Electric Vehicle Charger

Product Manual

FC200K-B2-PS

Without Dispenser

Signet Dispesner - Specification Sheet

Introduction

About this manual

This document is the installation manual for the SK Signet EV charger. This manual provides best practices for site designing, installation preparation, and installation to ensure safe and efficient use of the product. Before installation and inspection, be sure to read this manual carefully and be fully familiar with it.

- If the specifications and information required to be followed in this manual differ from local regulations, give priority to local regulations.
- This manual is for reference only. Comply with local regulations or the contractor's instructions first.
- The information in this manual contains general descriptions and technical features of the product. Contact the manufacturer only if there is a problem with the product.
- The product shape and specifications are subject to change for performance improvement without prior notice. The content of this manual is also subject to change without prior notice.
- It is prohibited to arbitrarily customer modifications to the charger without permission of SK Signet. If any problem occurs by an arbitrary change, the company does not assume responsibility for this. In addition, the problems caused by arbitrary modifications become the grounds for disclaiming the product warranty.
- You are responsible for any loss caused by installation or use without following the instructions in this manual. Before installation, be sure to familiarize yourself with this manual and related technical information.
- This manual was originally written in English. Documents in other languages are translated versions of this manual, and we are not responsible for errors in translated documents.
- In this manual, SI units have been replaced with US units.

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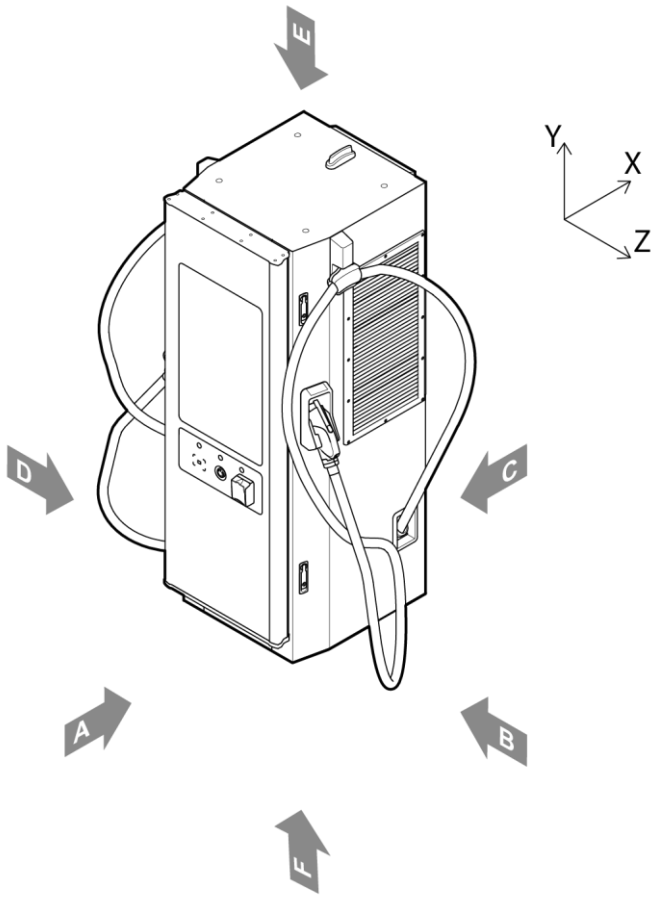
- The illustrations in this manual have been created based on the coordinate system below.



View	Description
A	Positive direction on the X-axis
B	Negative direction on the Z-axis
C	Negative direction on the X-axis
D	Positive direction on the Z-axis
E	Negative direction on the Y-axis
F	Positive direction on the Y-axis

If you have any inquiries about the content or you need information on SK Signet's EV charger, contact us at the following.

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Related documents

Document name	Target group
Product data sheet	All target groups, especially for site designing engineer
Installation manual	Qualified installation engineer
Operation manual	Owner
Commissioning manual	Qualified commissioning engineer
Service manual	Qualified maintenance engineer

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Revision history

Date	Version	Description	Remarks
2023-09-22	1.0	Initial creation	
2023-10-24	1.1	• Precautions for selecting the location > Space requirements – EV charger specifications for installation/Back to front installation/Back to back installation (page 20. 22, 23, 24): Adding and modifying the installation specifications • System overview – Specification > Electrical (page 28): Modifying the V-I Power Curve graph • EV Charger – Inside of the EV charger > Rear (page 38): Modifying the illustration of the dispenser's rear side • Site Preparation – Foundation > Concrete foundation (page 40): Adding the cable length instruction – Cable selection > AC cable specification (page 42): Modifying a cable specification • Installation – Precautions on Installation (page 46): Adding an illustration to check the angle of a packaging – Unpacking (page 47): Modifying a net weight – Mechanical installation (page 51): Modifying a work tools – Electric wiring > Connecting the AC 3-phase cables (page 60, 61, 63): Modifying the work tools and bolt specification Adding a cable lug assembly procedure – Releasing the EV charger fixture (page 65): Deleting the cable management item – Releasing the weight (page 65): Adding the instructions Modifying a bolt specification • Accessories (Optional) (page 68, 69): Adding the instructions Modifying a bolt specification • Appendix (page 70 – 73): Modifying the unit in Dimension illustrations	
2023-12-26	1.2	• System overview – Specification > Electrical (page 28): Modifying Surge Protection to Surge Capability Dividing specification of AC & DC SPD • Installation – Installation tool check list > Mechanical Installation (page 56):	

		Deleting length of the anchor bolts	
2024-07-22	1.3	• Site Preparation – Cable Specification > 5.2 AC Cable Specification (page 43) – Description on “Material” amended	
2024-10-29	1.4	• Max input current amendment – Max. input current 270 A is amended to 284 A according to revised UL certification (page 30, 43, 75)	

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Abbreviations

The following lists the important terms used in this manual and their descriptions.

Item	Description
AC	Alternating Current
CCS1	Combined Charging System combo1
DC	Direct Current
EMO	Emergency Off
HMI	Human Machine Interface (LCD display on the EV charger)
MCB / RCCB	Miniature Circuit Breaker / Residual Current Circuit Breaker
MCCB / RCD	Molded Case Circuit Breaker / Residual-current device
RFID	Radio-Frequency Identification. It identifies radio frequencies.
LCD	Liquid Crystal Display
SMPS	Switched Mode Power Supply
T/B (Terminal Block)	Wiring components in which multiple terminals are fixed to a plate of insulating material to facilitate interconnection of conductors such as cables.

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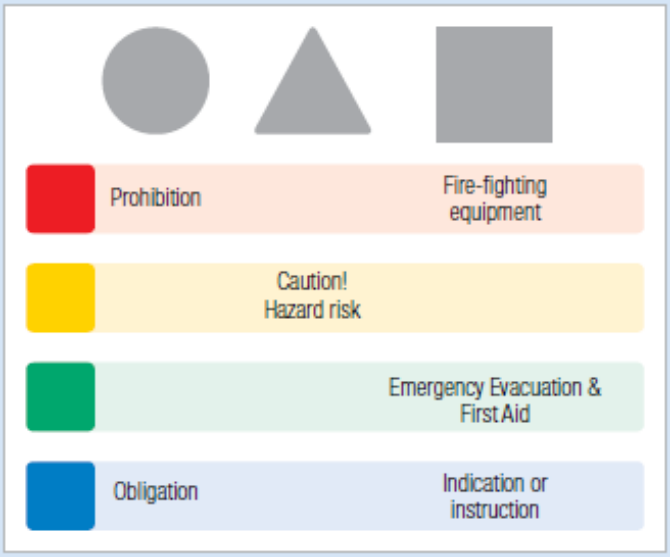
Safety precautions

1 Safety sign and symbol

The red circle is used for prohibition, the yellow triangle for hazards, and a green square for an emergency route or a first aid instrument.

The red square indicates a fire-fighting tool and a blue circular sign is used to communicate an obligation.



2 Important safety instructions

Any individuals or entities engaging in installation, commission and operation of EVSE(Electric Vehicle Supply Equipment) must read through this Manual before performing their work, and consultation with licensed contractors, licensed electricians and installation experts is highly recommended to ensure compliance with safety standards and state and regional laws.

SK Signet is not responsible to compensate any damages caused by non-compliance with safety guidelines and work instructions in this Manual.

2.1 General safety warning signs

This manual uses the following safety symbols. Read and follow all safety instructions carefully to avoid any unsafe operating condition, fire, explosion, property damage, personal injury, or death. Please take special note of all information marked with the following symbols :

Signal word	Description
DANGER	Indicates information about safety practices which, if not followed, may result in serious injury or death. • DANGER hazard severity panel to identify a high level of risk.
WARNING	Indicates information about safety practices which, if not followed, could result in personal injury or are necessary to prevent fire or equipment overheating. • WARNING hazard severity panel to identify a medium level of risk.
CAUTION	Indicates information about safety practices which, if not followed, this can cause damage to EVSE or to property. • CAUTION hazard severity panel to identify a low level of risk.
NOTICE	Indicates helpful information for installation or usage.

Notice : Not all symbols or signal words may be present in this document.

2.2 Special safety warning signs

Signal word	Symbol	Description
Electricity		Warning of electrical hazards "Electricity" sign is to alert the risk of electrical shock, warning workers to keep a safe distance and follow safety procedures regarding electric equipment.
Crushing of hands		Warning of crushing hazard when operating machinery "Crushing of hands" sign is to warn workers of hand injury or cut-off by being trapped by a machine or equipment in operation.
Sharp element		Warning of sharp objects "Sharp elements" sign is to warn workers to be careful when using sharp objects.
Overhead load		Warning of overhead loads "Overhead load" sign is to warn workers to aware of overhead loads which could fall to the ground.

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Signal word	Symbol	Description
Forklift trucks and other industrial vehicles		Warning of forklift trucks and other industrial vehicles "Fork lift trucks and other industrial vehicles" sign is warning workers to keep a safe distance with pedestrians or other vehicles to prevent accidents.
Warning arc flash		Warning of electrical hazard "Warning arc flash" is a sign installed in places with possible arc flash - one of electric accidents.
Hot surface		Warning of hot surface "Hot surface" is a sign to warn the risk of a burn by hot surface.
Risk of tripping		Risk of tripping "Risk of tripping" is a sign to indicate obstacles or slippery areas and to warn to watch steps.
Fire extinguisher		Fire extinguisher "Fire extinguisher" is a sign to indicate a fire extinguisher - an essential tool to respond to fire outbreak, helping people around to rapidly put out fire and minimize damage.

2.3 Mandatory signs

Mandatory signs are used to indicate that a particular course of action must be undertaken. It is very important to maintain a safety, health and environment in the workplace. Recognizing and using these signs properly can protect workers' safety and health.

Signal word	Symbol	Description
Wear safety belts		Safety belts must be worn A sign to instruct workers to wear safety belts when they drive a vehicle or run machines.
Disconnect before carrying out maintenance or repair		Disconnect before carrying out maintenance or repair A sign to instruct workers to disconnect from power before carrying out maintenance or repair.
Refer to instruction manual/booklet		Refer to instruction manual/booklet A sign used to indicate instruction manual or booklet must be read before performing work.
Wear ear protection		Ear protection must be worn A sign to instruct ear protection must be worn under noisy conditions to protect their hearing.

Signal word	Symbol	Description
Wear opaque eye protection		Opaque eye protection must be worn A sign to instruct opaque eye glasses must be worn to protect eyes from rays.
Connect an earth terminal		Connect an earth terminal to the ground A sign to instruct workers to connect an earth terminal of electric equipment or device before starting to work.
Wear protective gloves		Protective gloves must be worn A sign to instruct protective gloves (insulated gloves) must be worn to prevent electric shock by hands.
Wear safety footwear		Safety footwear must be worn A sign to instruct safety footwear (insulated footwear) must be worn while working.
Wear head protection		Head protection must be worn A sign to instruct head protection must be worn to protect a head while working.
Wear face shield		Face shield mask must be worn A sign to instruct face protection (face shield mask) must be worn to protect face while working.
Wear high visibility clothing		High visibility clothing must be worn A sign to instruct workers to wear a safety vest with high visibility helping them to find others more easily.

3 Electrical safety instructions

Danger

- Do not touch the charging part (conductor, terminal contact, controller) with your hands while power is being supplied (energized). Electric shock may cause serious injury or death.
- Do a voltage check to make sure there is no electrical power on the cables or in the system.
- Power is supplied to the charger by one or more circuit breakers. Due to the potential for fatal electric shock, the internal parts of the charger must be serviced only by qualified technicians.
- Connecting the power supply should be performed only by a licensed professional.
- Turn off all power supplying this equipment before working on the equipment. Contact with live parts of the charger may result in electric shock, serious injury, or death.

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Warning	
	• Wear suitable personal protective equipment and follow the currently applicable electrical safety instructions. • Operate, inspect, or repair the product only by a qualified expert. It may cause malfunction, electric shock, or personal injury. • To prevent any electrical hazard or product malfunction, be sure to perform grounding work in compliance with safety regulations of the local area. Failure to perform grounding may result in fatal electric shock. • If this equipment is to remain in good working order, it must be installed, handled, and operated correctly. Failure to follow basic installation instructions can lead to injury and can damage the charger.

- SK Signet is not responsible for any damage to the charger caused by improper use of mechanical lugs. In addition, this is not covered under warranty.
- Damage to the system while wiring the charger using an improper cable is not covered by the product warranty.

4 General safety instructions

- Do not disassemble or modify the product in the field. It may cause electric shock, fire, or short circuit. Thus warranty may not be provided.
- Do not arbitrarily modify the circuit structure. It may cause malfunction or error.
- Do not allow water, moisture, or any foreign substance to enter into the charger.
- Carpet or messy work table may cause safety accidents.
- Do not block the vents (air inlet and air outlet) on the charger. The charger may overheat.
- Users are responsible for compliance with all local electrical codes and standards applicable in your place in which the product has been installed.
- Do not operate the charger with the door open or the panel removed.
- During operation, never open the door or remove the panel.
- Do not store the product in hazardous or humid places. It may cause insulation breakdown or performance degradation of the product.

5 Safety precautions during unpacking

- For safety, tidy up the work place before loading or unloading the product.
- During loading or unloading, be sure to wear safety gears (helmets, safety shoes, protective glasses, etc.).
- All work must be done under construction supervisor's direction.
- After unpacking, be careful not to be injured by nails and wood debris.
- When using a ladder during panel removal, be careful not to fall.
- Dismantle the product safely with a forklift. When using a forklift, block other workers from passing by.

- When moving the EV charger, do not shake or tilt it more than 30°.
- Be careful not to apply shock to the outside of the product. It may cause damage to the external and internal parts of the product.
- Do not leave cargo unattended in a dangerous or unstable place.
- Unpack the product and check for shipping damage. If shipping damage is found, contact the freight forwarder.
- Compare the badge with the packing list and invoice to make sure you have received the correct charger. If there is any discrepancy, immediately contact the shipper.
- Do not install or operate the charger if it has been dropped, hit hard, or damaged while moving the product. If any damage is found, immediately contact the purchased site or dealer.
- Damage or failure during product unloading and moving is not covered under warranty.
- When moving the product, be sure to observe the applicable handling instructions by checking the symbols and cautions on the packing box.
  Failure to observe handling instructions may damage the product.

Item	Alert sign	Handling precautions
	Center	Center of the product
	Sling here	Use it to locate the wire rope is at this mark.
	This side up Do not tilt	Handle the package so that it is on top as indicated and do not tilt the package.
	Fragile Handle with care	The components of the package box are fragile, so be careful not to shock them.
	Keep dry Keep indoors	Make sure that the components of the package box are never wet by boiling. Keep the package indoors.
	Keep from moisture	Do not allow moisture to form inside the packaging; Store in a dry place.
	Do not stack	Do not stack goods between package tops.

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6 Safety precautions during transportation and installation

- For safety, tidy up the work place before installing the product.
- All work must be done by multiple workers. Failure to observe safety precautions during installation may cause serious injury or property damage.
- During loading or unloading, be sure to wear safety gears (helmets, safety shoes, protective glasses, etc.).
- When lifting or lowering the product, move it slowly and keep the product balanced.
- Before lowering the product, check that there are no protrusions or unnecessary items or tools on the floor.
- Drive the forklift at speeds in a safe range.
- When lifting with a crane or forklift, do not approach below the product or in the moving direction. Falling may cause death or injury.
- When moving the EV charger, be careful not to let the technician get crushed by the product or get their body parts caught.
- When using a ladder during EV charger installation, be careful not to fall.
- Do not place flammable objects around the installation site.
- Electrical wiring must be performed only by qualified technicians.
- After installation, close the product properly to prevent foreign substances from penetrating it. It may cause short circuit or product failure.
- Be sure to remove foreign substances (tools, wires, bolts, washers) after installation, inspection, and maintenance. It may cause short circuit or fire.
- Place the charging couplers (CCS) in the designated outlet. It may cause short circuit or electric shock.
- During inspection after installation, be sure to shut off the main circuit breaker of the charger, then shut off the circuit breaker sub-panel and then check the product. It may cause electric shock.
- When checking the cut-off status after turning off the power, use an appropriate instrument. It may cause electric shock.
- During inspecting after installation, be sure to discharge the charging current and then open the door after a sufficient time. It may cause injury or electric shock.
- Fasten bolts and screws with the specified torque. It may cause overheating or fire.
- Do not use bolts longer than the specified length. It may cause short circuit or fire.
- To power off the charger, shut off the main circuit breaker and then shut off the circuit breaker sub-panel. To power on the charger, turn on the circuit breaker sub-panel and then turn on the main circuit breaker. Failure to follow the procedure may cause short circuit or injury due to ARC heat, and system overload.

