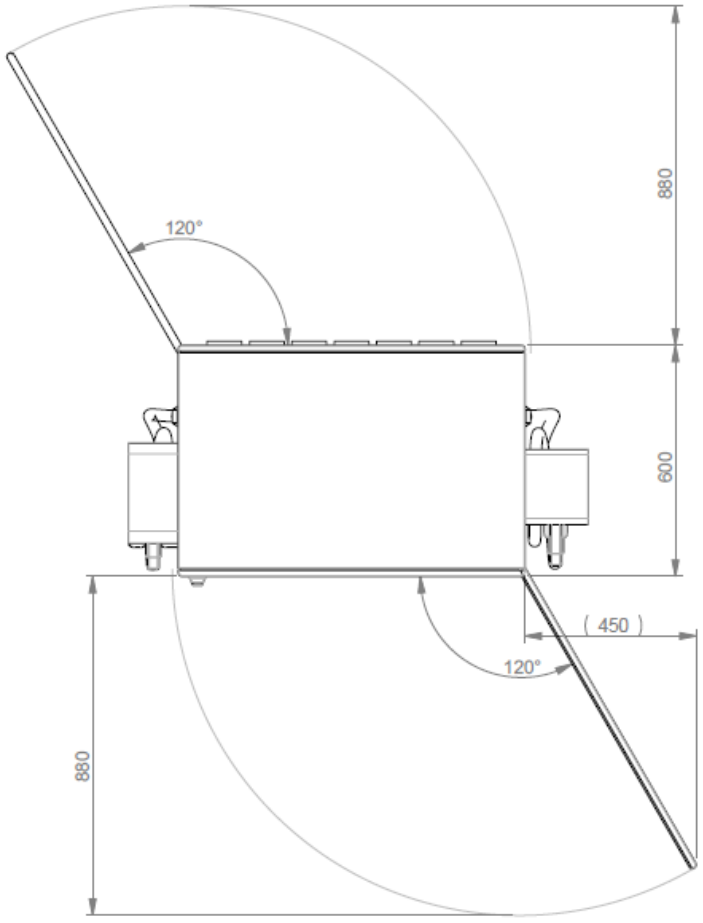
- Power cable: Conduit size 63, gland size M75
- Ethernet cable: Conduit size 25, gland size M32

SPACE REQUIREMENTS

Reserve enough space around the charger to secure operation and maintenance.



