BTC POWER

100 kW All-In-One DC Fast Charger

INSTALLATION AND USER'S MANUAL

BTCPOWER, INC.

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PLEASE NOTE

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Changes or modifications to this product by other than an authorized service facility could void the product warranty.

If you have questions about the use of this product, contact your customer service representative.

This product should be operated by trained personnel only.

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1. Safety Guidelines

SAVE THESE INSTRUCTIONS

This document contains important instructions for the installation, operation, and maintenance of **100kW All-In-One DC Fast Charger**. These instructions should be retained for future reference.

1.1. IMPORTANT SAFETY INSTRUCTIONS

WARNING

READ THIS MANUAL BEFORE YOU BEGIN

This **100kW All-In-One DC Fast Charger** manages electricity and may be hazardous. The equipment should be installed, adjusted, and serviced only by qualified electrical personnel familiar with the construction and operation of this type of equipment and the hazards involved, and in full compliance with all local and national codes and standards. Failure to observe this precaution could result in severe injury or death.

Read this manual completely and become familiar with the equipment prior to performing any procedures specified in the manual and energizing the equipment. Inspection and maintenance of this equipment should be performed in accordance with the procedures detailed in this manual.

In situations where it is not possible to perform an installation following the procedures specified in this document, contact BTCPower, Inc. BTCPower, Inc. will not be responsible for any damages that may occur resulting from custom installations that are not specified in this document.

There are no user serviceable parts inside. For service, please contact customer service or your local distributor. **DO NOT ATTEMPT TO REPAIR THE CHARGE STATION YOURSELF. SERVICE TO THE UNIT SHALL ONLY BE PERFORMED BY A QUALIFIED PERSONNEL.**

If your charging cable is somehow damaged, do not operate the charge station. Contact your service representative for service immediately. Shut down the power to the charger by switching the breaker on the supply panel to the off position.

1.2. Symbols and Definitions

Please take special attention to all information marked with the following symbols. These symbols may be found throughout the manual and on labels affixed to the equipment unit.

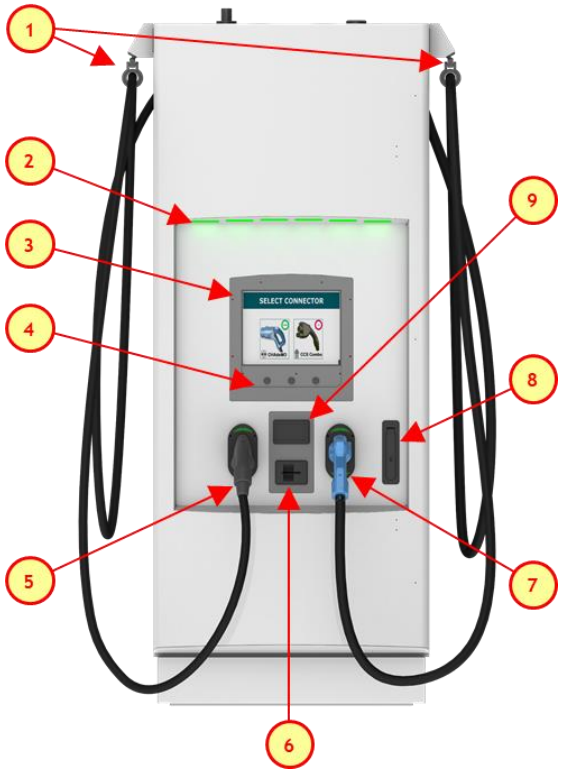
	**DANGER**	Indicates High Voltage. It calls attention to items or operations that could be dangerous to person/s operating this equipment. Read and follow the instructions carefully. Failure to do so will result in severe injury or possibly death.
	**WARNING**	Indicates a hazard or unsafe practice which, if not avoided, may result in severe injury or possibly death.
	**CAUTION**	Indicates a hazard or unsafe practice which, if not avoided, may result in minor to moderate injury.
	**NOTE**	Indicates important information to consider, otherwise, improper installation and/or damage to components may occur.

2. Equipment Description

The **100kW All-In-One DC Fast Charger** converts a 480VAC 3-phase voltage into DC voltage to directly charge an electric vehicle's lithium-ion battery. It is capable to charge all electric vehicles compliant with CHAdeMO charging system and Combined Charging System (CCS) standards.

2.1. Equipment Description

100 kW ALL-IN-ONE DC FAST CHARGER



DESCRIPTION

1. Charge Cord Retractor(s)
2. LED Light
3. 15" Outdoor-Rated Touch Screen Display
4. Push Buttons
5. Charging Coupler
   - SAE Combo
6. Encrypted Insert Card Reader
7. Charging Coupler
   - CHAdeMO, SAE Combo
8. High Security Lock
9. RFID Card Reader

SYSTEM COMPONENTS

100kW All-In-One DC Fast Charger

ITEM	DESCRIPTION	SKU
1	100kW Regular 480VAC CHAdeMO/CCS1	L3R-100-480-01-003
2	100kW Regular 480VAC CCS1/CCS1	L3R-100-480-02-003