7 Safety gear

Safety gear is protective equipment for safety of worker when installing or maintaining the product. Workers must wear appropriate safety gear before a work.

- Use the safety gear certified by NFPA 70, NFPA70E, and OSHA.

Signal word	Name	Description
Installation work	Safety helmet	For safety of worker
	Safety shoes	For safety of worker
	Safety vest	For safety of worker
	Dust mask	For safety of worker
Electrical work	Protective glasses	For safety of worker
	Insulating gloves	For safety of worker
	Insulating apron	For safety of worker

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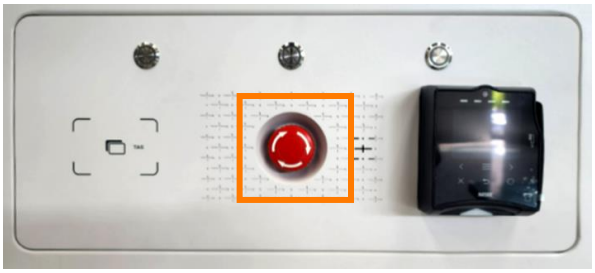
8 Safety devices

The EV charger is equipped with Emergency Stop buttons to stop operation upon emergency. The emergency stop button is a device that immediately stops the charger's operation and cuts off the power upon emergency during operation to ensure your safety and prevent a product damage. Upon emergency, press the emergency stop button immediately and notify others of the situation.

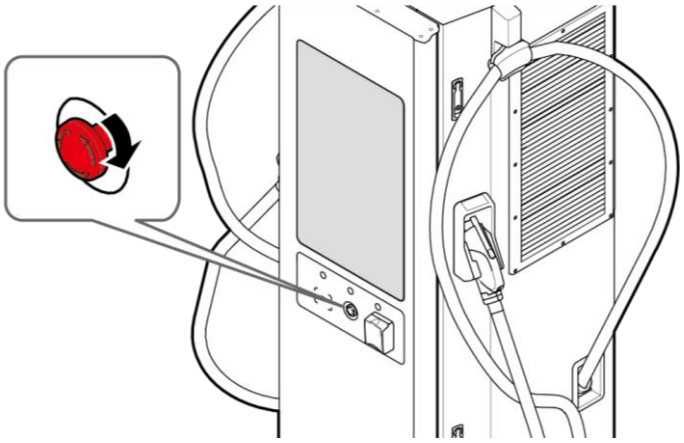
8.1 Emergency stop button (EMO)

Upon emergency, press the emergency stop button according to the following procedure.

1 Check the emergency situation and then press the emergency stop button on the front of the EV charger.



2 Once the emergency situation has been resolved, release the emergency stop button.



- To release the Emergency Stop button, turn it clockwise and then pull it out.

Caution
 • Use the Emergency Stop button only upon emergency. Do not press the Emergency Stop button under normal operating conditions other than emergency situations. • The charger cannot be used unless the Emergency Stop button is released. If the emergency situation is cleared, be sure to release the Emergency Stop button.

9 Safety precautions during storage

- Before installation and power supply, the product must be stored in a clean and dry place at a temperature of -40℃ to +70℃ (-40°F to +158°F).
- The charger must be stored in an upright box for storage. This protects the charger from dust ingress and internal damage.
- The charger must be stored in a place where it cannot be damaged or stacked with other things on the top.
- Store in a dust-free environment. If stored in a dusty environment, more frequent maintenance is required for equipment life and performance.
- Do not store the product in a place where there is much moisture or prone to flooding. It may cause insulation breakdown or degradation of the product performance.
- Do not store the product outdoors for a long time. Moisture and direct sunlight may cause product deformation or performance degradation.

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Precautions for selecting the location

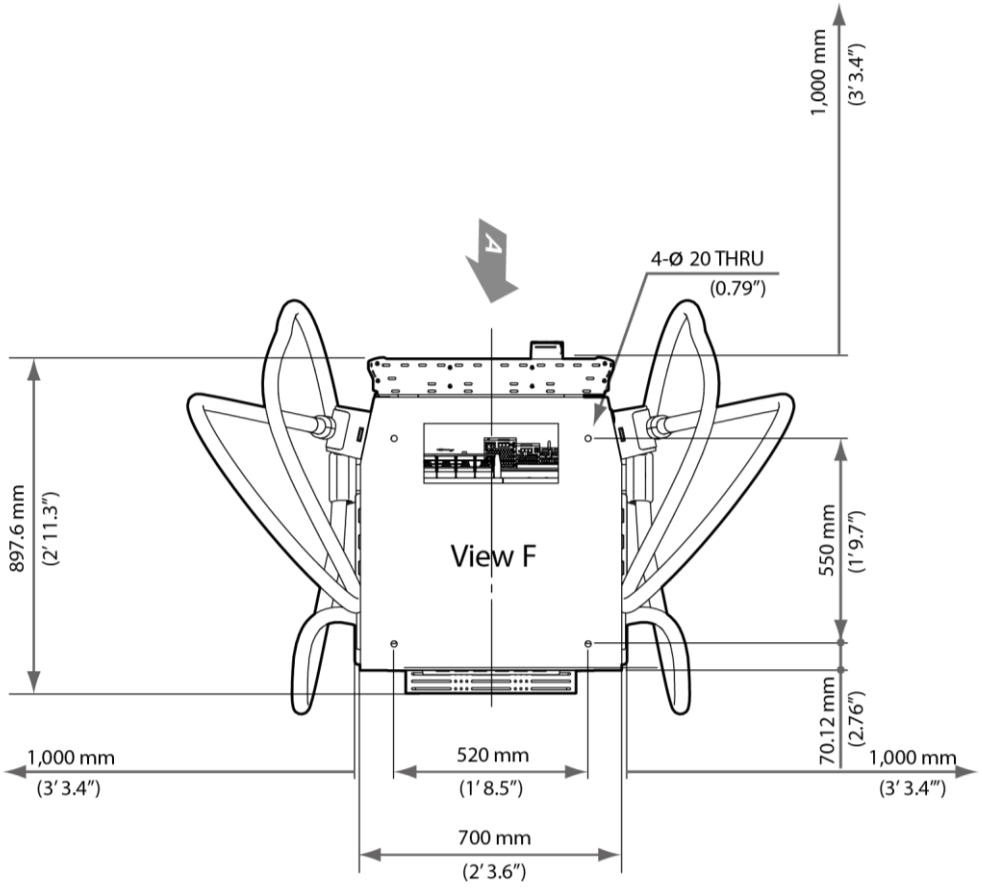
1 Space requirements

This chapter describes the minimum installation space and clearance considering maintenance when installing the charger.

1.1 EV charger specifications for installation

It describes the foot print specifications on the ground and the minimum space when installing the EV charger.

- EV charger foot print specifications

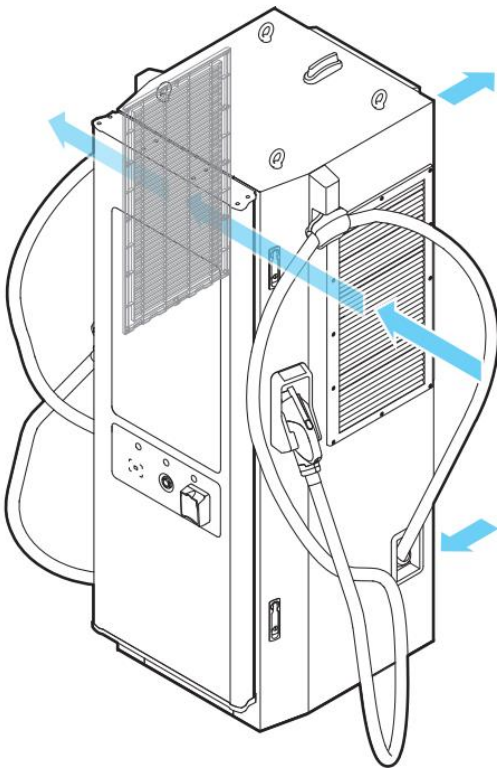


Item	Specification
EV charger foot print	• EV charger footprint dimension: 700 mm (2' 3.6") x 897.6 mm (2' 11.3") • Minimum extra free space for the EV charger Minimum of 1,000 mm (3' 3.4") on the left and right to use the coupler. Minimum of 700 mm (2' 3.6") on the rear and 1,000 mm (3' 3.4") on the front to open the front door and rear cover by a service engineer. • Refer to the Appendix 1. Dimension for more details. (see page 70)

- In case of installation of multiple EV chargers

The charging system uses a forced air circulation method to drive the air fan and dissipate the heat generated from the inside. The EV charger is equipped with forced air fan facilities, as well as air inlets and outlets, respectively.

When installing multiple EV chargers, the installation site must be determined considering air ventilation. The positions of the air inlet and outlet are as follows:



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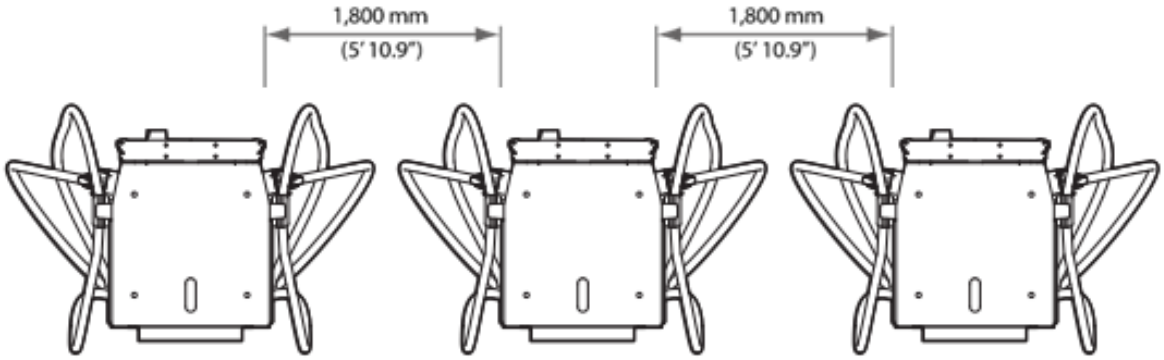
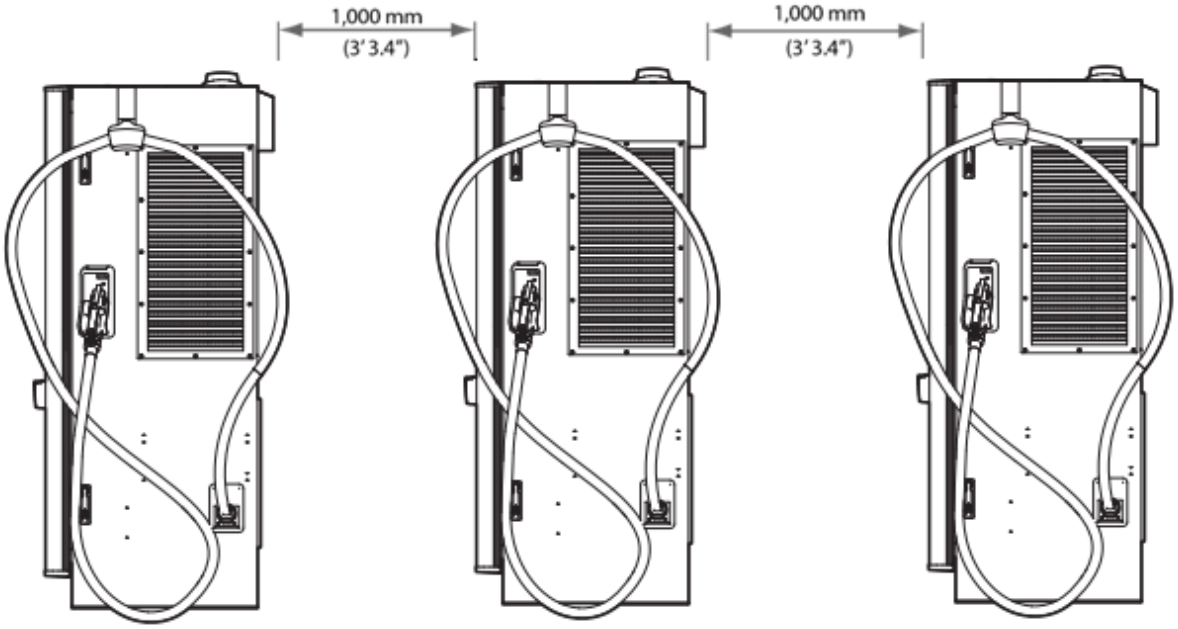
If you are installing multiple EV chargers, refer to the following specifications.

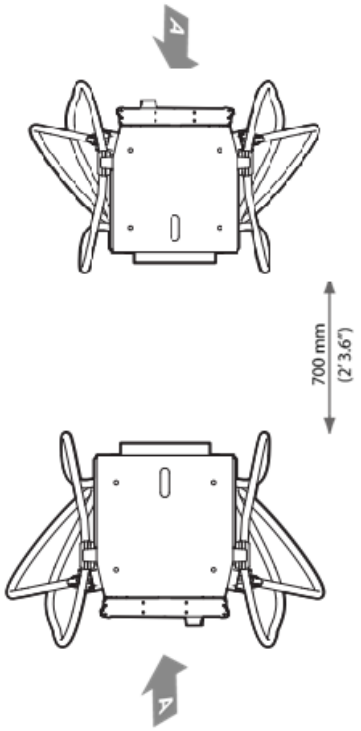
- Side to side installation



- Back to front installation



- Back to back installation



Item	Specification
Side to side installation	EV chargers can be installed side to side. The minimum clearance between EV chargers is 1,800 mm (5' 10.9").
Back to front installation	EV chargers can be installed back to front. • The minimum clearance between EV chargers is 1,000 mm (3' 3.4") with the front door closed.
Back to back installation	EV chargers can be installed back to back. The minimum clearance between EV chargers is 700 mm (2' 3.6") with the rear door closed.

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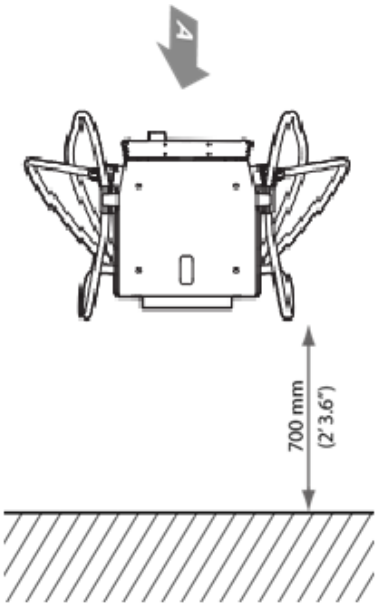
Caution

- Do not block the air inlet and outlet. It may cause output degradation, burnout, or product failure.
- Keep a distance of at least 700 mm (2’ 3.6”) from the air inlets and outlets.
  If there is a wall in front of the air outlet, it should be installed with a minimum clearance of 700 mm (2’ 3.6”).



1.2 Installation recommendations

- The waterproof rating of the charger is NEMA 3R. The NEMA 3R rating protects the product against dust that could affect the normal operation of the product, and against low-pressure water streams (showers, water sprays from a hose) sprayed from all directions.
  Before installing the product in an area with frequent flooding or torrential rain, construct a concrete foundation that is at least 100 mm (3.94") thick.
- If the charger needs to be installed in a place exposed to direct sunlight all day or with high ambient temperature, install a protective device (e.g. canopy) for protection.
  If the protective device has not been installed, the temperature inside the charger may exceed the maximum temperature, resulting in malfunction.
- Condensation may occur if the temperature change range of the charger installation site is large. When installing the charger in a place where there is a possibility of condensation, install a ventilation system or dehumidifier.

1.3 Installation restrictions

Do not install the charging system in any of the following conditions. If the charging system is installed in a restricted place, it may not operate properly.

- Do not install in flood-prone areas. There is a risk of product failure or short circuit.
  - The waterproof rating of the charger is NEMA 3R, but normal operation cannot be guaranteed if it is installed in a place where frequent floods occur or it is directly exposed to excessive moisture.
- Do not install horizontally.
- Do not install for mobile applications.
  - This unit is to be connected to a bonded/grounded, metal, permanent wiring system; or an equipment-bonding/grounding conductor is to be run with circuit conductors and connected to equipment-bonding/grounding terminal or lead on battery charger.
  - Connections to battery charger shall comply with all local codes and ordinances.

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2 Communication environment

- When linking a cloud server for billing, EV chargers can only be used in environments where LTE or 4G communications are available.
  - In free vender mode, communication network is not required.