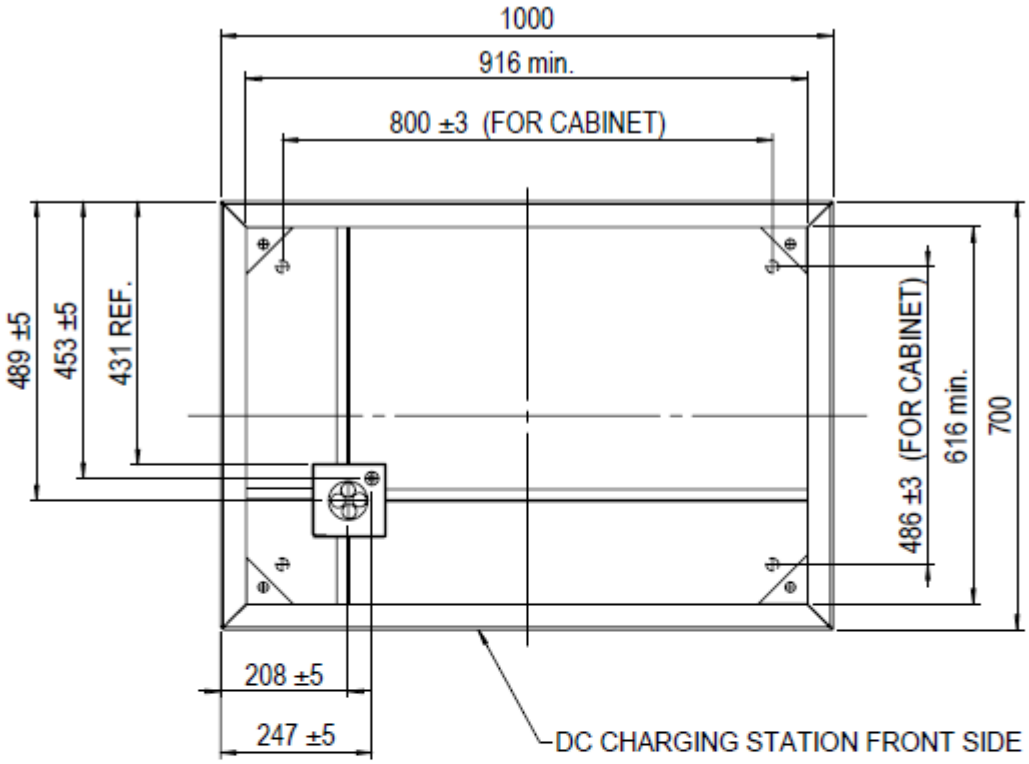


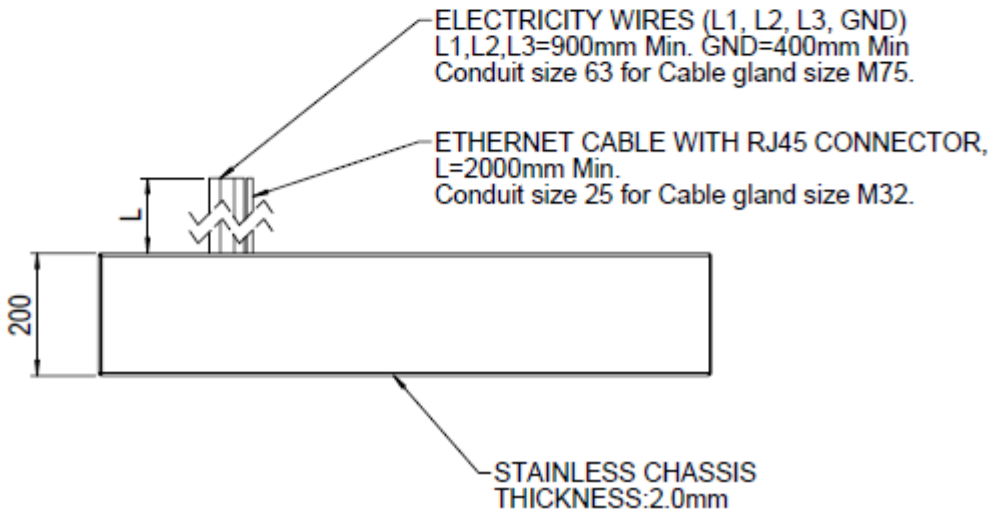


INSTALLING THE BASE

It is recommended to install the DC Quick Charger on a concrete base. Follow the instructions to produce the base frame before installation work. Be aware of the locations for cable entries and the four drill holes (at 800x486mm) to secure the cabinet as noted in the drawing.

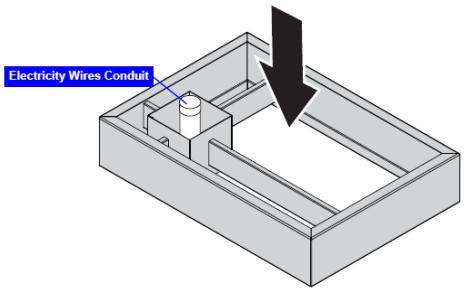
The Base



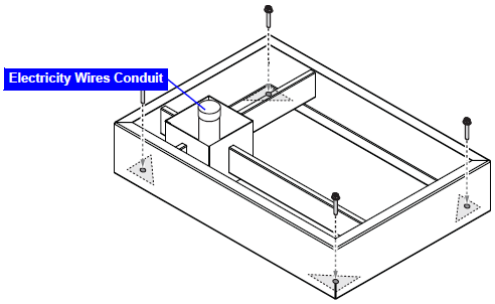


(unit: mm)

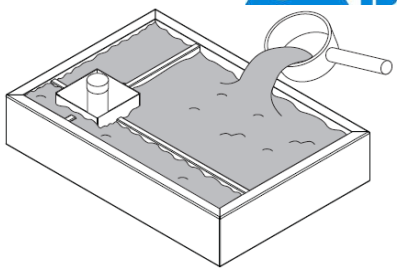
1. Place stainless-steel frame on a clean and level surface.



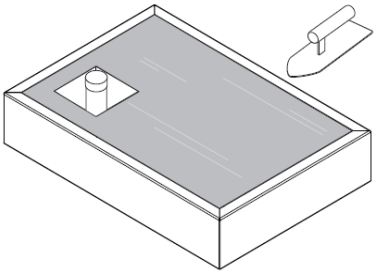
2. Secure the frame to the ground with four screws.



3. Install the electric wiring and Ethernet cable in the respective conduits.
4. Pour concrete into the stainless-steel frame until flush with the top edge.