3. System Specification

PARAMETER	MODEL L3R-100-480-01-003 / L3R-100-480-02-003
AC Input	
Input Voltage Range	480VAC, 3 Phase, +10%/-10%
Input Frequency Range	60 Hz
Full Load Amperage	132 A
Breaker Size (Recommended)	175 A
Power Factor	> 0.99 full load
Total Harmonic Distortion	< 5%
Efficiency Rating	> 92%
DC Output	
Maximum Output Power	100 kW
Maximum Output Current	200 A
Minimum Output Current	5A
Output Ripple Current	< 15 Ap–p (Bandwidth 1 kHz)
SAE J1772 Combo CCS1	
Output Voltage Range	50 – 920 VDC
CHAdeMO	
Output Voltage Range	50 – 500 V
Interface and Connectivity	
Connectors	CHAdeMO, SAE J1772 Combo CCS1
Network Compatibility	OCPP 1.5/1.6, BTCP Network
Access Control – Communication	RFID, Credit Card – 4G, Cat-5 Ethernet
Protection	
Plug-Out Detection	Power Terminated per SAEJ1772 Specifications
Surge Protection	6000 VAC
Standards	
Safety Compliance	In Process ETL Certification: Complies with UL 2202, UL 2231, UL50E, NEC Article 625, CSA STD C22.2 No. 107.1, FCC Part 15 Class A
Environment Conditions	
Operating Temperature Range	-30°C to +50°C
Operating Altitude	6,000 ft.
Humidity	95% Non-Condensing
Mechanical Characteristics	
Dimensions	42" W x 86" H x 34" D
Weight	1,350 lbs
Enclosure IK Rating	IK 08
Enclosure IP Rating	IP 54 (NEMA 3R)

4. Pre-Installation

Prior performing any installation activities, it is important to go through each of the items outlined in this section which are essential for the installation process.

4.1. Location Selection

Thing to consider when choosing a location to install the unit:

- Standards for Accessible Design (refer to Section 3.2)
- Conformance to all governing standards for location and placement of the charger
- Communications Connectivity
  - Refer to BTCPower guidelines in "Determining Suitability of Site for Cellular Connectivity"
  - Ensure that installation location meets the Cellular Signal Strength Criteria below

Parameter	Min Value	Device	Notes
RSSI	-69 dBm	SureCall	If RSSI < - 69dBm, measure RSRP, RSRQ, and SNIR
RSRP	-100 dBm	Squid or BTC-Cellular Meter	Please consult BTCPower Application Engineering
RSRQ	-11 dBm	Squid or BTC-Cellular Meter	Please consult BTCPower Application Engineering
SNIR	> 6 dB	Squid or BTC-Cellular Meter	For Reference

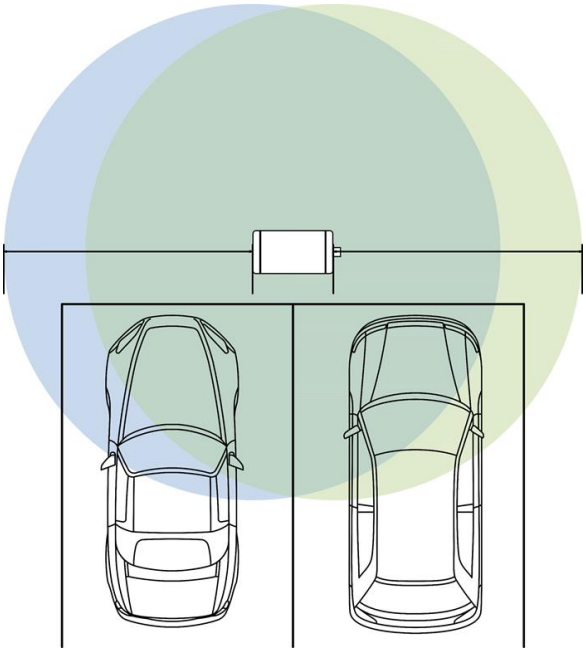
- Local Conditions
  - Area is not exposed to high temperatures, dust, corrosive fumes, combustible materials, or explosive gases
  - Area is dry and well-ventilated
  - Clearance at front, back, and sides for accessibility during service (refer to Section 4.1)
  - Wiring and conduit needed to connect the charger to the circuit panel
  - Location of vehicle's charging inlets while parked
  - Use of protective bollards and wheel stops to protect the charger

Air Flow Direction

4.2. Cable Reach

The cables of the charger come in different lengths depending on the charger's configuration and cable/connector type. The table below shows the connector type with its corresponding cable reach while the figure shows the radius in which the two (2) DC connectors can be used.

Model	Connector	Cable Reach
L3R-100-480-01-003	CCS1 (200A)	13 feet
	CHAdeMO (200A)	10.5 feet
L3R-100-480-02-003	CCS1 (200A)	13 feet
	CCS1 (200A)	13 feet



4.3. ADA Consideration

STANDARDS FOR ACCESSIBLE DESIGN for Americans with Disabilities is applicable when choosing the location and placement of all Electric Vehicle Supply Equipment. The following is a direct excerpt from the 2010 ADA Standards for Accessible Design:

http://www.ada.gov/2010ADAstandards_index.htm

"The Department of Justice published revised regulations for Titles II and III of the Americans with Disabilities Act of 1990 "ADA" in the Federal Register on September 15, 2010. These regulations adopted revised, enforceable accessibility standards called the 2010 ADA Standards for Accessible Design "2010 Standards" or "Standards". The 2010 Standards set minimum requirements – both scoping and technical – for newly designed and constructed or altered State and local government facilities, public accommodations, and commercial facilities to be readily accessible to and usable by individuals with disabilities.

Adoption of the 2010 Standards also establishes a revised reference point for Title II entities that choose to make structural changes to existing facilities to meet their program accessibility requirements; and it establishes a similar reference for Title III entities undertaking readily achievable barrier removal.