3 Ambient environments

- A dry and well-ventilated place
- A place far away from dangerous goods manufacturing sites or storages where there is a risk of fire or explosion
- A flat place where the ground has no slope
- A place where there is no possibility of generating salt damage, corrosive gas, or toxic gas
- A place where vibration or strong shock does not occur
- A place free from flooding, inundation or snowfall hazards
- A place where drainage pipes are secured
- A place that is not exposed to direct sunlight or high temperatures in the daytime

Item	Description
Operating temperature	-35 ℃ to +55 ℃ (-31 °F to +131 °F) (with derating)
Relative humidity	5 to 95 %
Altitude	Below 2,000 m (6561.68 ft) above sea level

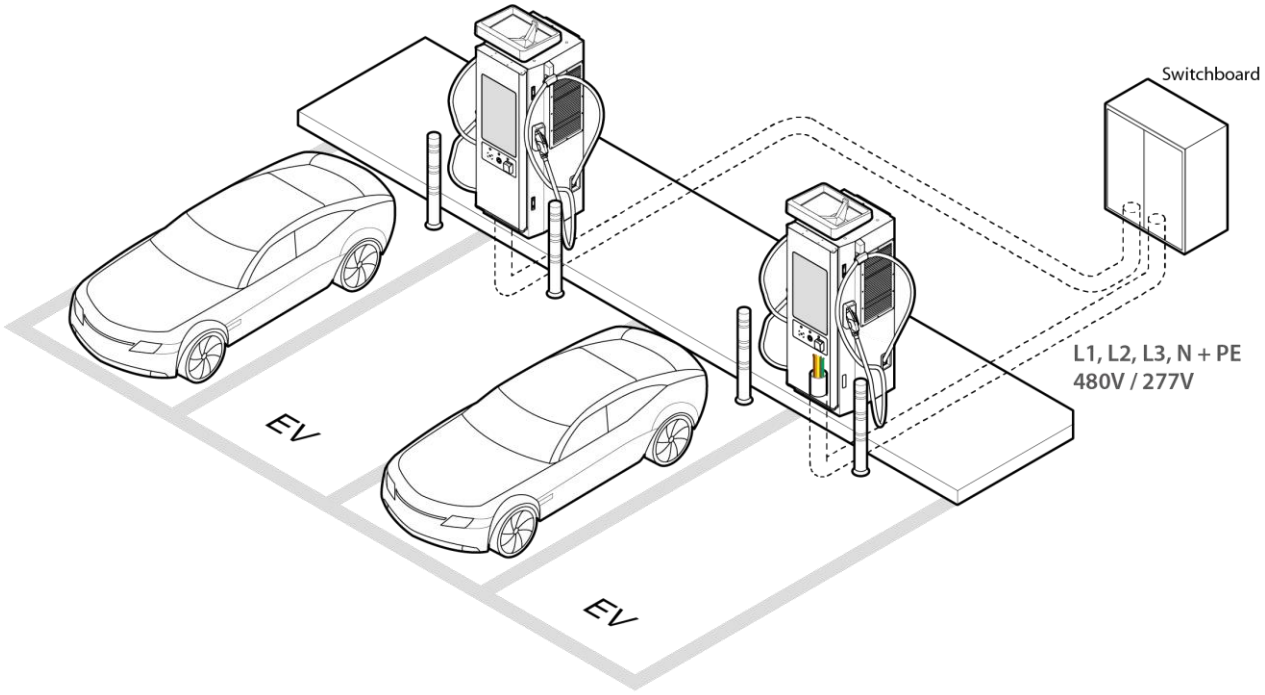
Caution

- Performance degradation may occur when used in environments outside the operating temperature range.

Installation Drawings

During installation, be sure to comply with the civil engineer design and local regulations.

The following illustrations present the examples for installation.



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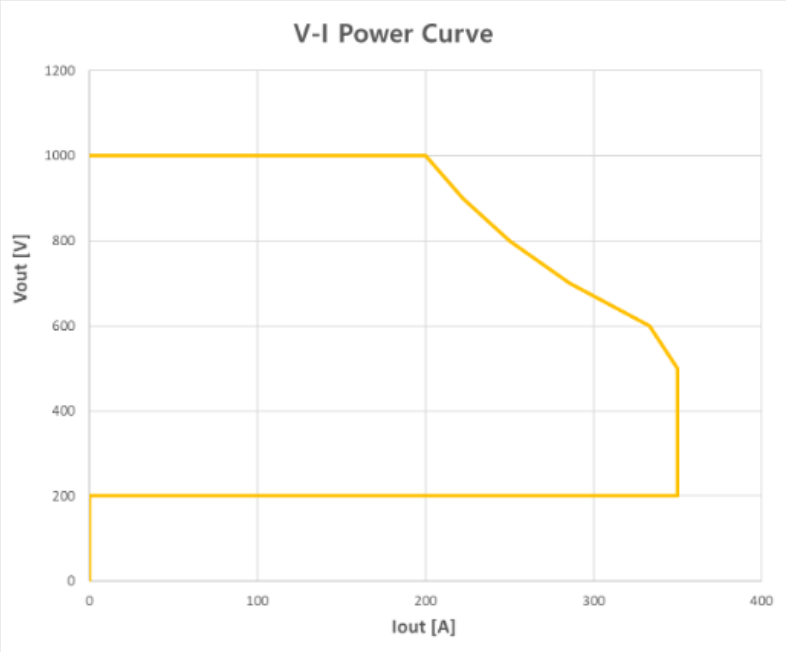
System overview

1 Specification

1.1 Electrical

Item		Specification
Surge Capability	AC SPD Type 1ca (UL1449-4th)	V_n: 277 / V_{max}: 385 I_n: 20 kA / I_{max}: 50 kA
	DC SPD Type 1ca (UL1449-4th)	V_n: 1000 (norm) / V_{max}: 1,150 I_n: 20 kA / I_{max}: 50 kA
Short circuit capacity	ELCB Imax [kA]	35 kA at 480 V
DC fuse	Max current [A]	700 A



1.2 General

1.2.1 Charger

Item		Specification	Remarks
Model		FC200K-B2-PS	
Combination		1	
POWER			
AC Input	Input Rating	480 Vac ± 10 %	
	Electrical Distrbution	3P(R,S,T)+N	
	Input Current [A] (Max.)	284A	
	Input Power [kVA]	210kVA	
	Frequency	50/60 Hz	
	Power Factor	> 0.95(Typ)	
	Efficiency	> 95% @Max. Load	
	THDi (Total harmonic distortion)	<5% (@Load >50%, <50th)	
	Ground type (ex. TN-S, TN-C)	TN-S	
DC Output	Output Power [kW] (Max.)	200kW	
	Output Voltage Range [Vdc]	150 – 1,000Vdc	
	Output Current [A] (Max.)	CCS1 : 350A (boost 500A, within 10 min @+25℃)	
	Output Interface	• Dual CCS1, Power Sharing (per 100kW) • Only 1ch : Max 200kW / 2ch : Max 100kW (per 1ch)	
	Maximum number of Evs Charging simultaneously	2	
	Available Connectors	CCS1, NACS (TBD)	
	Standby Power	295W	

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Item		Specification	Remarks
	Icc (Short Circuit Current)	35 kA	
	Metering Accuracy	Less than 1%	
Power Sharing	Charging Scenario	Active power sharing • min ~ 200 : 0 • 0 : min ~ 200 • min ~ 100 : min ~ 100	
GENERAL			
User Interface & Control	Display	32 inch / FHD (1920x1080) / Touch Screen	
	Support Language	English, Spanish (additional languages available on request)	
	Push Buttons	• Operation Buttons (3 buttons) • Emergency Stop Button	
	User Authentication	• RFID (ISO/IEC14443 A/B, ISO15693) • NFC • IC Reader	
	Payment	• Nayax VPOS : IC Reader • NFC (Mifare) / Payter P68 : NFC (Mifare)	
Communication	External	Ethernet, Wi-Fi & 4G, LTE Modem	
	Internal	CAN Bus / RS485 / RS232 / Ethernet	
Environmental	Operating Temperature [℃/℉]	-35℃ to +55℃ / -31°F to +131°F	
	Derating [℃/℉]	+45℃ / +113°F	
	Storage Temperature [℃/℉]	-40℃ to +70℃ / -40°F to +158°F	
	Humidity [%]	5 to 95% relative humidity without Condensing	
	Altitude [m/ft]	2,000m (6,561ft)	
	IP Level	Outdoor, NEMA 3R	
	IK Level	IK10 (Touch screen, IK08)	
	Noise Level [dB]	< 60dB	
	Cooling Method	Ventilation by fan control	

Item		Specification	Remarks
Mechanical	Dimensions (WxDxH) [mm/ft]	• 700 x 830 x 2,050 mm / 2.297 x 2.723 x 6.726 ft	
	Weight [kg]	• 493 kg / 1,086 lb	
	Cable Length [m/ft]	5m / 16.4 ft (Outside Length = Eternal Cable + Connector head)	
	Cable Management	Retractor Cable	
	Enclosure material / color	304 stainless steel / Glam White	
Protection			
Protection		• Over Voltage Protection	
		• Over Current Protection	
		• Over Temperature Protection	
		• Proximity loss Protection	
		• SPD (Surge Protection)	
		• IMD (Insulation monitor device)	
		• FG Disconnection Detect Protection	
		• RCD Type A + DC 6mA	
Regulation	Certification	NRTL (UL), Energy Star	
	Safety	UL2202, UL2231-1, UL2231-2,UL991, UL1998, CSA	
	EMC	FCC Part 15	
	Metering	CTEP (NTEP)	
	Charging Interface Protocol	DIN70121, ISO15118-2 (PnC)	
Useful life	Life cycle	Min.10 years (not including wear parts)	
	Warranty	2 years	

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1.2.2 Optional

Item		Specification	Remarks
Customization	Color & Design	• Enclosure color • Top / Side LED indicator • Brand logo (Case, HMI UI) • User Interface (Brand Logo, Background / 1st and Last Full image)	
	Display (HMI) – Standard 32″ FHD	15″	
	Accessory	• Assist Handle • Helical Band	
Useful Life	Warranty	The additional year of warranty can be purchased	

1.3 Certifications

1.3.1 UL

1.3.2 FCC

1.3.3 Energy Star

1.3.4 CTEP

1.3.5 OCA

1.3.6 J2894

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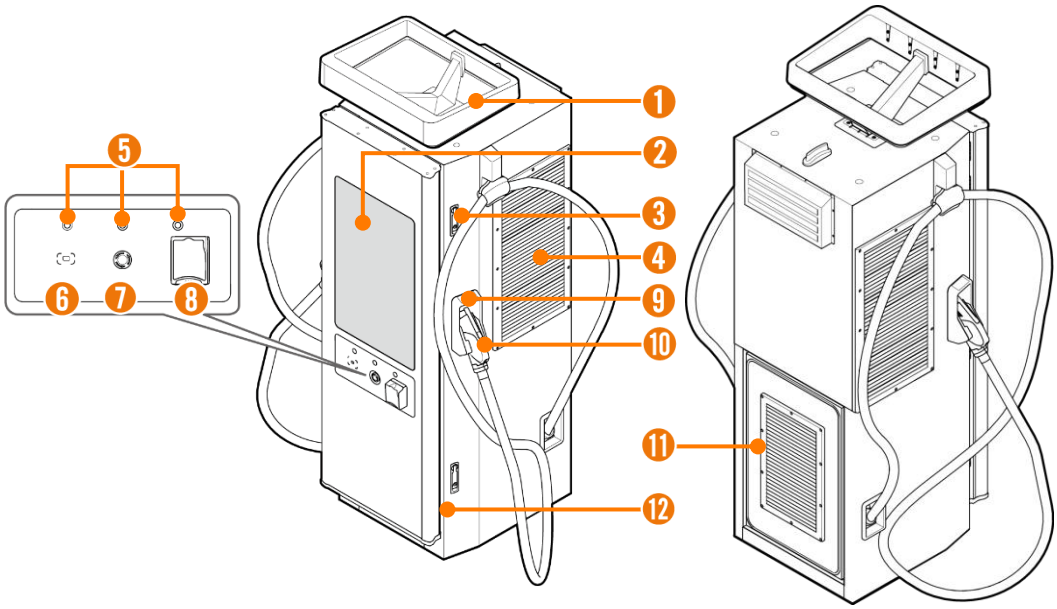
2 EV Charger

The following lists the part names of the EV charger and their descriptions.

2.1 Outside of the EV charger



No.	Name	Description
1	LED banner (Halo)	The LED banner to display and indicate status of charger *LED banner is NOT included in this product or manual.
2	HMI	The current charger status is displayed. You can tap the HMI screen to start or stop the vehicle charging.
3	Door handle/lock	It is used to lock or unlock the EV charger door. • Lock the charger so that it cannot be opened arbitrarily.
4	Vent	The fan forces air circulation inside and outside the charger.
5	Operation button	Use the Operation button when the HMI does not operate normally. You can operate the charger by pressing the button without tapping the HMI screen.
6	RFID card reader	It detects the identified card for charger and communicates with the server.
7	Emergency stop button	It stops operating the charger immediately.
8	Credit card reader	You can pay by inserting a credit card.
9	Coupler holder	It stores the CCS coupler.

No.	Name	Description
10	Coupler	It connects between the electric charger and a vehicle.
11	Rear cover	It is the rear cover of the charger. • You can open or close the cover for maintenance.
12	LED light belt	The charger operation status is displayed using the LED light. • Blue: Charger's standby and operation status • Orange: Any trouble or malfunction is encountered while charging • Green: Charging in progress

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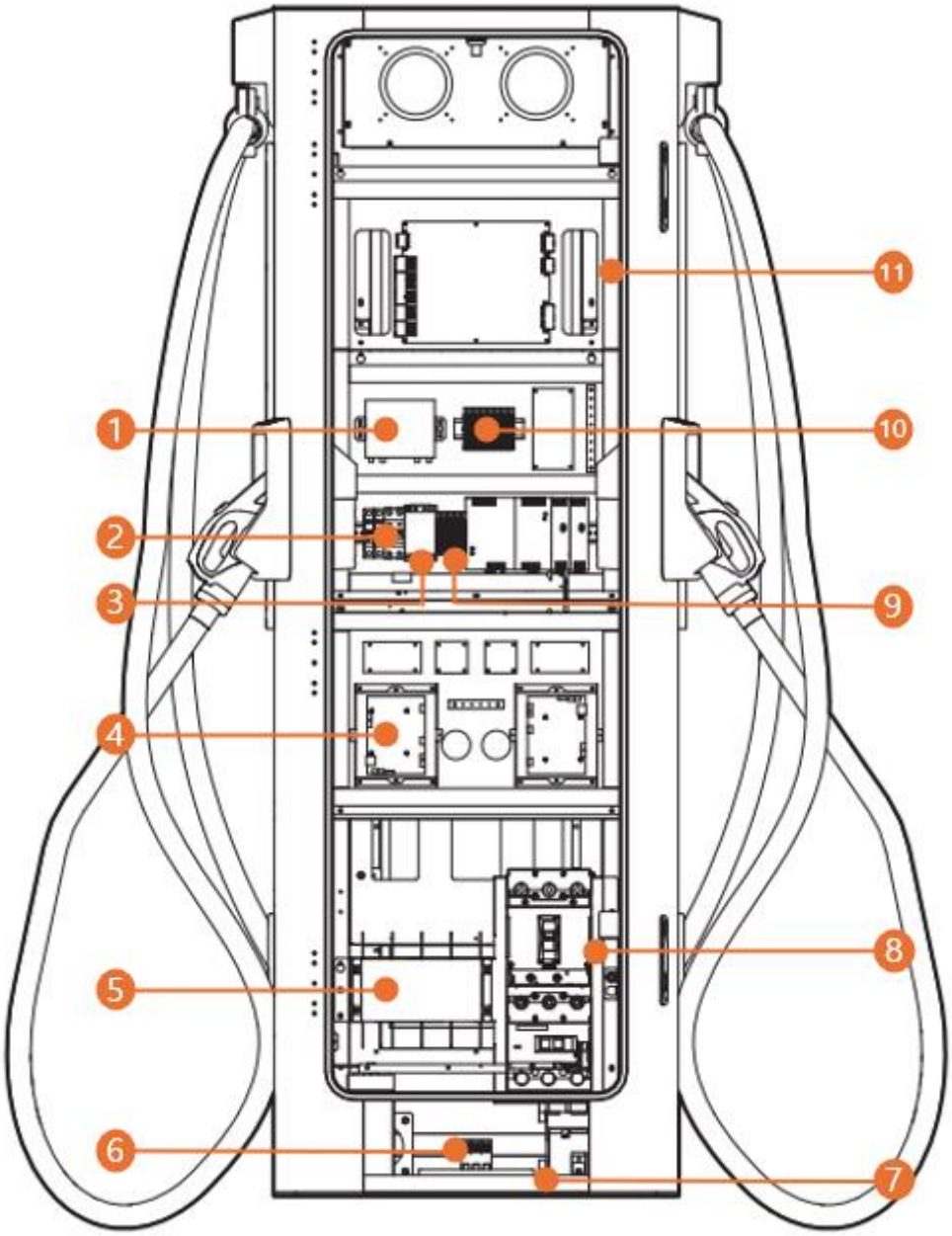
2.2 Inside of the EV charger

2.2.1 Front



No.	Name	Description
1	Modem	This device connects the chargers with a network.
2	MCB / RCCB (Miniature Circuit Breaker / Residual	The circuit breaker cuts off power of the charger control board.

No.	Name	Description
	Current Circuit Breaker)	
3	Single phase noise filter	It attenuates the electromagnetic noise generated by the system and passes the required signals.
4	ADC metering board	This device measures and records the active power of the circuit connected to the charger over time.
5	Terminal Block (AC input)	It delivers input current to the whole system.
6	AC SPD (surge protector)	This device protects the charger upon overvoltage (surge) such as lightning.
7	Main ground bus bar	This device is a bus bar for ground connection.
8	MCCB / RCD (Molded Case Circuit Breaker / Residual-current device)	The main circuit breaker of the charger cuts off power of the entire charger control board.
9	AC terminal block (for control board)	It applies power to the SMPS.
10	DC terminal block	It delivers DC current.
11	AC bus bar	This conductor delivers AC current from the switch gear to the power module.