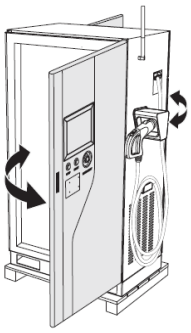
5. Smooth the concrete surface until even and air bubbles are removed.
6. Let the concrete set until properly cured before installing the DC Quick Charger.



7. Drill four holes for M12 expansion bolts as marked on the template, at the corner of an area of 800x486mm.

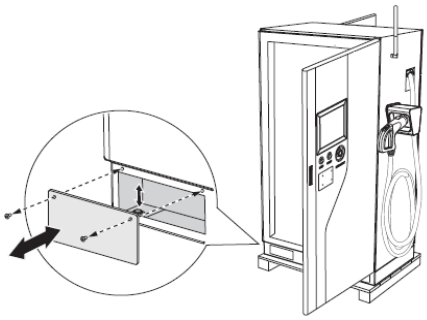
INSTALLING THE DC CHARGER

1. Place unit and palette on a flat surface.
2. Open the front and rear doors.



Note:
A key is required to open the front and rear door. The key is included in the accessory pack.

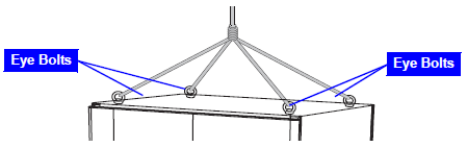
3. Remove screws securing the panel to the frame.
4. Remove the panel from the bottom left front corner of the frame.
5. Remove the bolt and washer from the base of the charger.



Important:
Use a 16mm ratcheting wrench to remove the bolt for the base.

6. Repeat steps four, five, and six for the remaining three corner panels of the charger.

7. Connect and secure hoist ropes to the four (4) eye bolts.



Note:
Alternatively, a forklift operated by trained and authorized personnel can be used to pick up the charger.

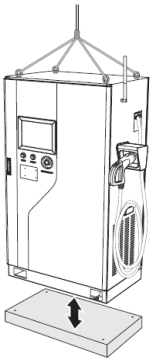
WARNING!
Close the front and rear doors before moving charger. Failure to do so could result in damage to the charger.

8. Lift the DC Quick Charger from the palette to the base mount assembly area.

Important:
Make sure that the bolt holes in the base of the charger are aligned with the holes on the base mount assembly.

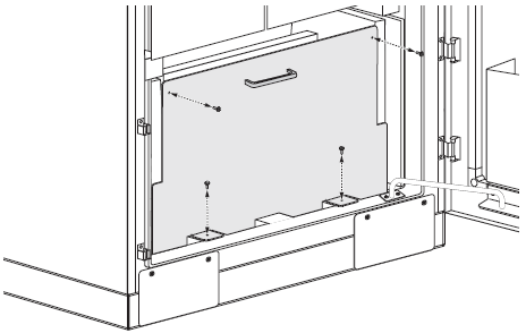
CAUTION
MAKE SURE THE ELECTRIC WIRE AND ETHERNET CABLE CONDUIT IS ALIGNED WITH THE DC QUICK CHARGER INPUT WIRE OPENING PRIOR TO INSTALLATION. FAILURE TO DO SO COULD DAMAGE THE WIRING OR THE CHARGER.

9. Align and lower the DC Quick Charger on the base mount assembly and align with the pre-drilled holes.



MAKING THE CONNECTIONS

1. Open the front door.
2. Remove the screws from the transformer cover.



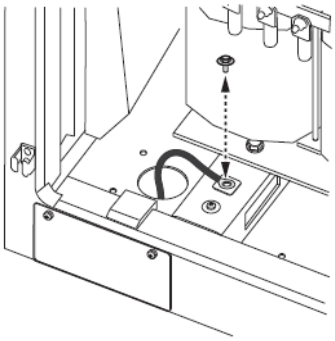
3. Remove the transformer cover.
4. Lead the wires through the corresponding conduit. The conduit shall be secured through the cable glands. Then connect the wires into corresponding terminals.

Note:
Power wiring:

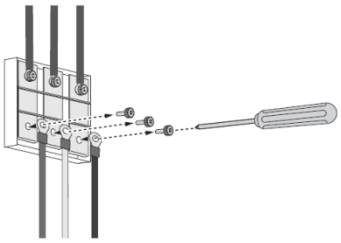
- Conduit size 63 according to EN 61386-24.
- Cable gland size M75 according to EN 50262.
- Ground wire, at minimum length 400mm, of H07RN-F 1x25mm2, to be connected into the earth terminal marked with ground symbol using M10.0 screws with torque of 4.0 N-m.
- Power wires, at minimum length 900mm, of 3 x H07RN-F 1x50mm2, to be connected with cable lugs to the copper bar on the input terminal marked with “L1, L2, or L3” using 3 x M8.0 screws with torque of 3.5 N-m. Minimum clearance distance between L1/L2, L1/L3, and L2/L3 is 8.4 mm.