The Department has assembled this online version of the official 2010 Standards to increase its ease of use. This version includes:

- 2010 Standards for State and Local Government Facilities Title II
- 2010 Standards for Public Accommodations and Commercial Facilities Title III

The Department has assembled into a separate publication the revised regulation guidance that applies to the Standards. The Department included guidance in its revised ADA regulations published on September 15, 2010. This guidance provides detailed information about the Department's adoption of the 2010 Standards including changes to the Standards, the reasoning behind those changes, and responses to public comments received on these topics. The document, Guidance on the 2010 ADA Standards for Accessible Design, can be downloaded from:

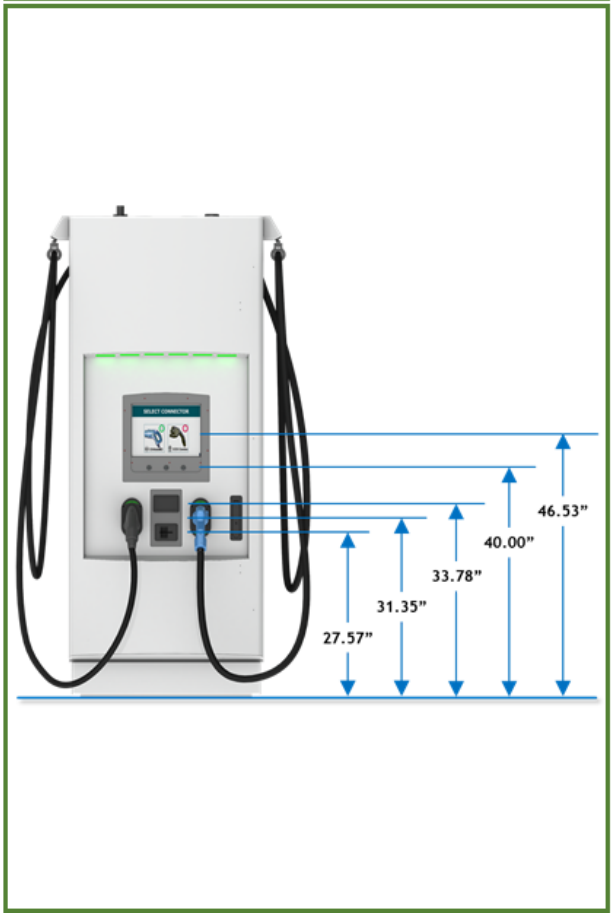
http://www.ada.gov

For information about the ADA, including the revised 2010 ADA regulations, please visit the Department's website www.ADA.gov; or, for answers to specific questions, call the toll-free ADA Information Line at 800- 514-0301 (Voice) or 800-514-0383 (TTY)."

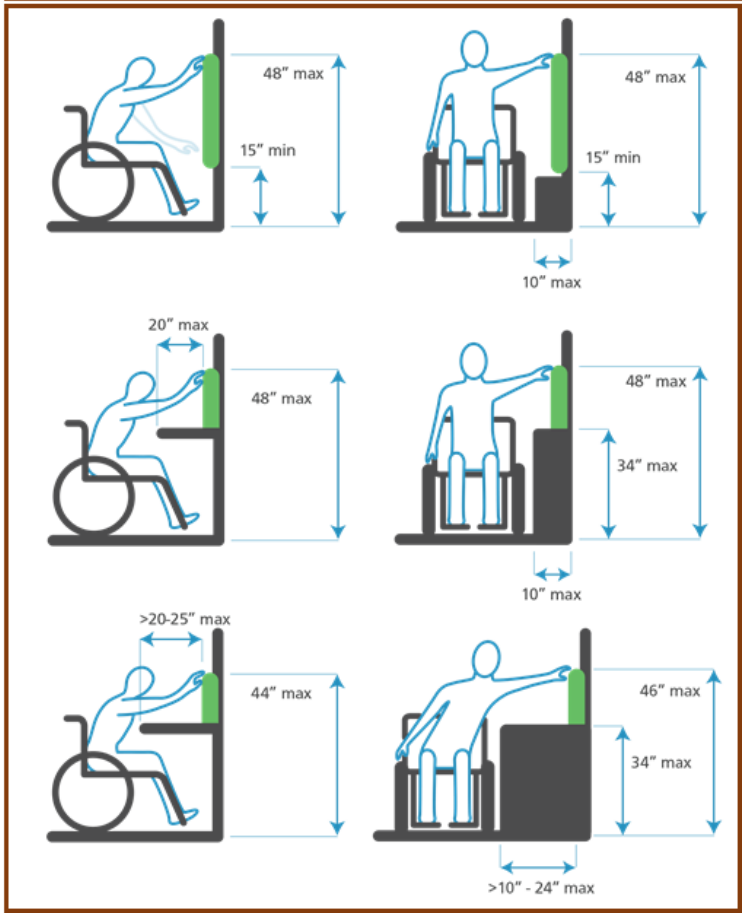
Compliance to ADA Standards

Access to all the controls and commands including the buttons and the card reader, must comply with local codes and ADA requirements. That includes being under 48" of distance to the ground.