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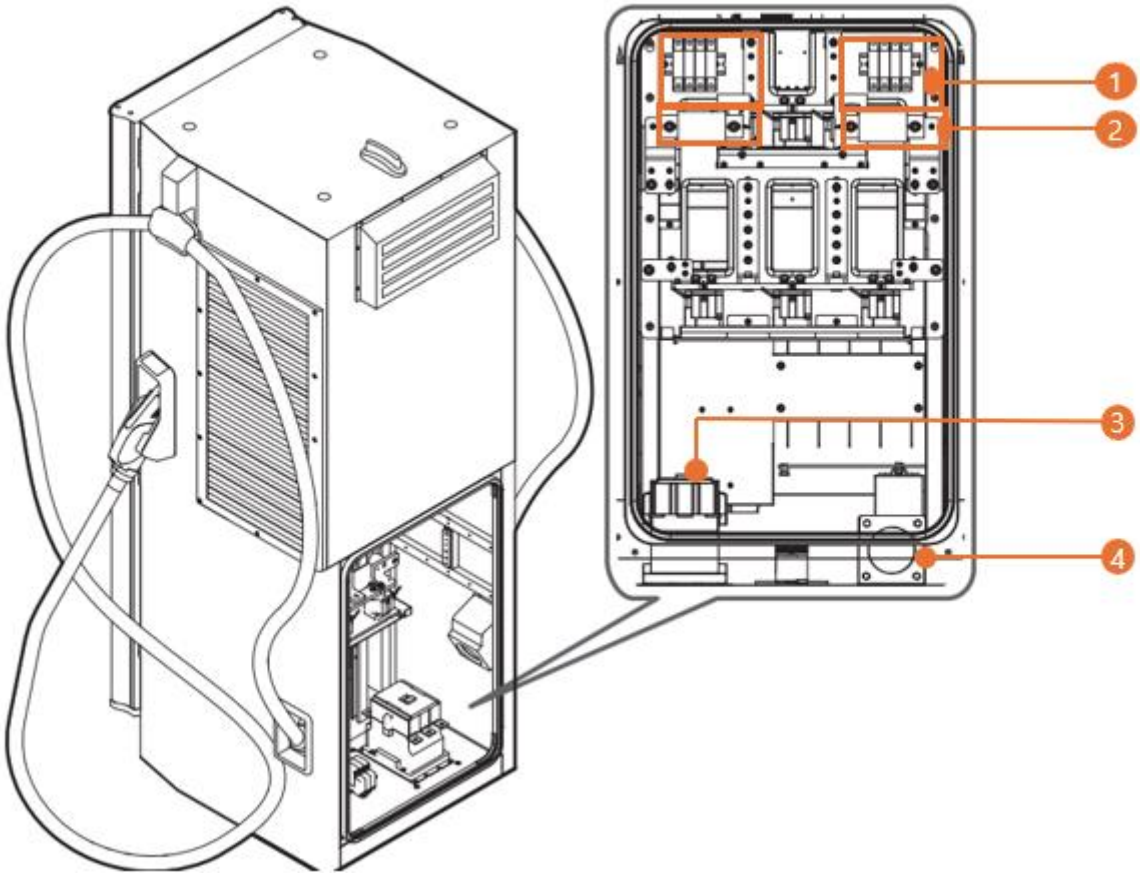
2.2.2 Rear



No.	Name	Description
1	DC SPD (surge protector)	This device protects the charger upon overvoltage (surge) such as lightning.
2	DC fuse	If overcurrent occurs by a ground fault or short circuit in the mains, the fuse cuts off the overcurrent.
3	Magnetic contactor (M/C)	This electrical switching device opens and closes the circuits by operating the contacts with the electromagnet.
4	Noise filter/coil	It attenuates the electromagnetic noise generated by the system and passes the required signals.

Site Preparation

SK Signet provides the recommendations in accordance with the NEC (National Electric Code).

Be sure to comply with local laws and electric contractor's instructions, and then follow the civil engineer design.

This section describes the checkup items before installation of the charger.

1 Grid Capacity

Be sure to check the transformer capacity to ensure that multiple chargers can be installed in your location.

Consult your electricity provider for transformer capacity and electrical specifications.

2 Protective Earth

You must provide a protective grounding when installing the charger. The following types of protective grounding are available.

- TN-S
- TN-C
- TN-C-S
- IT

Recommended to follow the contractor or civil engineers' direction.

3 Conduit

To connect the grid and the charger with a cable, conduits must be laid under the ground in advance.

When installing the conduit, use any of two methods: burying pipes underground or installing with an external tray. It is recommended to bury pipes underground not to interfere with walking. Select an installation method according to the site situation.

- Select the appropriate size so that the cable area is less than 40% of the conduit cross-section.
- Select the appropriate material of conduit depending on the construction site.
- Recommend using PVC conduit of 3" or higher when burying conduit underground with 250 MCM cable.

Caution

- When installing a charger, the cable connected to the grid is leaded only into the bottom of the charger. The cable cannot be routed anywhere other than the bottom of the charger.

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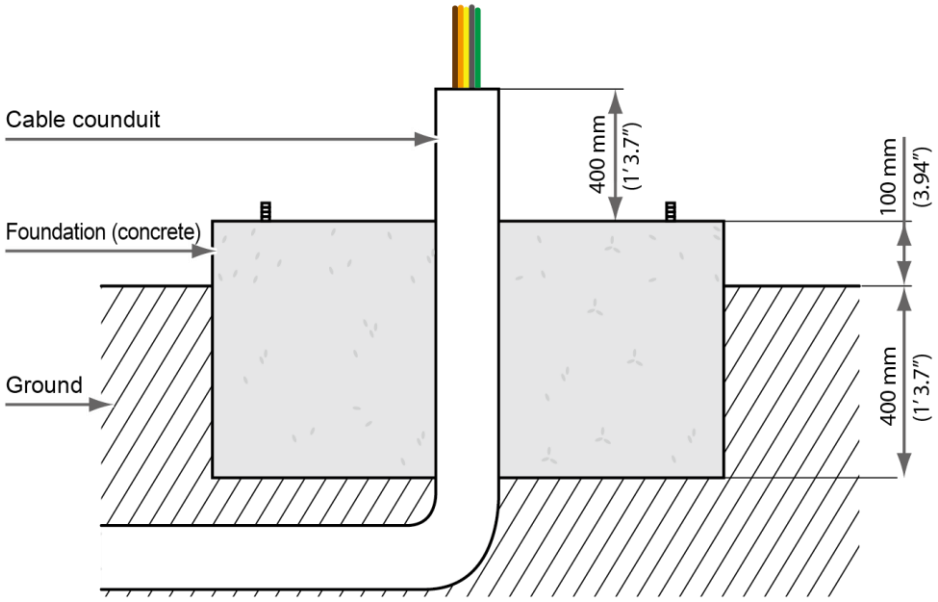
4 Foundation

For installation of the charging system, install a solid base on the floor and then fix the product on it. The following describes the foundation work required for indoor or outdoor installation.

4.1 Concrete foundation

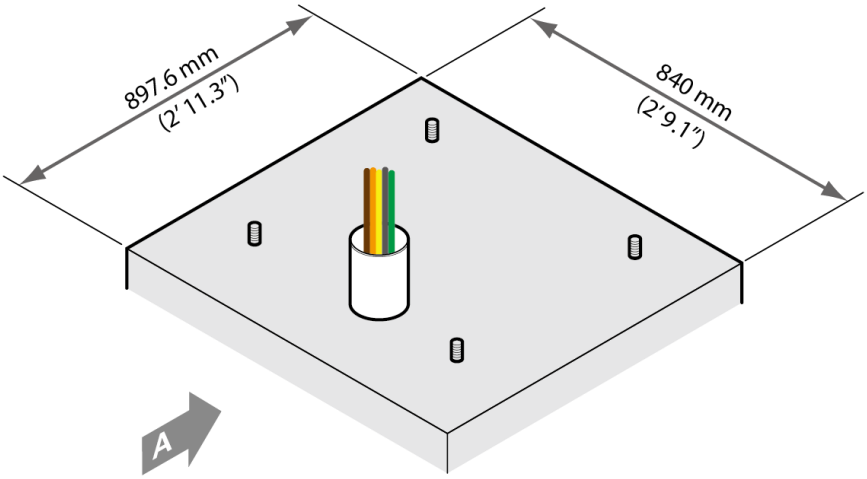
- Prepare a stable, level foundation pad considering the weight of the product.
- Construct the foundation pad at least 100 mm (3.94″) above the ground to avoid damage from flooding. Install the foundation pad underground at a height more than twice the height of the exposed part, so that the structure of more than 2/3 of the height can support the product. The part installed underground must be at least 400 mm (1′ 3.7″).
  - However, when the part above the ground is 200 mm (7.87″) or less, the part underground must be 400 mm.
  - When the part above the ground is more than 200 mm, the underground height of the structure must be at least twice.
    e.g. 220 mm above the ground + 440 mm underground
- After conducting the foundation work, prepare the foundation to install the charger according to the civil engineer design. The foundation work must be performed through the processes such as rubble compaction and casting of blinding concrete.
- Prepare the foundation pad construction with concrete that meets local rules.
- Be sure to prepare conduits during the foundation work so that the conduit can be installed together with the foundation pad. Place the conduit at a height of approximately 300 to 400 mm above the ground.
  - Cut the conduit less than 100mm (3.94") above the ground before installation.



- Consider the disabled people and proceed with the foundation work to ensure wheelchair access.
- If you use a mechanical set anchor, the foundation must be wider than the bottom of the charger. When installing the foundation, it is recommended to allow more space than the bottom of the charger.

Notice
• Set (Mechanical) anchor bolts require at least 180 mm (7.08″) space from each side. This space is provided to prevent foundation damage.

- When using the J anchor, check the foot print specification. (see page 20)



4.2 Metal Frame Foundation

When installing a metal frame, customize it according to the site situation.

Be sure to comply with local laws and civil regulations.

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5 Cable selection

The maximum allowable current of the charger is 284 A. Prepare the cables considering the construction method and voltage drop depending on the distance.

The provided cable specifications are recommended by SK Signet.

5.1 Recommend

- Use a cable that can carry a current of 284 A or more.
- Recommend using a 250 MCM copper cable considering 100 ft and 5% voltage drop conditions.

Caution

- Leave the cable about 800 mm ± 100 mm off the ground. When installing the charger, considering the height of the AC terminal where the cable is connected, pull out the cable off the ground.

5.2 AC cable specification

Item	AC power cables (three-phase)	
Material	Copper, Aluminum (Please determine the allowable current based on the cable material and use it according to the standards)	
Number of cables	4 3P4W x 1	
Cross section	250 MCM	
SQ (mm^2)	120 mm^2	
Color	L1	Brown
	L2	Orange
	L3	Yellow
	N	Gray
	Ground	Green

Notice

- Use the FG cables with the half of the wire specification applied to the input AC. However, give priority to regional installation regulations for installation. Apply the ground cable over than the half dimensions of phase-conduit.

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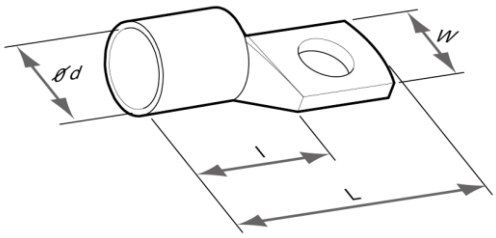
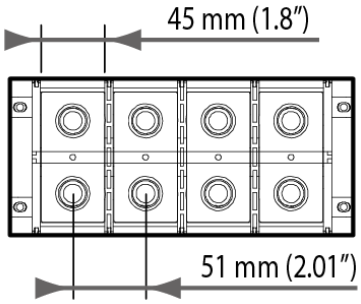
6 Lug specifications

When connecting cables to the AC terminal block, use lugs with the following specifications:

- Use rugs with a maximum width of 45 mm or less.





Item	Description
Bolt size	M12
W	Max. 45 mm (1.8 “)
L	Don’t care
I	Don’t care
Ø d	Depend on your cable size

Installation

1 Installation tool check list

Before you install the charger, check which tools you need for each task. You must use those tools for the task.

All tools used for installation must meet the industrial safety standards.

1.1 Unpacking

Work	Work tool	
Unpacking	• Forklift (over 1.5 tons) • Crane (over 2.5 tons) • Wrench • Phillips screwdriver or crosshead (+) screwdriver • Crowbar	

1.2 Mechanical Installation

Work	Work tool	
Mechanical Installation	• Crane or hoist (over 2.5 tons) • Lifting loops • Sling bar • Hoisting equipment • Screw driver (+) (1 EA) • Socket wrench M16 (24 mm) (1 EA) • Hex wrench 5 mm (M6) (1 EA) • Spanner 24 mm (0.94") (1 EA)	
	• M4 truss bolt (+) (12 EA) • Chemical anchor M16 x 190 mm (7.48") (4 EA) • M16 nut, M16 plain washer (4 EA) • M16 hex head bolts (4 EA) • Teflon tape	Provided in the product • M4 truss bolt (+) (12 EA) • M16 hex head bolts (4 EA)

1.3 Electrical wiring

Work	Work tool	
Electrical wiring	• Hex wrench 10 mm (M12) (1EA) • Nipper or wire stripper • Cable cutter • Screw driver (slot driver type)	

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Work	Work tool	
	• Hex wrench 5mm (M6) (1 EA) • Hex wrench 6mm (M8) (1 EA)	
	• M6 hex wrench bolts (2 EA) ***** • M8 hex wrench bolts (2 EA) ***** • Crimped lug	***** M6, M8 bolts are for the ground busbar. These bolts are not included in the product and must be prepared separately before installation.

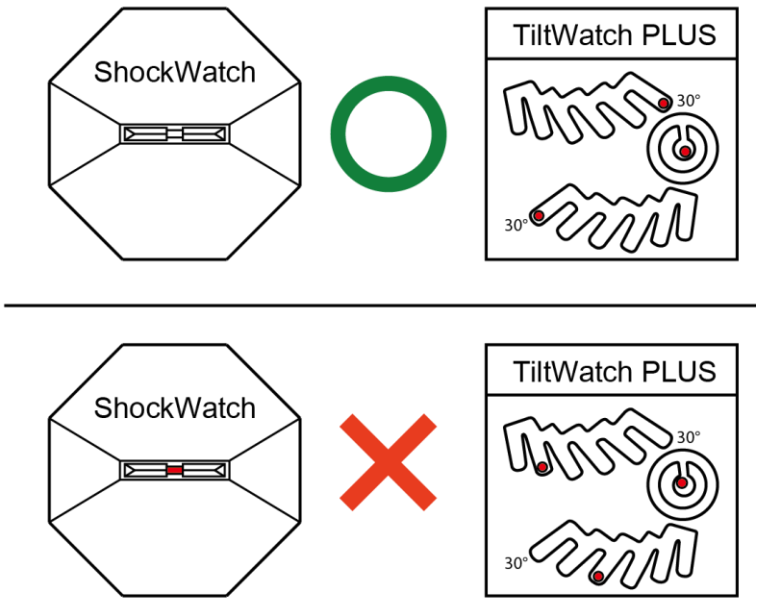
1.4 Releasing the cable management

Work	Work tool	
Releasing the weight	• M6 hex wrench 5 mm (1 EA)	
	• M6 hex wrench bolts (4 EA)	

2 Precautions on Installation

Before installing the charger, check the following:

- Ensure that all conduit burial and foundation work is complete at the installation site.
- Check whether 5 cable strands are buried in the conduit, the cable length meets the specifications, and the cable is damaged.
- Check the level condition of the foot print previously installed at the installation site using a level. If it is not level, proceed with construction again to level it.
- Ensure charger package is delivered on schedule for installation.
- Check whether the charger package is shaking or tilted more than 30°. If the charger is tilted, problems may occur with the product.



- Check the delivered product package box for damage. If there is any damage found, do not disassemble the product and contact the manufacturer and delivery company.

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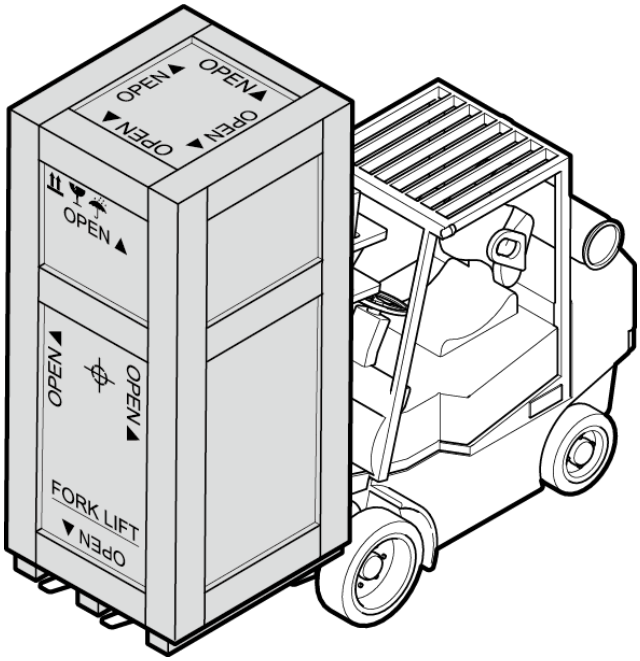
3 Unpacking

Read the warning, caution, and symbol signs on page 14.