Ethernet:

- Conduit size 25 according to EN 61386-4.
- Cable gland size M32 according to EN 50262.
- Standard Ethernet cable, at minimum length 2000mm, with RJ45 male connector



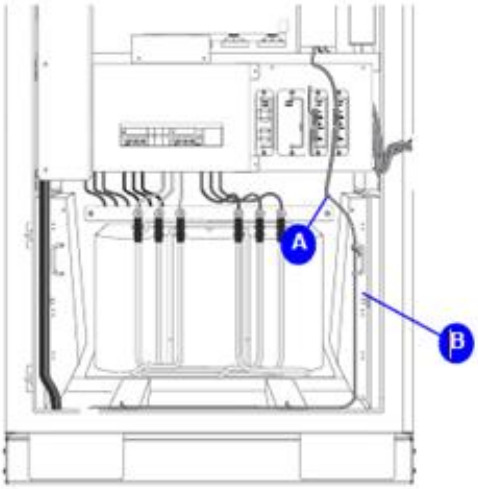
5. Connect the primary power ground wire. Install and secure the screw to the



ground wire.

6. Secure the ring terminal power cables to the terminal block with screws.

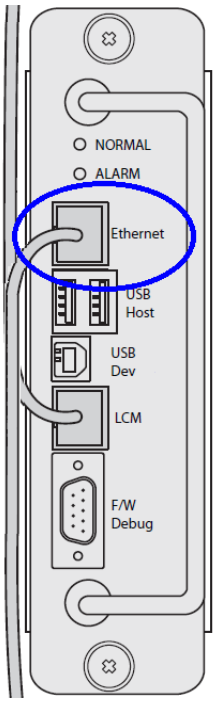
7. Install the transformer cover.
8. Secure the transformer cover to the chassis with screws.
9. Run the Ethernet cable (A) across the bottom of the charger to the air filter (B) located on the right side of the charger. Thread the Ethernet cable (A) up the right side of the charger beside the air



filter (B).

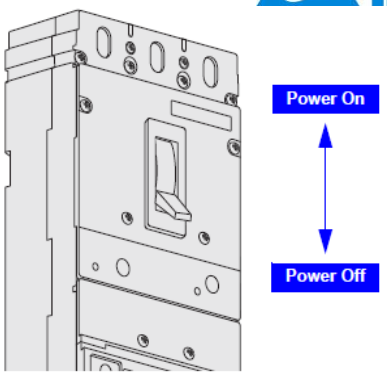
WARNING!
Make sure the Ethernet cable is not touching the transformer after installation. Failure to do so could result in damage to the cable or the charger.

10. Make sure the Ethernet cable is connected properly to the Ethernet port on the CSU. For 2-in-1 models, be sure to connect to the Ethernet port of the CSU on the right.



11. Secure the Ethernet cable to the support bars on the bottom of the chassis and to the handle on the air filter.

12. Install and secure the four (4) M12x1.5 hexagon head bolts to the charger base.
13. Secure the four (4) panels to the chassis with screws.
14. Remove the four eye bolts from the top of the charger. Insert four plastic caps in the holes.
15. Turn on the main breaker, aux power breaker, and surge protector breaker.



16. If 3G connection is to be used, insert a 3G SIM card into the modem. Make sure PIN check on the SIM card is disabled beforehand.
17. Close the front and rear doors.
18. Position the 3G antenna vertically to achieve the best performance.
19. Turn on the input power at service panel.

MAINTENANCE

WARNING: Danger of electrical shock or injury. Turn OFF power at the panelboard or load center before working inside the equipment or removing any component. Do not remove circuit protective devices or any other component until the power is turned OFF.

WARNING: Never open the rear door before the front door on which the LCD screen is installed. Never close the front door before the rear door.

Disconnect electrical power to the DC Charger before any maintenance work to ensure it is separated from the supply of AC mains. Failure to do so may cause physical injury or damage to the electrical system and charging unit.

Notice: The circuit before the main breaker and auxiliary breaker may be hazardous. Only visual inspection of switching device and other apparatus can be operated.

Maintenance of the DC charger shall be conducted only by a qualified technician.

After opening the front door, turn off the main breaker and auxiliary breaker before any maintenance work.

Replace the ventilation filter every six to twelve months.