Height Dimensions



ADA Forward & Side Reach Limits



4.4. List of Parts, Materials, and Tools Needed for Installation

Parts & Materials Needed to Purchase

Item	Part Description	Quantity	Remarks
1	OM3, multimode, 50/125µm, ST connectors on both ends	2 pairs	Recommended supplier: https://fibercablesdirect.com/
2	18AWG Twisted Pair, Shielded, Interlock Cable	1	
3	DC Wire	1	
4	AC 120VAC Wire	1	
5	Ethernet Cable	1	

**Note: Extra sets of Fiber Optic Connectors are needed as back-up since these breaks easily.*

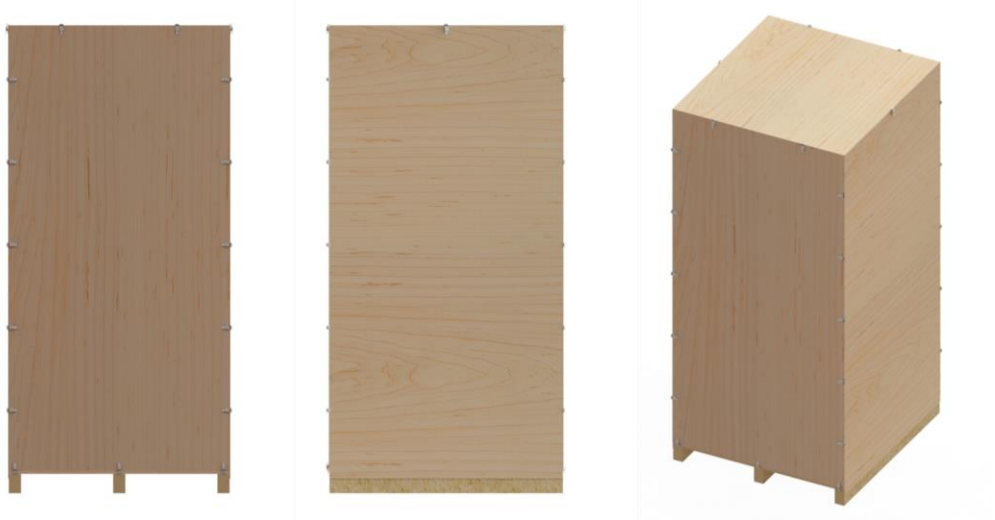
Tools Needed during Installation

Item	Part Description	Quantity
1	Philips Head Screwdriver	1
2	½" x 4" Concrete Expansion Bolt	4
3	½" Torque Wrench	1
4	Allen Wrench Set	1
5	Keys (shipped with the unit)	1

5. Transportation and Handling

5.1. Packaging

The charger is packaged, shipped, and delivered in wood crates. Below are the details of its packaging and dimensions.



Item	Width (in)	Depth (in)	Height (in)	Weight (lb)
100kW All-in-One Charger	43	45.5	90.5	up to 1,350 lbs

5.2. Transport, Handling, and Storage

Transport

The charger must be transported upright or in vertical position. Liquid may leak or other materials may get damaged if tilted or transported on its side.

Moving and Hoisting

Forklift or pallet truck can be used in moving or transporting the charger. In addition to this, the charger can be moved or lifted using the lifting eye bolts.

Refer to section 7.1 for more details.

Storage

The charger must be stored in its original wood packaging in a dry environment from -30°C to +50°C.

5.3. Receiving and Unpacking

Receiving Instructions

Once shipment is received, please follow these receiving instructions. It is the responsibility of the receiver to perform visual inspection on the shipment and immediately notify BTCPower Project Manager for any damage.

- Unload and carefully inspect the crate or packaging for any damage caused by mechanical impacts or any incidents during its transportation.
- Inspect the Tip N Tell tilt indicator attached on the crate. Tip N Tell tilt indicator provides information of the shipment conditions during transit. Blue beads in arrow indicates crate has been on its side or tipped over in transit.

- Note on the delivery receipt any visible damage to the crate/packaging or shipment has been tipped based on the Tip N Tell tilt indicator. Provide information of the damage as detailed as possible.
- For any issues or questions regarding the shipment, please call **BTCPower Shipment In-charge** at **(714) 706 – 4970**.

6. Installation

SAFETY INSTRUCTIONS

The **100kW All-In-One DC Fast Charger** should be installed in accordance with local codes and all applicable ordinances.

Read all installations instructions carefully prior to performing the installation.

DANGER

The equipment utilizes high voltages, only qualified electrical personnel familiar with the operation and construction should install, adjust, modify, and service this equipment. Failure to observe this precaution could result to severe injury or death.

WARNING

- **The equipment may be installed outdoors but only use under environment conditions as stated in this document.**
- **Do not perform any live wire operations.**
- **Do not touch the inside of the equipment while it is running.**
- **This equipment includes capacitive components such as electrolytic capacitors. Some parts may still remain charged inside of the unit even after the input power is disconnected.**
- **This charger should not be modified in any way. This will void the warranty, compromise protection and could result in a possible shock or fire hazard.**
- **Personal Protective Equipment should be used at all times when working with the equipment.**

CAUTION

During installation of the unit, ensure that the charge station's supply cable is in such a way that it will not be tripped over, stepped on, pulled on, or somehow subjected to damage or stress.

6.1. Moving and Hoisting Instructions

CAUTION

Improper handling may result to severe injury and/or damage to the unit due to dropping or falling. Make sure to follow specified procedures for hoisting operations. Take necessary measures to prevent falling when moving or hoisting the unit.