Work	Work tool	
Unpacking	• Forklift (over 1.5 tons) • Crane (over 2.5 tons) • Wrench • Phillips screwdriver or crosshead (+) screwdriver (PH1) • Crowbar	

1 Unload the EV charger box from the transport truck with a forklift.



Item	Specification
EV charger box	• Size: 1,150 mm (L) x 1,150 mm (W) x 2,820 mm (H) / 3’ 9.3” (L) x 3’ 9.3” (W) x 9’ 3” (H) • Gross weight : 600 kg • Net weight: 493 kg / 1,086 lb

Caution

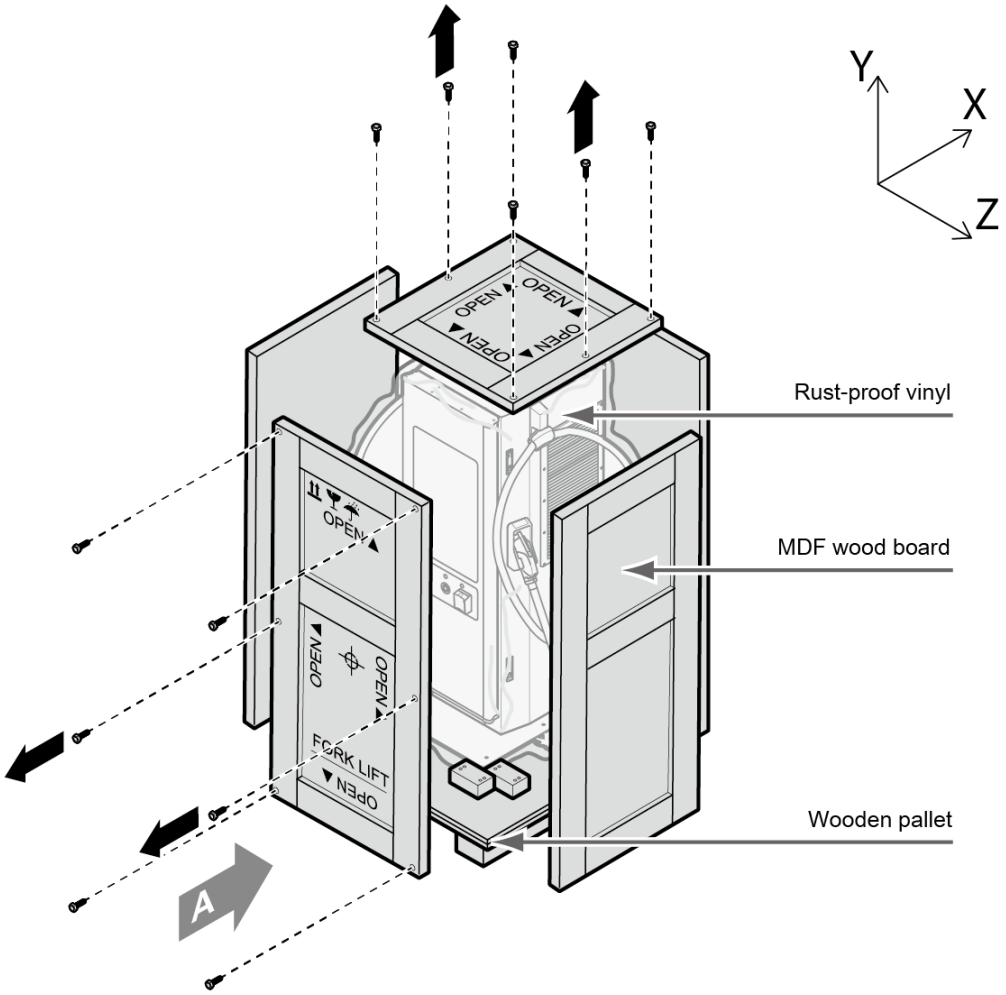
- When moving with a forklift, do not lift the EV charger box from the left side. When moving the box, the center of gravity must be located in the center of the product.

2 Set down the EV charger box by standing it up at the unpacking position.

- Check the “This side up” mark on the wood packing.

3 Remove the wood packaging by separating the screws on the front and top.

- Check the Open mark on the front and top.



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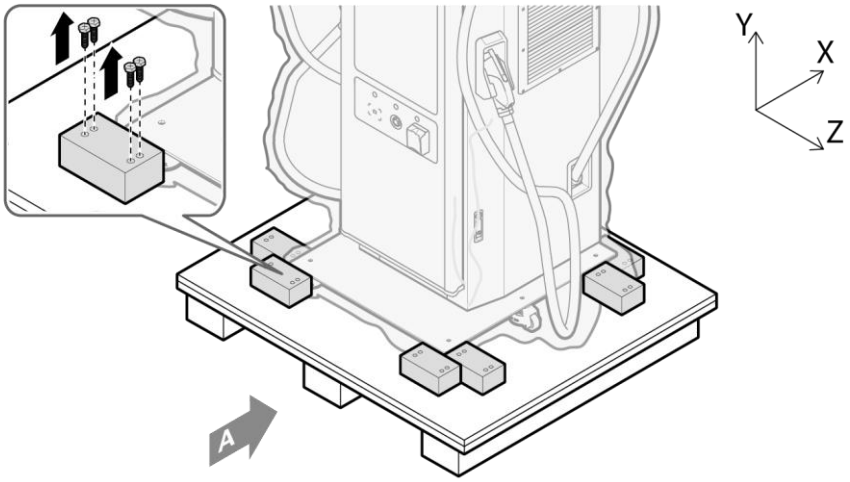
4 Unfasten each joist's screws on the floor and then remove all 8 joists.

- Two joists are equipped on each side.



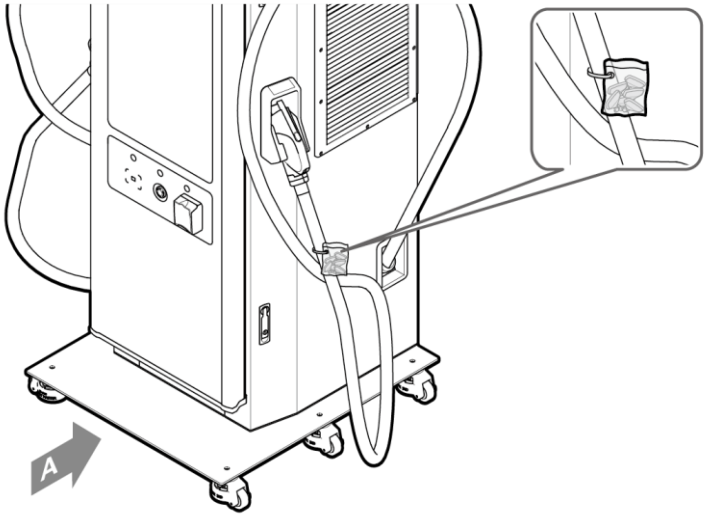
5 Remove the rust-proof vinyl.

6 Check if there is any problem on the outside or inside of the EV charger after removing all packaging.

- Check whether the product has been damaged or deformed.
- Check the types and numbers of components, and then check that there are any missing parts.
- Check the parts inside the product, and then check if the bolts of the internal parts are loose and there are any abnormal cables.

7 Remove the plastic bag containing the door keys and cover caps from the EV charger's coupler.

- Store the door key in a safe place not to lose them.



3.1 Checking components

After unpacking, check that all components of the EV charger have been delivered.

Part	Quantity	Check (Y/N)
EV charger door key	2 EA	
EV charger cover cap	4 EA • For insertion after removing the eye bolts	

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4 Mechanical installation

After unpacking, install the EV charger at the location where the foundation construction has been completed.

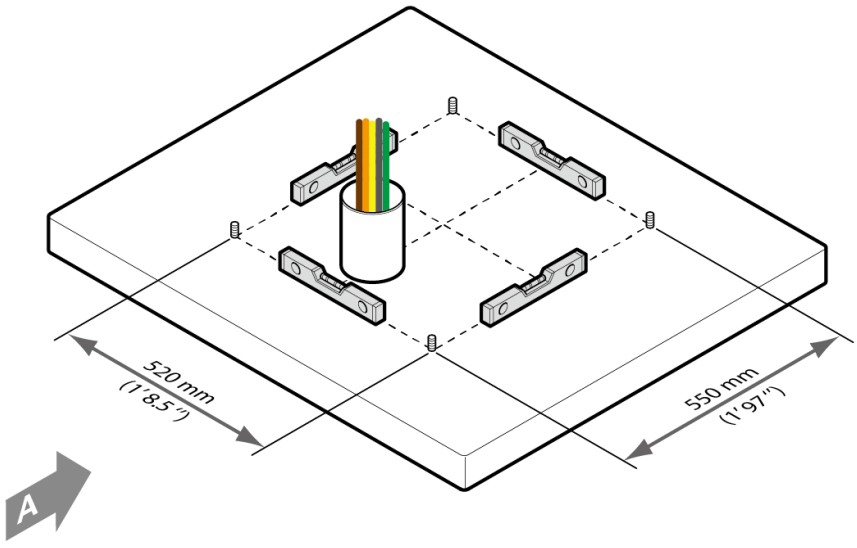
4.1 Mounting the EV charger

Danger

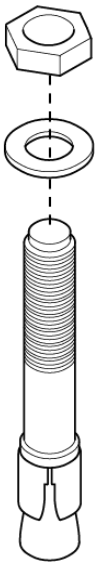
- Make sure that the power supply switch on the EV charger is turned off. Perform a voltage check to make sure that power is completely cut off from the EV charger.

Work	Work tool	
Move EV charger with a hoist	• Crane or hoist (over 2.5 tons) • Lifting loops • Sling bar • Hoisting equipment • Socket wrench M16 (24 mm) (1 EA) • Hex wrench 5 mm (M6) (1 EA) • Screw driver (+) (1 EA) • Spanner 24 mm (1 EA) • Chemical anchor M16 x 190 mm (7.48") (4 EA) • M4 truss bolt (+) (12 EA) • M16 nut, M16 plain washer (4 EA) • M16 hex head bolts (4 EA) • Teflon tape	

1 Check the level of the floor with a level.



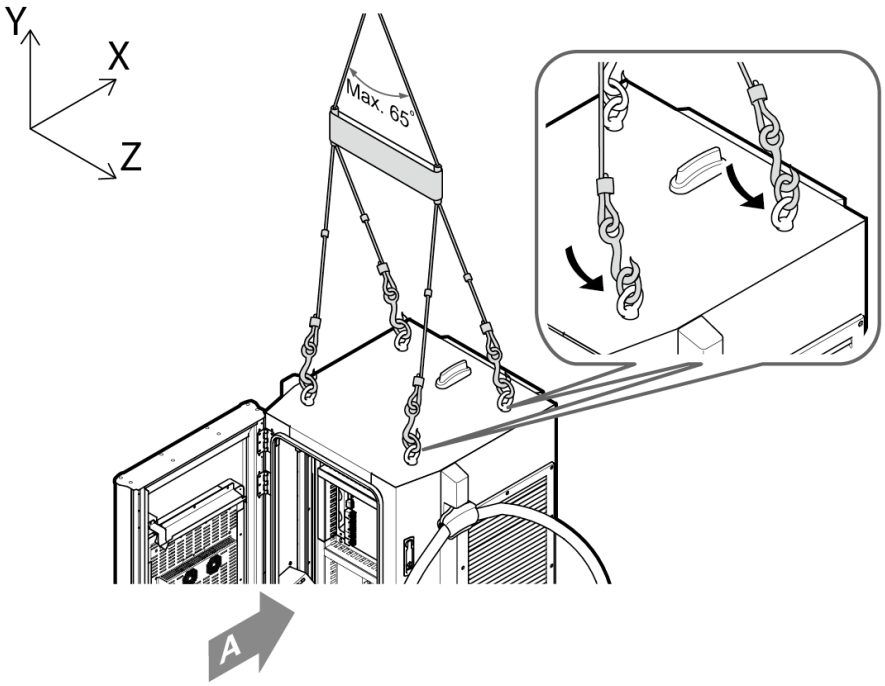
2 Remove the nut and washer, insert the bolt and sleeve into the anchor hole.
And using a hammer, fix the anchor bolt into the ground.



3 Make sure the foundation pad is free of dust or foreign substances except for the conduit and anchor bolts.

4 Attach lifting loops or sling bars to the two eye bolts on the top of the EV charger.

- The lifting loop or sling bar must support at least twice the weight of the EV charger.
- Select the lifting loop or sling bar according to the ISO 7531 standards.
- When lifting the charger with a hoist, make sure that the lifting angle does not exceed 65°.
  Keep the angle below 65° while moving the charger to prevent distortion or damage due to load.



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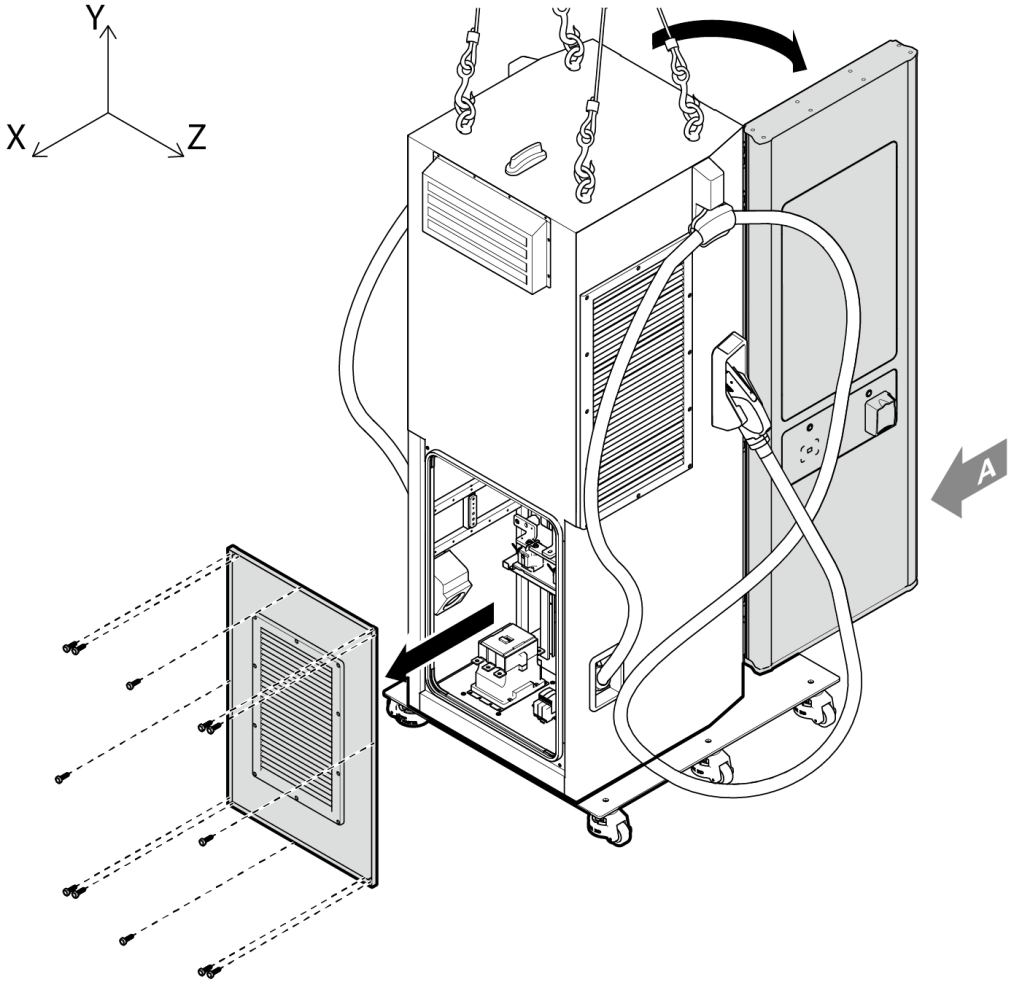
5 Attach a lifting loop or sling bar to the hoist.

6 Before lifting the product with a hoist, open the front door and then remove the rear cover.

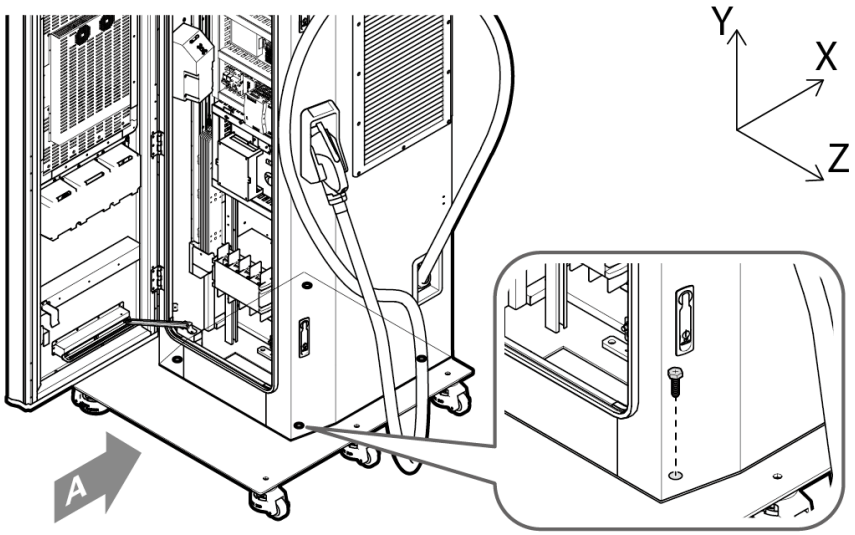
- When removing the rear cover, store it in a safe place to prevent damage or loss of fixing screws.