SYSTEM CODE

CODE	DEFINITION
111001	CAN Error (CSU-SMR)
111002	Insulation Test Failed
111003	Ground fault detected
111004	Emergency stop pressed
111005	Door open
111006	Input voltage out of range
111007	System Error
111008	Over Voltage Applied
111009	SoftStart Error
111010	PCM Error
111011	spd1, spd2 detection
111012	Heater error
111013	Charging gun cut
111014	CtrlPwr AC Input Drop
111015	Output oring diode fail
111016	Main breaker trip
111017	Auxiliary breaker trip
111018	SPD breaker trip
111019	Output fuse fail
111020	AC Input unbalance
111021	Auxiliary power module communication failure
111022	PLC module failure
111023	3G module failure
111024	Wi-Fi module failure
111025	System Inner temperature sensor failure
111026	System Inlet temperature sensor failure
111027	CCS charging gun failure
111028	Output relay 1 failure
111029	Output relay 2 failure
111030	Output relay 3 failure
111031	Output relay 4 failure
112001	CAN error
112002	Connector lock failure (CHAdeMO 0.9)
113001	Output over voltage

113002	Charger over temperature
113003	Network error
113004	Fan failure
113005	Main transformer OTP
113006	Control power CSU OVP
113007	Control power CSU UVP
113008	Control power PSC OVP
113009	Control power PSC UVP
113010	Control power PSC OCP
113011	Control power LCM OVP
113012	Control power LCM UVP
113013	Fan power off
113014	Fan power output OVP
113015	Fan power output UVP
113016	Fan power output OCP
113017	RFID card reader error
113018	Wi-Fi communication failure
113019	3G communication failure
113020	3G SIM card failure
114001	Stop button pressed
114002	Charging time is up
114003	Remote stop charging
122001	CAN error
122002	Charging permission failure
122003	Battery incompatibility (CHAdeMO 0.9)
122004	Battery malfunction (CHAdeMO 0.9)
123001	Output short circuit
123002	Output over current
123003	Vehicle CAN alive
222001	Battery overvoltage (CHAdeMO 0.9)
222002	Battery undervoltage (CHAdeMO 0.9)
222003	Battery current deviation error (CHAdeMO 0.9)
222004	Battery high temperature (CHAdeMO 0.9)
222005	Battery voltage deviation error (CHAdeMO 0.9)
222006	Vehicle charging disable (CHAdeMO 0.9)
222007	Vehicle shift position (CHAdeMO 0.9)
222008	Other vehicle fault (CHAdeMO 0.9)
222009	Switch (K) OFF – battery is less than 80% full

224001	Switch (K) OFF – battery is more than 80% full
300001	Insufficient account balance
300002	User authentication failure
300003	Save system log file into USB
300004	Charge card has reached the limit
300005	Re-connect CCS EV charging gun
300006	Offline record upload in progress
300007	Local list download in progress
300008	EVSE is reserved

SPECIFICATIONS

	DCT503K	DCT503U	DCT503C
Charging interface	CHAdeMO	SAE DC	SAE DC + CHAdeMO
Input rating	380 Vac, 60 Hz, 98 A max.		
Wiring	3-phase / R, S, T, G		
Power factor	> 0.98		
Current THD	Compliant with IEC 61003-3-12		
Efficiency	94%		
DC output #1	CHAdeMO, 50-500 Vdc; 50 kW: 125 A max	SAE J1772, DC, 50-500 Vdc, 125 A max., 50kW max.	SAE J1772, DC, 50-500 Vdc, 125 A max., 50kW max.
DC output #2	N/A	N/A	CHAdeMO, 50-500 Vdc; 50 kW: 125 A max
Protection	Over current, Under voltage, Over voltage, Residual current, Surge protection, short circuit, over temperature, ground fault		
Display	12” TFT-LCD touch screen		
Push buttons	Start button (Green), Stop button (White), Emergency stop button (Red)		
Charge options	Charge by duration, charge by energy		
Authentication	ISO/IEC 14443 Type A/B		
Network interface	Ethernet		
Operating temperature	-10 ℃ to +50 ℃ (14 ℉ to +122 ℉)		
Humidity	< 95% relative humidity, non-condensing		
Altitude	Up to 2000 m (6000 ft)		
Ingress protection	IP55		
Protection against external impacts	IK 10 per IEC 62262		
Cooling	Forced air		
Charging cable	As represented by the 8th digit on the model number, for example, DCT503J7 is equipped with a 7 m straight cable		
Dimension (W x H x D)	900 x 1700 x 600 mm		