Using Forklift or Pallet Jack

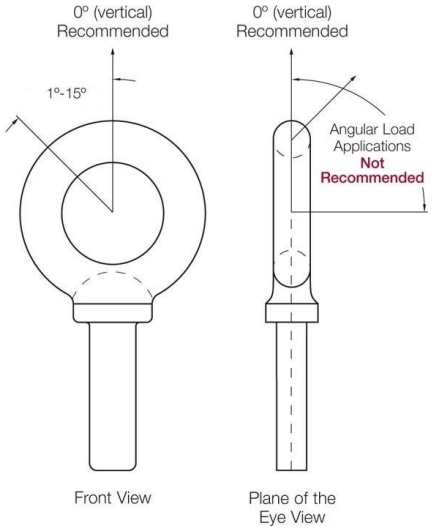
- Care should always be taken when lifting the charger using a forklift or pallet jack.
- Forks should be extended completely under the unit to avoid accidents.

Using Lifting Eye Bolts

The charger comes with four (4) M12 Lifting Eye Bolts positioned at each corner of the unit enclosure's top surface.

The Working Load Limit (WLL), commonly referred as Lifting Capacity, of the M12 Lifting Eye Bolt is 0.34t or equivalent to **680 lbs**. Eye bolt capacity reduces as the horizontal angle decreases.

Use eye bolts at a vertical angle of no more than 15°. Eye bolt strength at 15° angle drops down to 80% of vertical lifting capacity.

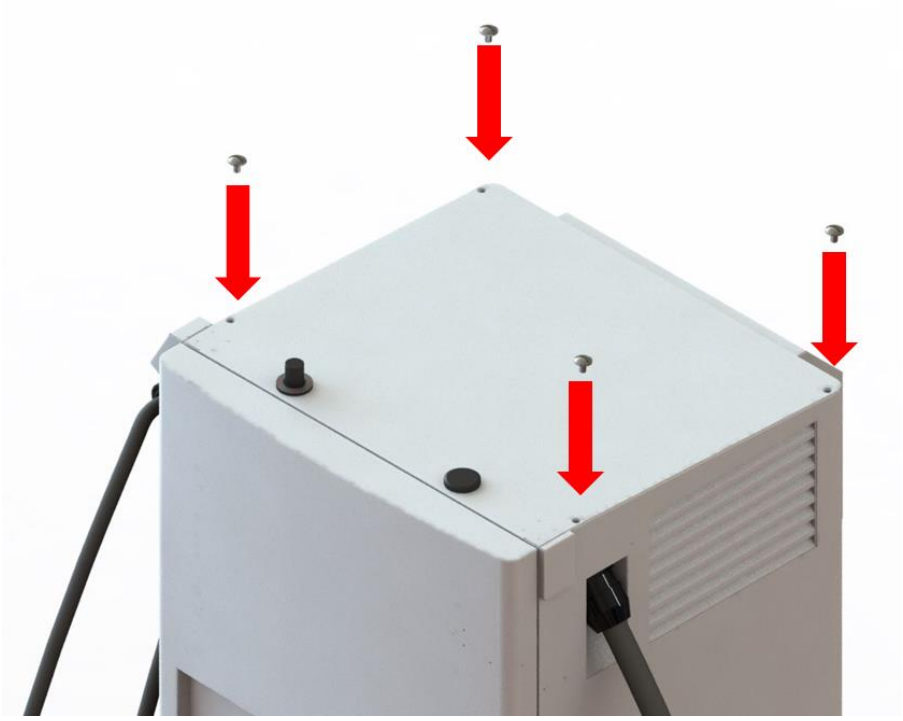


BTCPower's recommendation in reference to the M12 lifting eye bolt specification and the charger's maximum weight, is to use all four (4) eye bolts and keep the **vertical angle between 0° to 15°** when lifting.

- **Calculation**
  - Total Lifting Capacity (4 eye bolts) = 4 x 680 lbs = **2,720 lbs**
  - Estimated Charger Weight = **1,350 lbs**
  - Total Lifting Capacity at 15° (20% reduction) = 80% x 2,720 lbs = **2,176 lbs**

NOTE

After the charge is fixed on its location, the lifting eye bolts must be removed, and end sealing protections must be inserted into the holes.