Work	Item	Specification	Quantity
Removing the rear cover	M4 truss bolt (+)	• Size: Truss bolt (+) 4mm (0.16”) • Loosening torque: 6.5 N.m • Tool: Screw driver (+)	12 EA

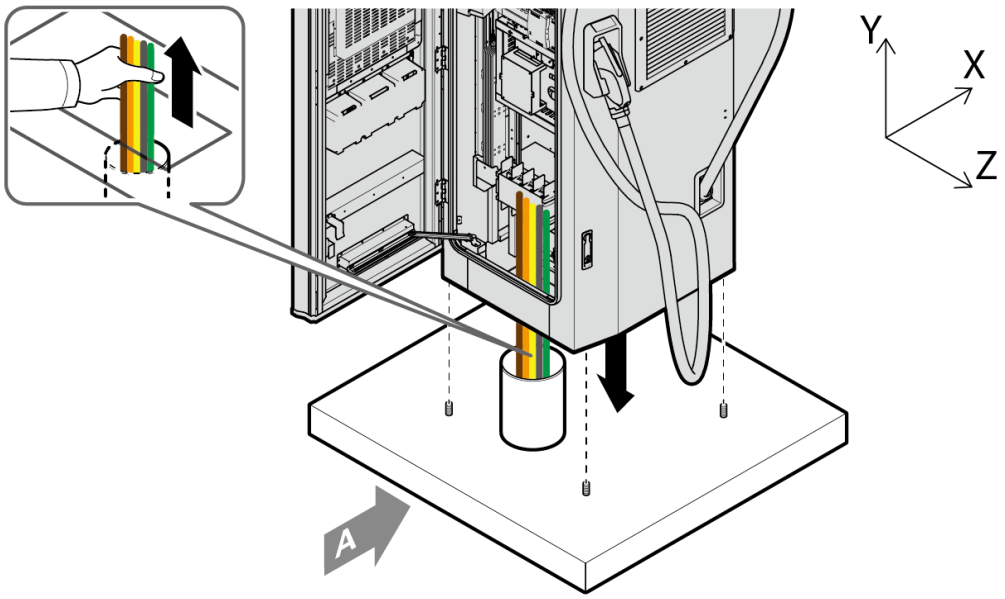
7 Lift the product with a hoist and then remove the moving plate on the floor by unfastening 4 bolts.

- Bolt spec: M16 hex bolt



8 Lift the EV charger and place it after precise alignment with the anchors fixed on the installation floor and the installation holes on the bottom of the EV charger.
When the charger is placed on the installation surface, grab the cable on the ground and then insert it into the cable hole at the bottom of the charger. Then place it in the correct position.

- Be careful not to damage the cables protruding from the installation surface when placing the charger.



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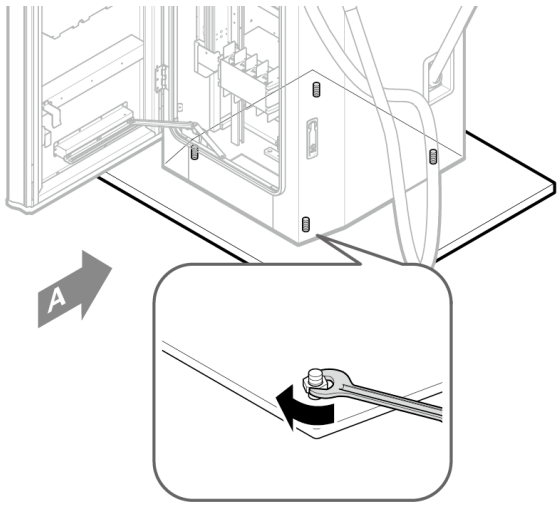
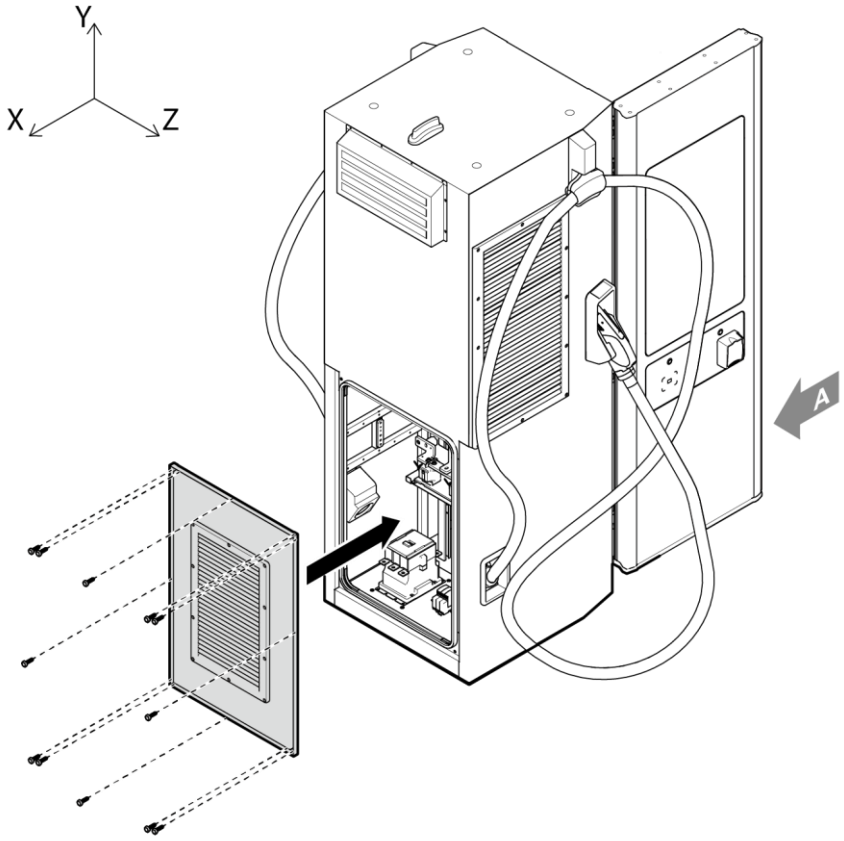
Notice
• At least two workers are required to seat the EV charger. A person must work on the hoisting equipment, and the other must guide the seating position of the EV charger.

9 Assemble the nuts and washers on the anchor bolts to fix the EV charger on the ground.



Work	Item	Specification	Quantity
Assembling the anchor bolts	M16 nut (with M16 plain washer)	• Anchor hole size: ø20 mm (0.79″) • Tightening torque: 50 N.m • Tool: Socket wrench M16 (24mm)	4 EA

10 Mount the rear covers of the EV charger.



Work	Item	Specification	Quantity
Assembling the rear cover	M4 truss bolt	• Size: Truss bolt (+) 4mm (0.16”) • Tightening torque: 2.0 N.m • Tool: Screw driver (+)	12 EA

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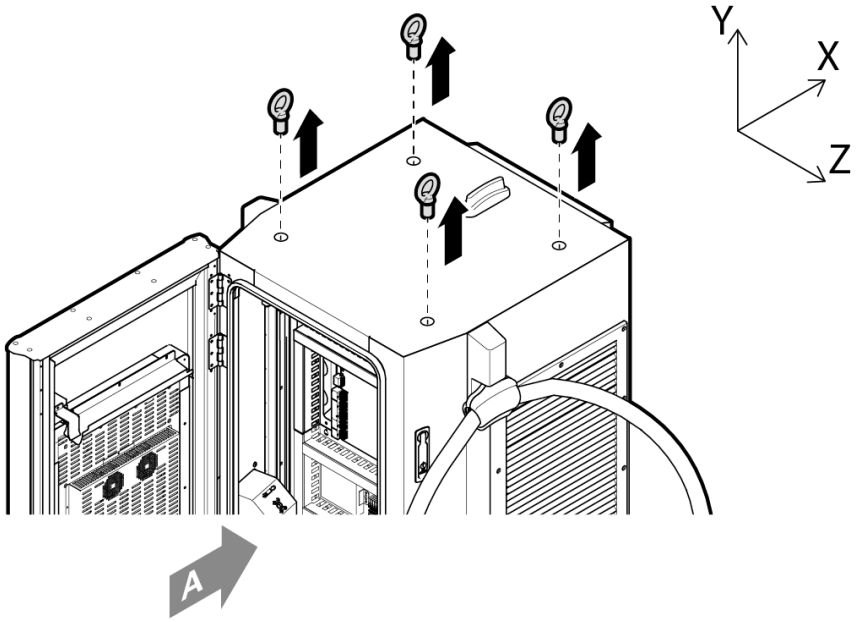
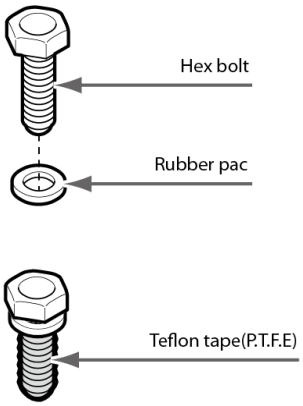
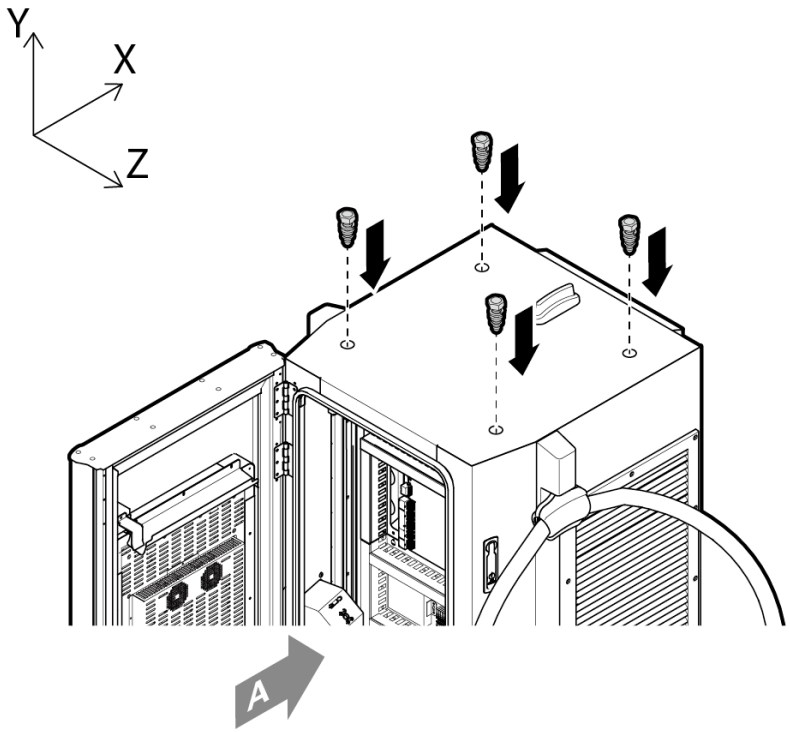
11 Remove the lifting loop or sling bar from the top of the charger, and then remove the eye bolts.



12 After assembling the M16 Hex bolt with the rubber packing, wrap approximately 200 mm Teflon tape around the bolt counterclockwise.



13 Assemble the cover caps into the hole from which the eye bolts were removed and secure them with a wrench.



Work	Item	Specification	Quantity
Assembling the cover caps	M16 Hex bolt	• Tightening torque: 52.2 N.m • Tool: Spanner 24mm or Socket wrench M16 (24mm)	4 EA

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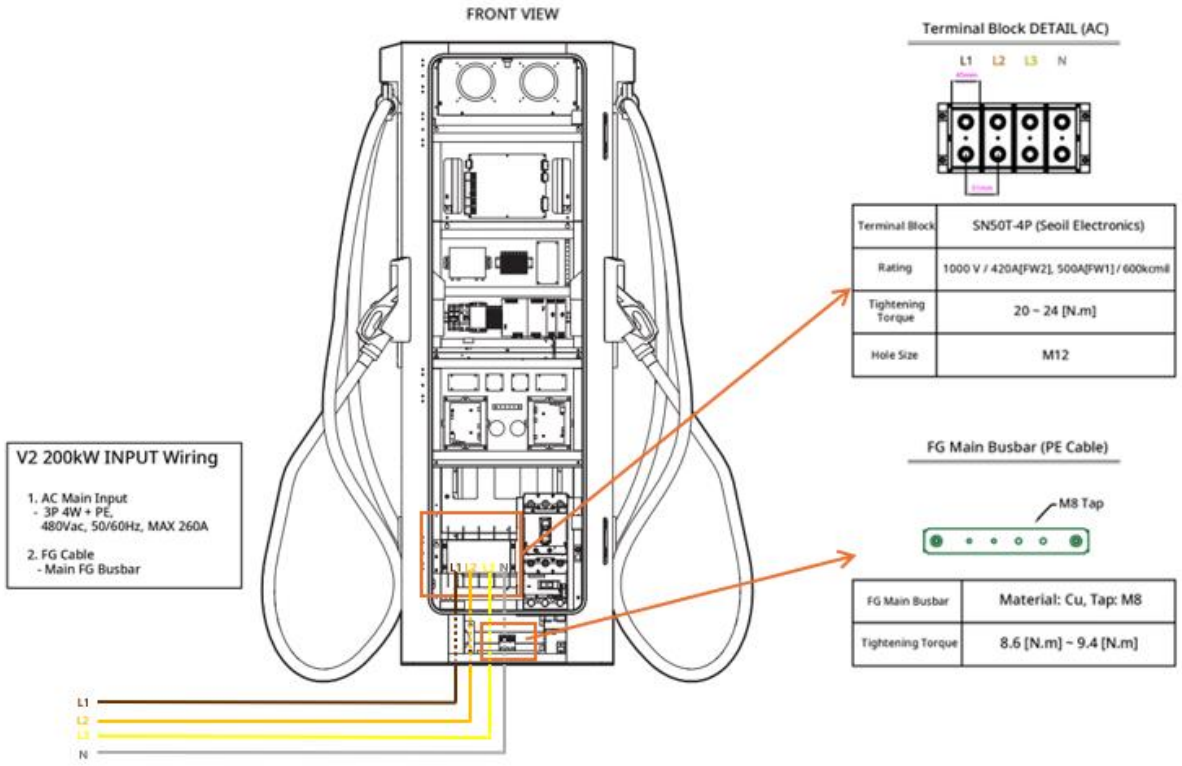
5 Electrical wiring

After installing the EV charger, connect the ground cable and AC cables.

- Make sure that 5 cable strands (3-phase 4-wire cable, ground wire) are prepared at the installation site according to the wiring specifications. If the cable does not meet the specifications or is damaged, contact the installation site's supervisor immediately.
- If the cable specifications are met and there is no problem, after stripping the cable sheath to connect to the lug, insert the lug into the cable.

- V2 200K charger input cable overview



Danger

- Turn off all power supplying this equipment before working on the equipment.
- Connecting the power supply should be performed only by a licensed professional.
- Do a voltage check to make sure there is no electrical power on the cables or in the system.

5.1 Connecting the AC 3-phase cables

Connect the switch gear at the installation site and the AC terminal block of the EV charger with a 3-phase cable.

Warning
• The lug specification of the terminal block mounted on the equipment is 45 mm. Select a proper lug to connect considering the terminal block specifications. **The company is not responsible for assembly failures when the lugs greater than the terminal block specifications were used or any damage was applied to the equipment.**

Work	Work tool	
Wiring	• Hex wrench 10mm (M12) (1EA) • Nipper or wire stripper • Cable cutter • Screw driver (slot driver type) • Hex wrench 5mm (M6) (1 EA) • Hex wrench 6mm (M8) (1 EA) • M6 hex wrench bolts (2 EA) • M8 hex wrench bolts (2 EA) • Crimped lug	

1 Check the appropriate length for assembling the AC cable to the terminal block and then cut it with a cable cutter.

- Cut the cable to a length that is not too loose or pulled tight when assembled to the terminal block.

2 Peel off the cable insulation and connect the lugs of each AC cables.
Protect the cable with an insulation tube as below.

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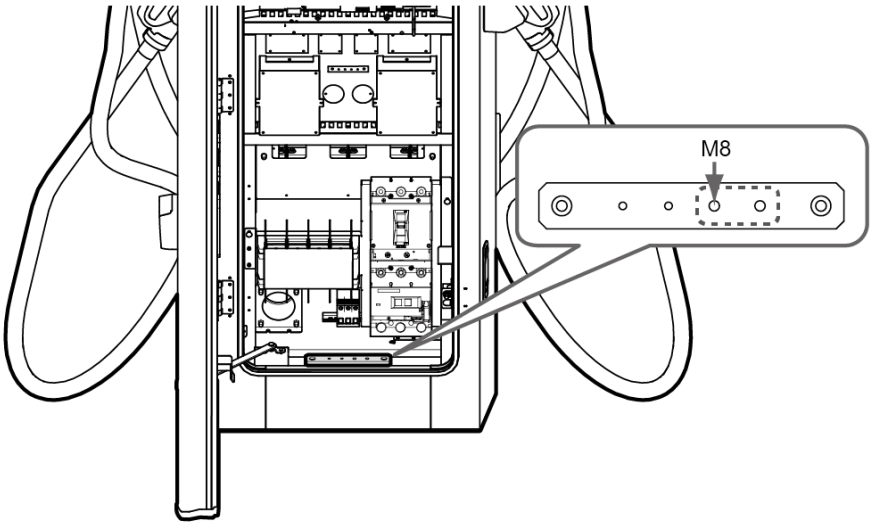
3 Connect a ground wire to one of M8 terminals on the ground bus bar.