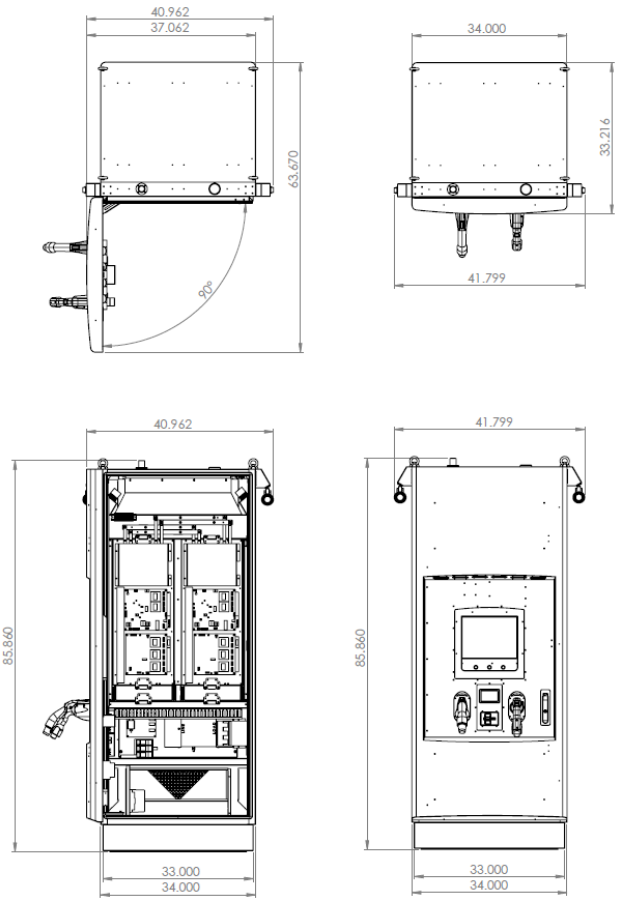


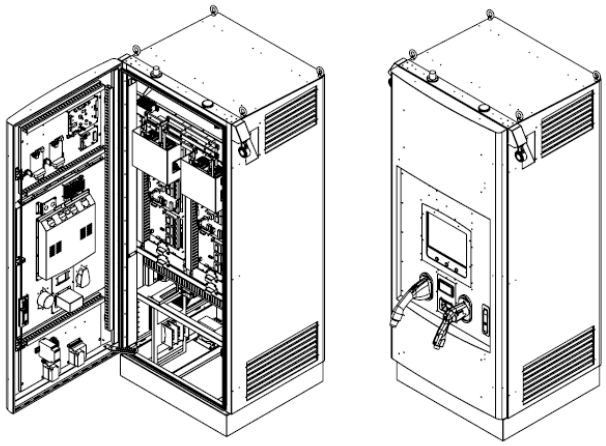
6.2. Mounting Procedures

6.2.1. Clearance Around the Unit

Clearance surrounding the charger must be considered for proper ventilation and service accessibility. Refer to the installation drawings as illustrated below.

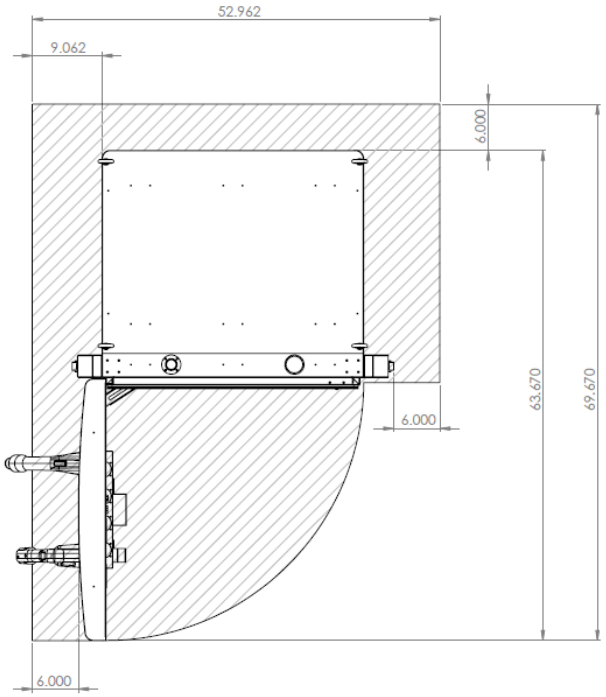
Charger Installation Drawing

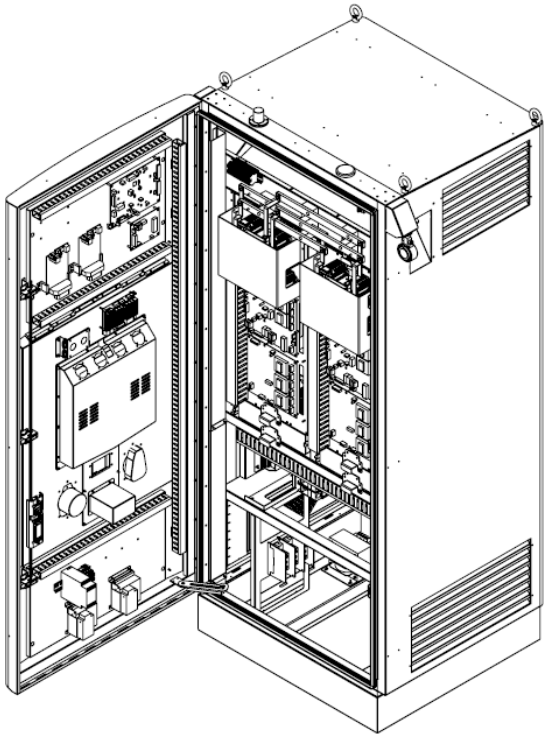




ISOMETRIC VIEW

Charger Installation Drawing (continuation)





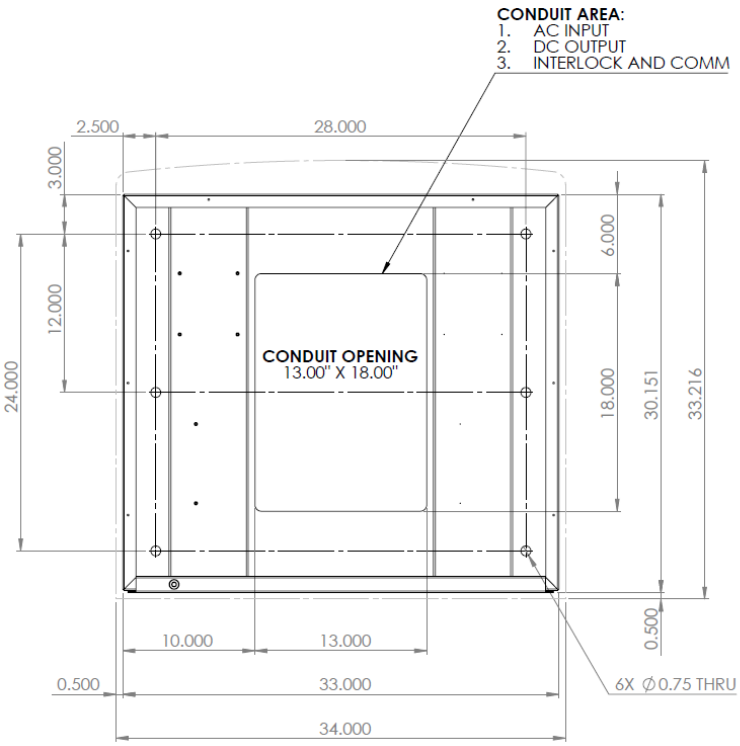
6.2.2. Charger Mounting

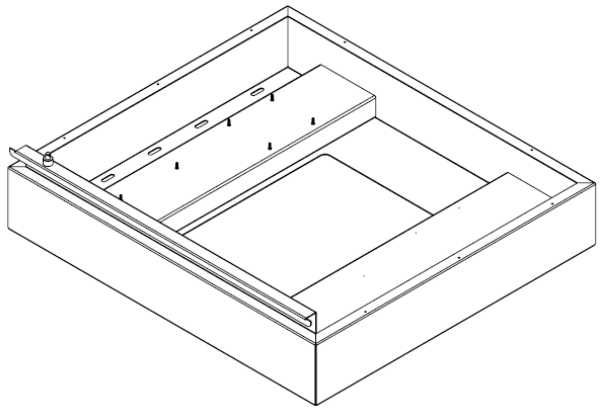
The Charger must be fixed on a concrete pad using **six (6) ½" x 3 ¾" (McMaster-Carr P/N 91578A116 or equivalent)** concrete expansion studs or as determined appropriate by the structural engineer in-charge.

Make sure to check local codes for compliance.

Charger Footer Drawing

The illustration below shows the drilling layout for the **Charger**. Only six (6) points are needed to fix the unit on the concrete pad. The conduit entry to the unit is also shown.



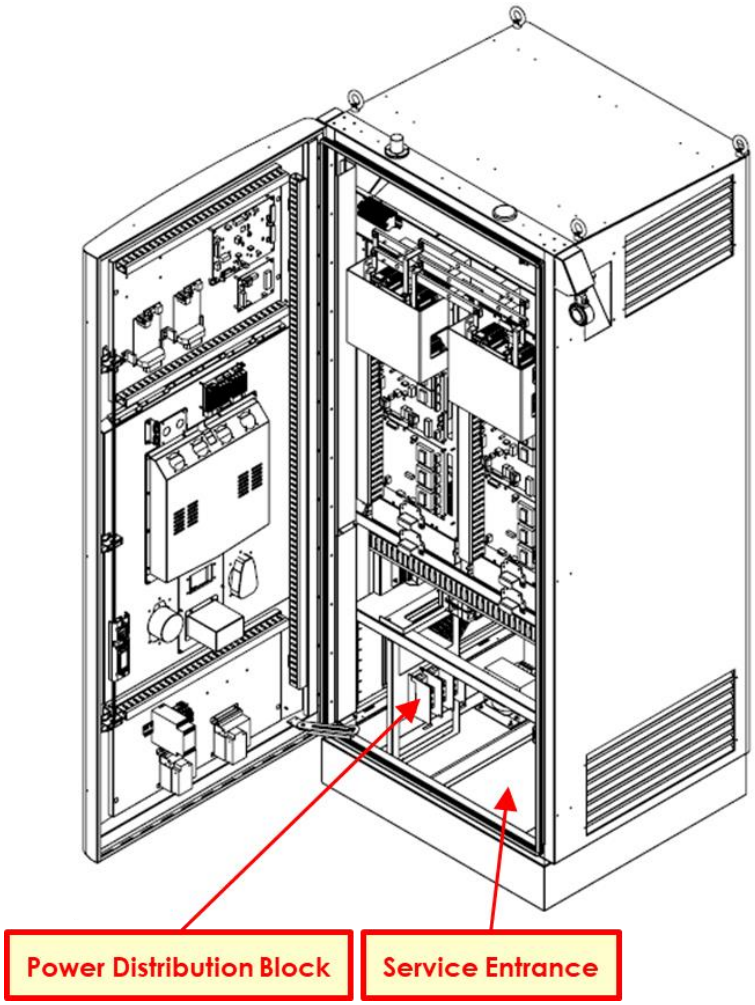


INSTALLATION FOOTER VIEW

6.3. Electrical and Communication Service Connection

6.3.1. Electrical Service Entrance

100kW All-In-One DC Fast Charger is provisioned to receive an electrical power connection from the bottom. Refer to all applicable codes.



6.3.2. Electrical Connection

CAUTION

This is a 3-Phase 480VAC Charger.

The **100kW All-In-One DC Fast Charger** includes over-current protection as required by the National Electric Code and has an integrated UL listed 250 Amp breaker. Please refer to NEC Article 625 for installation requirements and check in the installed jurisdiction for any other electrical requirements. Installation should also be in accordance with the Canadian Electrical Code, Part 1.