- The remaining M8 and M6 terminals are spare. Use them later for additional grounding works.

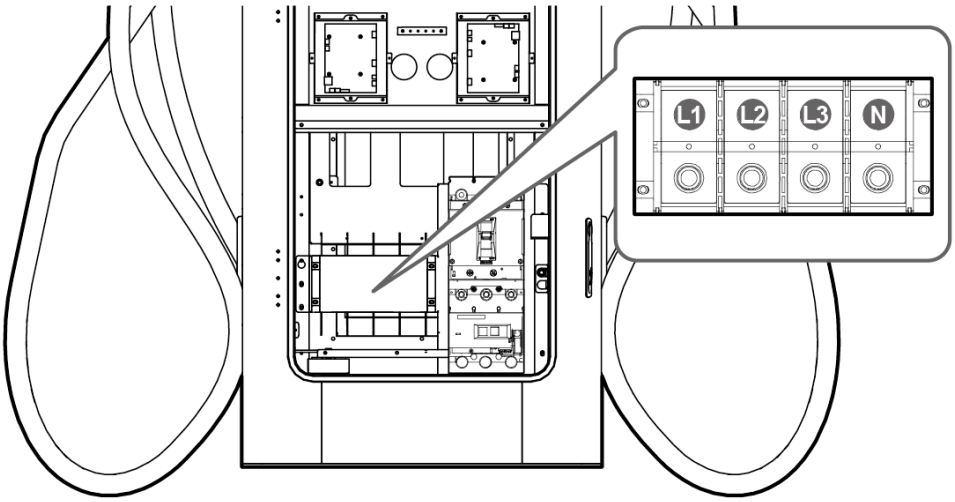


Work	Item	Specification	Quantity
Assembling the ground bus bar	• Hex wrench bolt (M8)	• Tightening torque: 9.0 ± 0.4 N.m • Tool: Hex wrench 6 mm (M8)	Hex wrench bolt (M8) 2EA

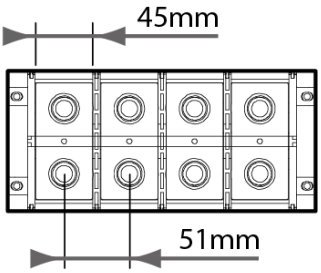
4 Remove 1 protection covers assembled on the terminal block on the front of EV charger.

5 Remove M12 bolts assembled on the terminal block with the wrench.

- Store the protection cover and bolts in a safe place to prevent loss or damage.



- AC terminal block dimension



Item	Description	Quantity
AC terminal block	3P4W	1EA

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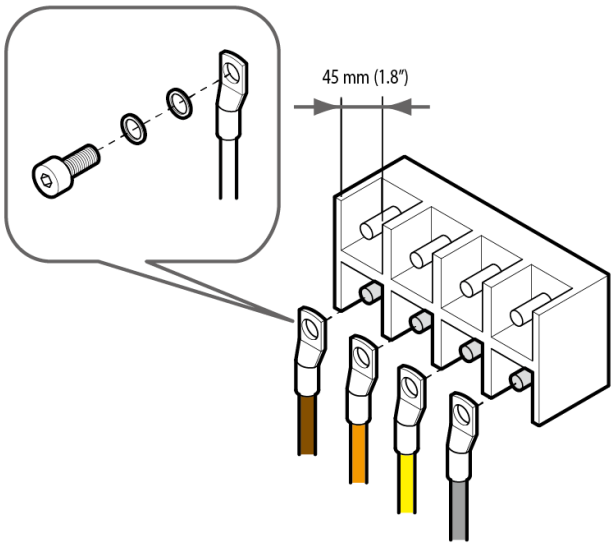
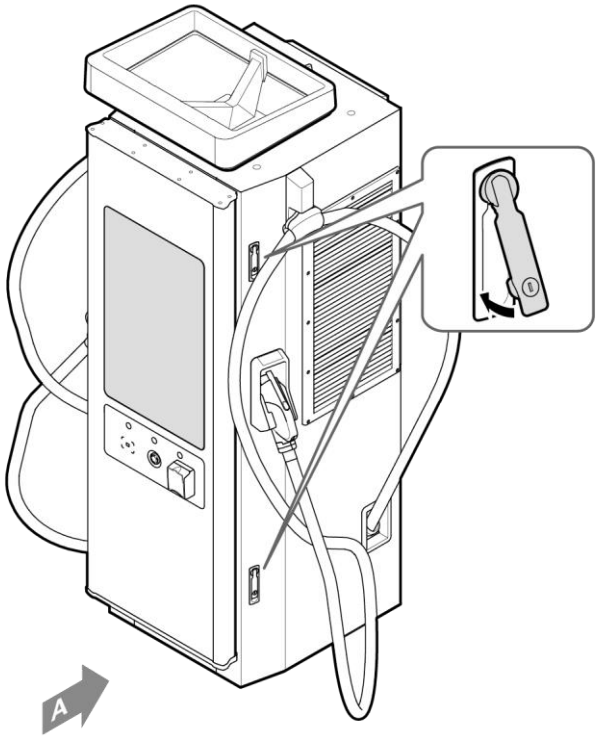
6 Fasten 4 strands of the AC cable assembled with the lug to the AC terminal block with an M12 bolt.



Item	Terminal assignment		Bolt	Tightening torque (N.m)	Loosening torque (N.m)	Quantity
Wiring AC cable	L1 (R phase)	Brown	M12	43	33.7	1 EA
	L2 (S phase)	Orange	M12	43	33.7	1 EA
	L3 (T phase)	Yellow	M12	43	33.7	1 EA
	N (Neutral)	Gray	M12	43	33.7	1 EA

7 Reassemble 1 separated protection covers to the terminal blocks.

8 After closing the front door of the EV charger, insert the key into the lock on the door to lock it.



9 After locking the front door of the charger with a key, return the door key to the installation manager (director).

Caution
• If rain or dust enters the inside of the equipment, any defect or malfunction may occur. After all things are finished, be sure to close the door and lock it with a key.

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6 Releasing the EV charger fixture

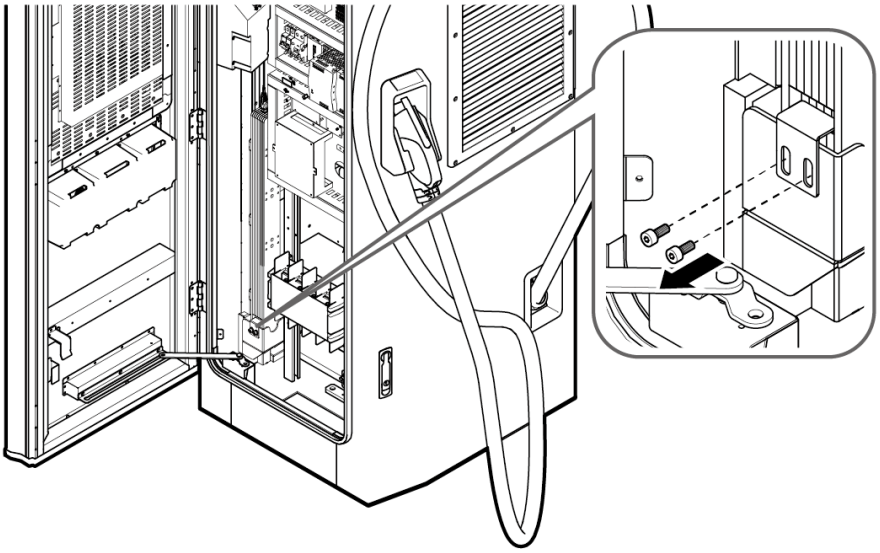
When the EV charger is shipped out, it is fixed so that it may not move by fastening screws to the weight fixing part to prevent damage to the equipment. After installation, remove the screws from the fixing part for normal operation of the EV charger.

Caution
• The couplers (CCS Cables) do not move if the screws are not removed from the fixing part for weights. For normal operation of the charger, be sure to remove the screws on fixing part.

6.1 Releasing the weight

Remove the weight fixing screws at the bottom of the charger's front.

- The weight fixings inside the front can be checked after removing the protective cover.
- After removing the weight fixing screws, remove and discard the bracket that mounted to secure the screws.



Item	Bolt	Loosening torque (N.m)	Quantity
Releasing the weight	Hex wrench bolt (M6)	4.3 N.m	4 EA

7 Final check

After installing the charger, see the following checklist. You should be able to answer “yes” to every item on the checklist. If not, review the corresponding section to finish the installation.

If you have any inquiries or need assistance with installation, contact Technical Support.

7.1 EV charger

Installing the EV charger	Current clearance
Measure the clearance between the EV charger and record it.	

No.	Check item		Criteria	Yes	No	Measured value
1	Is there any rusting or leak in the charger and distribution box?		Visual inspection			
2	Is there any crack, damage, or contamination on the charger coupler?		Visual inspection			
3	Is there a burnt smell inside the charger and distribution box?		Visual inspection			
4	Is there any abnormality in the installation piping, and is the waterproof foam properly applied to both ends?		Visual inspection			
5	Is there anything wrong with the appearance of the charger?		Visual inspection			No damage to the enclosure
6	Is there any moisture inside the charger?		Visual inspection			No moisture inside
7	Is the charger properly fixed to the ground?		Visual inspection			Fasten eight anchor bolts on the ground.
8	Is the level of the charger within the proper range? (92° to 88°)		Measure			90°
9	Ground connection	Is the charger grounded?	Visual inspection			Check the ground connection.
		Is the grounding resistance within the proper range?	Visual inspection			
10	Connecting the AC cable	Is the L1 cable (brown) correctly connected to the first terminal of the AC terminal block and in good condition?	Visual inspection			

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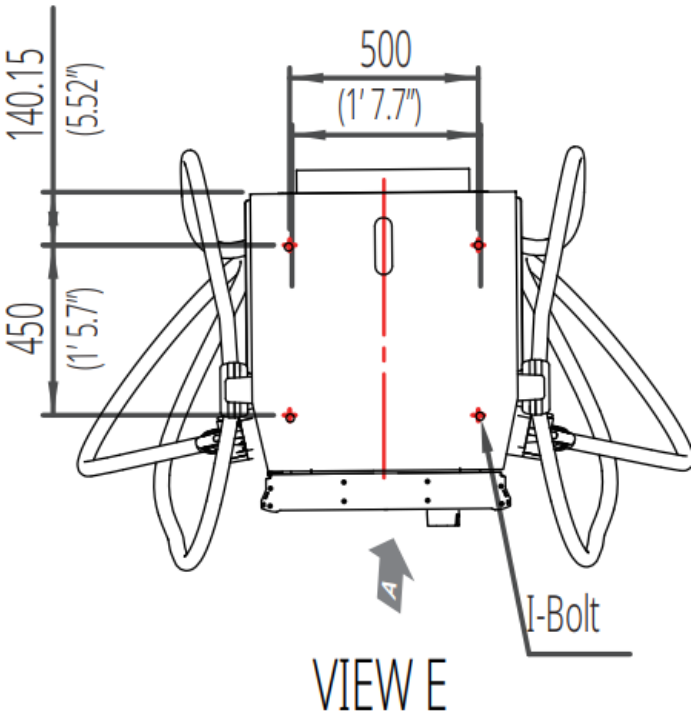
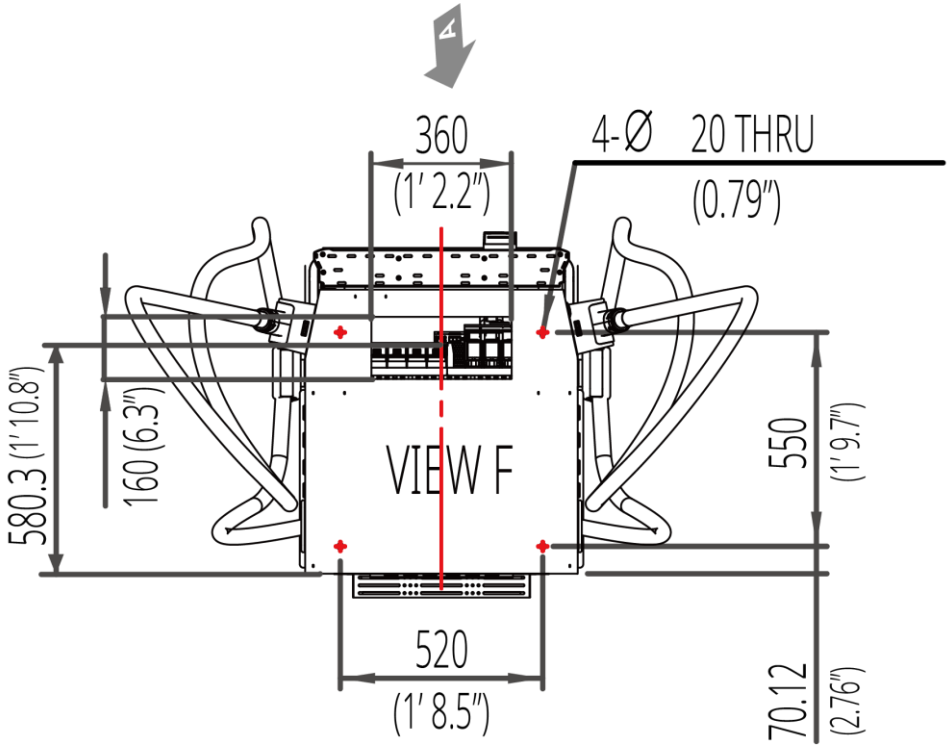
No.	Check item		Criteria	Yes	No	Measured value
11		Is the L2 cable (orange) correctly connected to the second terminal of the AC terminal block and in good condition?	Visual inspection			
12		Is the L3 cable (yellow) correctly connected to the third terminal of the AC terminal block and in good condition?	Visual inspection			
13		Is the N cable (gray) correctly connected to the fourth terminal of the AC terminal block and in good condition?	Visual inspection			
14	Checking the input voltage	L1, L2 voltage: 480 V ± 10%	Measure			
15		L1, L3 voltage: 480 V ± 10%	Measure			
16		L2, L3 voltage: 480 V ± 10%	Measure			
17		L1, N voltage: 277 V ± 10%	Measure			
18		L2, N voltage: 277 V ± 10%	Measure			
19		L3, N voltage: 277 V ± 10%	Measure			

Appendix

1 Dimension in mm (inch)





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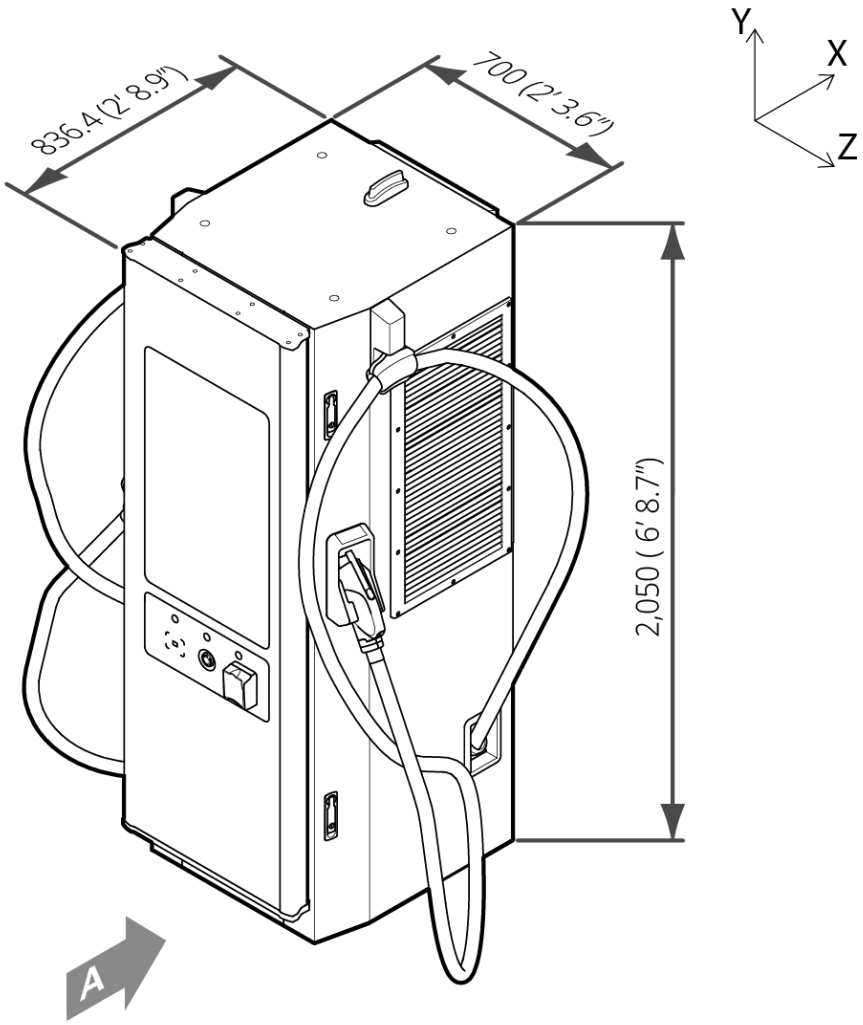
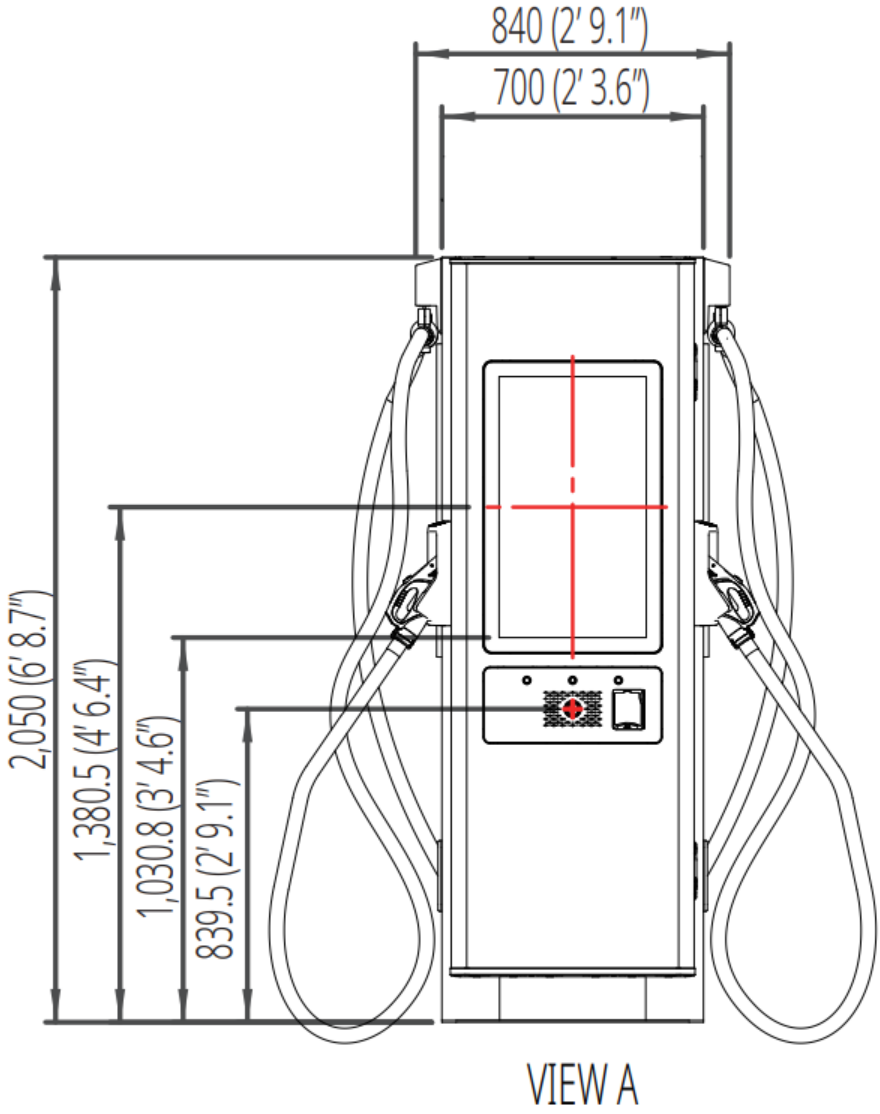

Y
X
Z
836.4 (2' 8.9")
700 (2' 3.6")
2,050 (6' 8.7")
A



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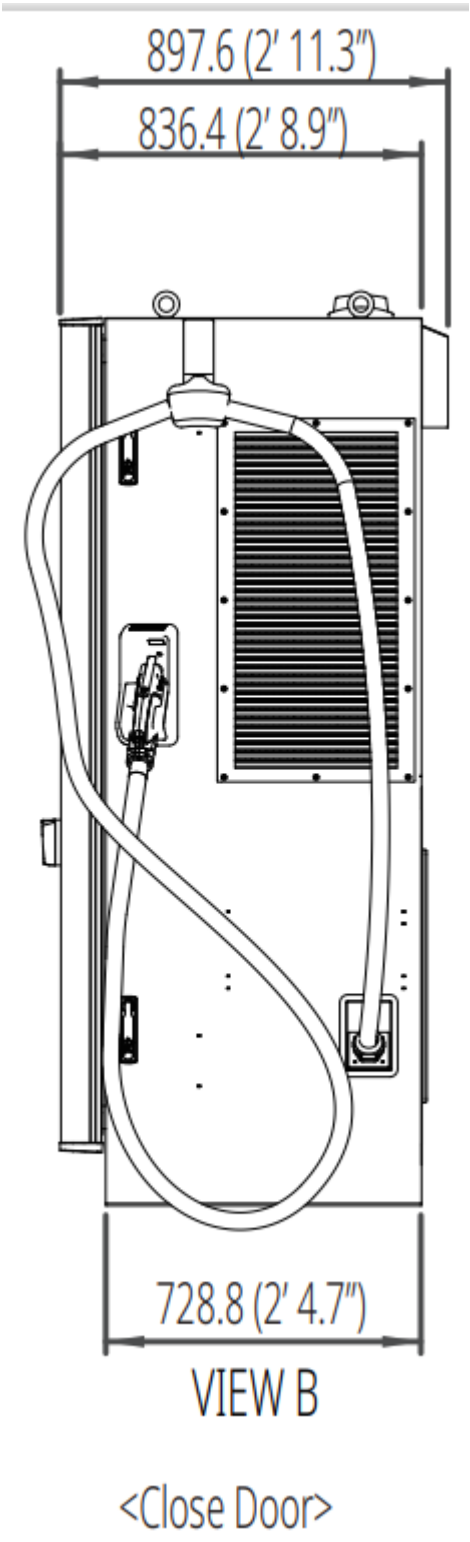
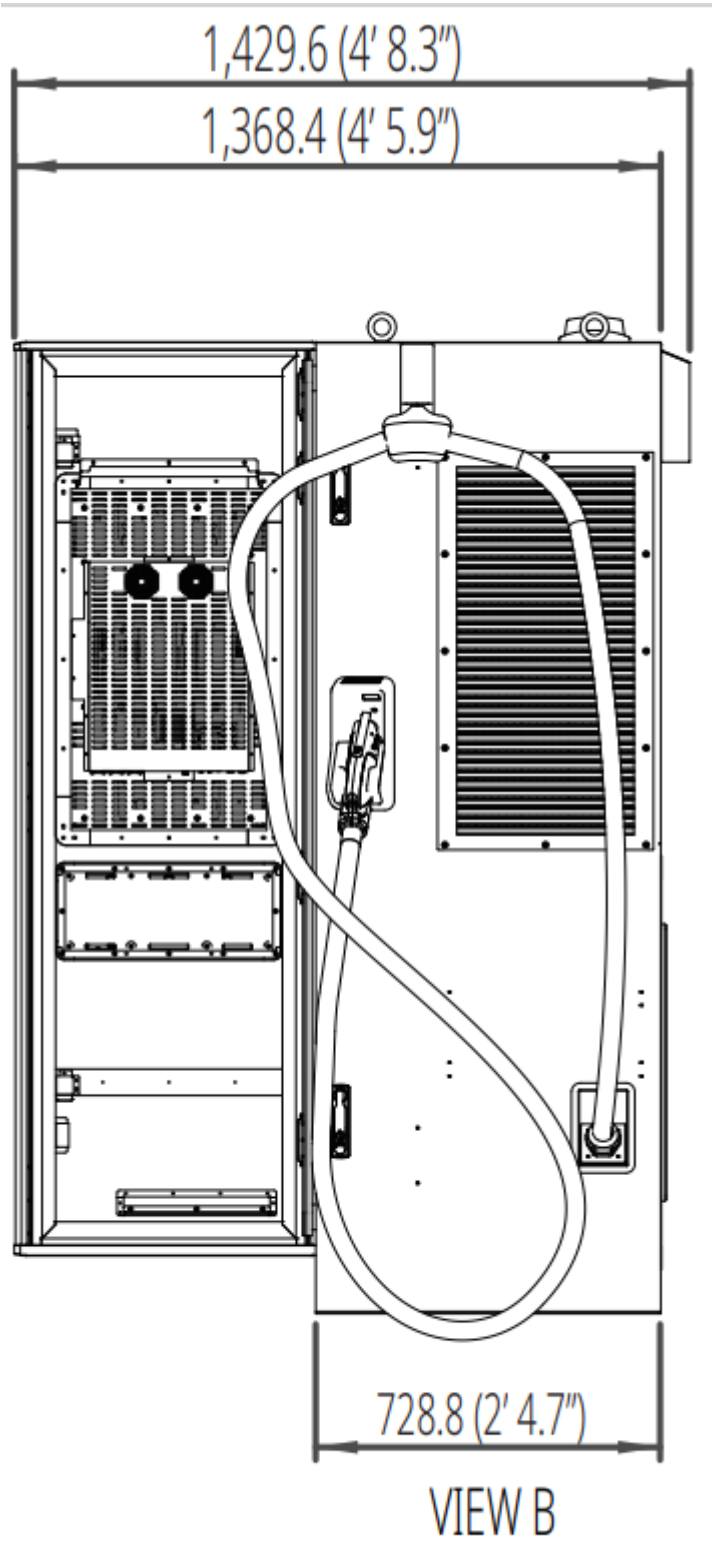


<Close Door>



<Open Door>

2 Spare parts list

With respect to the Corrective Maintenance Service and the Out-of-Scope Services, SK SIGNET will organize and be responsible for all necessary logistics works to ensure a proper service.

This includes:

- Stock keeping
- Inventory management
- Spare part delivery
- Spare part handling

No	Item	Remark
N1	Chiller	
N2	Circuit Breaker	
N3	Board	
N4	Power-Module	
N5	Case	
N6	HMI	
N7	DC RELAY	
N8	IMD	
N9	LED	
N10	PLC	
N11	SMPS	
N12	TRANS	
N13	PAYMENT TERMINAL	
N14	ANTENNA	
N15	MAGNETIC CONTACTOR	
N16	CONVERTER	

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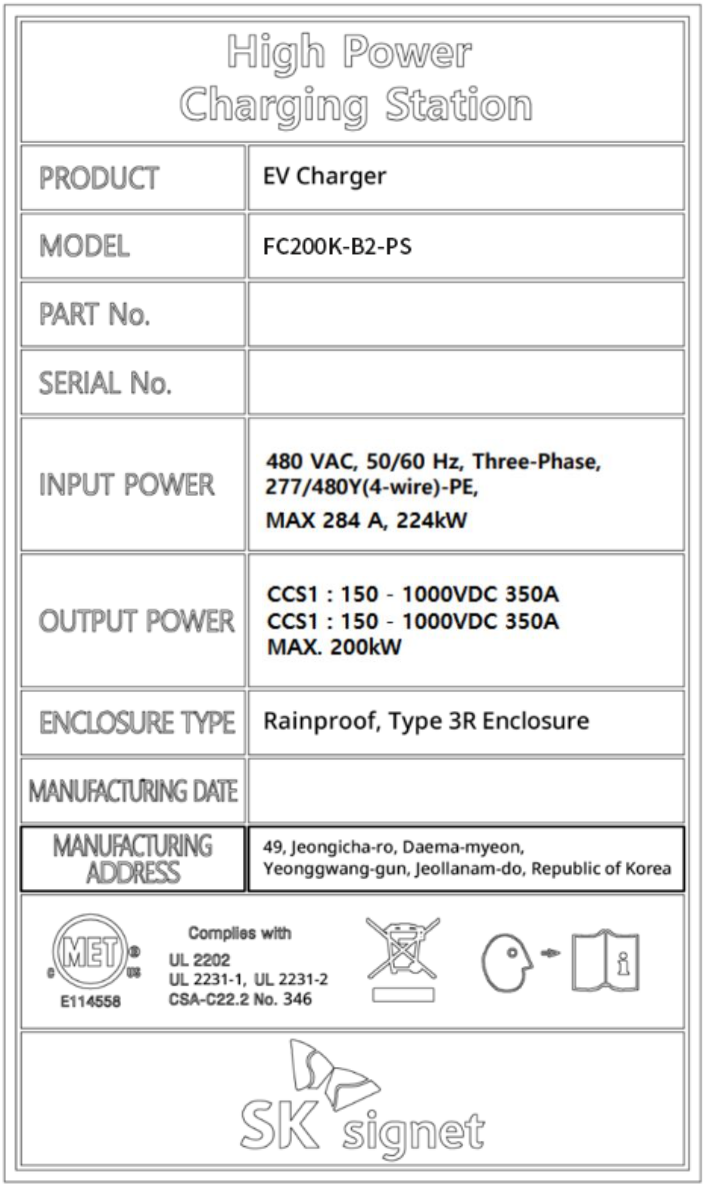
3 Others

3.1 Name plate



High Power Charging Station	
PRODUCT	EV Charger
MODEL	FC200K-B2-PS
PART No.	
SERIAL No.	
INPUT POWER	480 VAC, 50/60 Hz, Three-Phase, 277/480Y(4-wire)-PE, MAX 284 A, 224kW
OUTPUT POWER	CCS1 : 150 - 1000VDC 350A CCS1 : 150 - 1000VDC 350A MAX. 200kW
ENCLOSURE TYPE	Rainproof, Type 3R Enclosure
MANUFACTURING DATE	
MANUFACTURING ADDRESS	49, Jeongicha-ro, Daema-myeon, Yeonggwang-gun, Jeollanam-do, Republic of Korea


SK signet

Electric Vehicle
DC Fast Charger

Specifications

Model : FC200K-B2-PS / FC200K-BH-PS

Without LED Banner

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Revision History. 2024.10.29

Specifications

The following table lists the specifications for the EV DC fast charger

Model : FC200K-B2-PS

Country		North America FC200K-B2-PS / FC200K-BH-PS
Model		FC200K-B2-PS
Combination		1
Mechanical size (W*D*H)		700mm*830mm*2,050mm 2.29*2.72*6.72 ft
Weight		493kg
Input	Voltage	480 Vac ± 10 %, 3P4W (R,S,T,N)+PE, TN-S
	Frequency	50/60 Hz
	Power factor Range	≥ 0.99 (@ Load 100%, 480 Vac ± 10 %)
	Nominal Input Current	≥ 254 A
	Max. Current	284A
Output	Voltage Range	150-1000Vdc
	Current Range	350A (boost 500A, max 10 min @+25℃)
	Max. Power	200kW
Cable	Type	Dual CCS1 (Air-cooled) NACS and CCS1 (Air-cooled)
	Length(m)	5m (Outside Length: external cable + connector head)
Efficiency		> 95% (@ Load 100%)

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Electric Vehicle DC Fast Charger

Country		North America FC200K-B2-PS / FC200K-BH-PS
Power Sharing	Charging Scenario	Forced Power Sharing (200kW for single EV or 100kW+100kW for dual charging)
Power Module	Max Power (kW)	25kW
	Input (Vac)	AC 380-480V (±10%)
	Output (Vdc)	DC 150-1000V
	PFC (%)	PFC ≥ 0.99 at ±10% Voltage at >50%load
Metering Accuracy		Less than 1%
Network Connection		Ethernet, 4G, LTE Modem
Communication Protocol		OCPP 1.6J (Core : Supported) / (OCPP 2.0.1 Core : Supported)
User Interface	LCD Display	32” FHD (1920x1080) Touch Screen (English, Spanish)
	User Authentication	RFID (ISO/IEC 14443A/B, ISO15693), NFC, IC Reader, QR Code (Option)
	Payment	Nayax VPOS : IC Reader Payter P68 : NFC (Mifare)
	Cable Management	√
	Emergency Button	√
	Operation Button	√ (3 buttons)
Environmental	Operating Temp.(℃)	-35℃ to +55℃ (with derating) (-31°F to +131°F)
	Storage Temp.(℃)	-40℃ to +70℃ (-40°F to +158°F)
	Cooling Method	Forced Air-cooling
	Humidity(%)	5 to 95% (Non-condensing)
	Altitude(m)	2,000m (6,561ft)
	Noise Level	< 70dB (@ 1m)
Enclosure Design	IP Level	Outdoor, NEMA 3R
	IK Level	IK10 (Touch screen, IK08)
	Filter Rating	G2 filter
	Air Flow Design	Ventilation by fan control
Lightings		Front Door Light only (Full RGB LEDs) LED Banner for front & rear sides

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Electric Vehicle DC Fast Charger

Country		North America FC200K-B2-PS / FC200K-BH-PS
Protective Function		• Over Voltage Protection • Over Current Protection • RCD Type A + DC 6mA • Proximity loss Protection • Over Temperature Protection • FG Disconnection Detect Protection • SPD (Surge Protection) • IMD (Insulation monitor device)
Standard Compliance	Certificate Mark	• NRTL (UL), Energy Star
	Safety	• UL2202, UL2231-1, UL2231-2,UL991, UL1998, CSA, ADA
	EMC	• FCC Part 15 Class B
	Metering	• CTEP and NTEP based on current SW (To be discussed)
	Charging Interface	• DIN70121, ISO15118-2 (PnC)

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