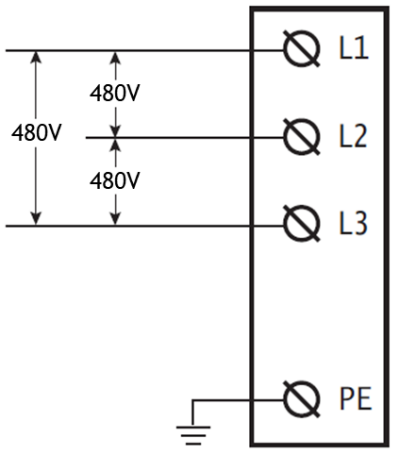
GFCI on panel maybe required if not included in the charge station.

Conduit is to be routed per NEC standards.

WARNING

The unit is designed for indoor or outdoor installation. If this unit is mounted outdoors, the hardware for connecting the conduits to the unit must be rated for outdoor installation and be installed properly to maintain the proper outdoor / rain tight rating of the enclosure.

**Line 1, Line 2, Line 3, and Ground wires are required, neutral is not required.*



CAUTION

For 480VAC unit, the phases used must each measure 277VAC to Neutral. Earth Ground must be connected to Neutral at only one point, usually at the Service Entry of the Breaker Panel.

Service Wiring

Connect 480VAC 3-Phase to Mersen MPDB67013 Power Distribution Block located in the lower compartment of the 100kW All-In-One DC Fast Charger.

MERSEN TERMINAL BLOCK (MPDB67013)				
Line Side			Amp Rating per Pole	
Wire Range	Opening per Pole	Torque (lb-in)	Cu Wire	Al Wire
350 – #6	1	275	310	250

GROUNDING INSTRUCTIONS

This unit is to be connected to a grounded, metal, permanent wiring system; or an equipment-grounding conductor must be run with circuit conductors and connected to equipment-grounding lug or lead on battery charger. Connections to the charger shall comply with all local codes and ordinances.

6.4. Ethernet Port Location

The PC is located behind the display back cover.

1. To access the PC, remove the display back cover first located at the back of the charge door as shown in **Figure 1**.
2. To remove back cover, loosen six screws using Phillips Screwdriver #2. Once loosened, lift and pull out the cover as shown in **Figure 2**.

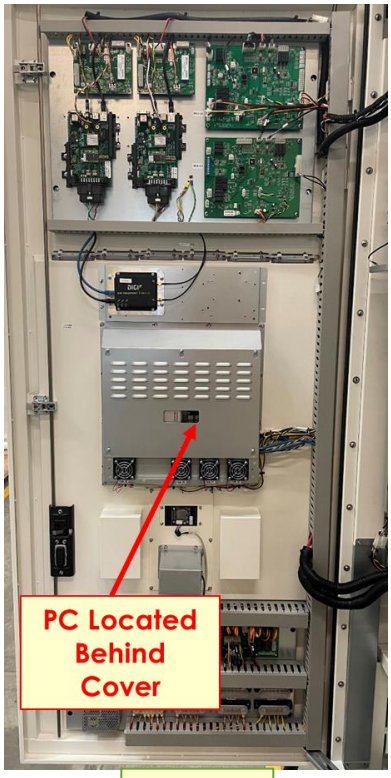


Figure 1

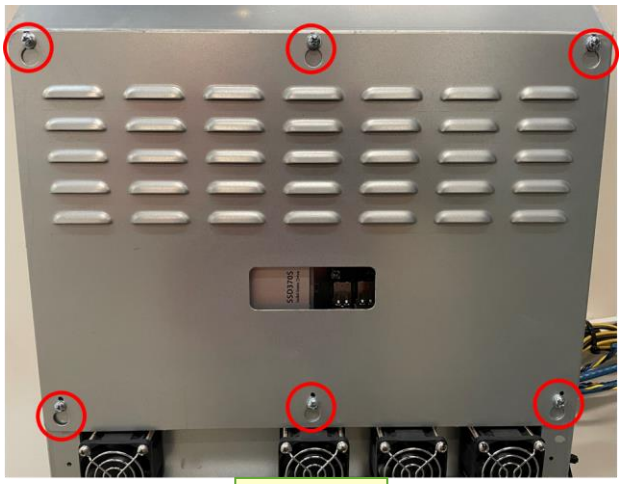


Figure 2

3. The RJ45 cable from the modem should be connected to the left-side ethernet port of the PC as shown in **Figure 4**.

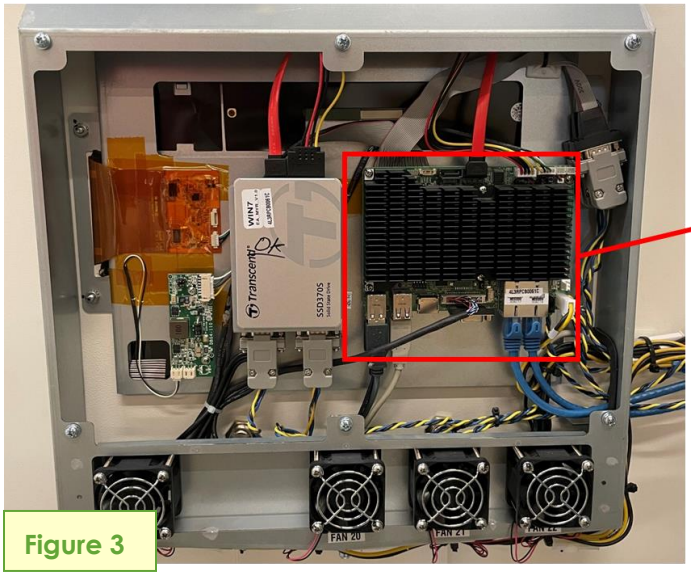


Figure 3

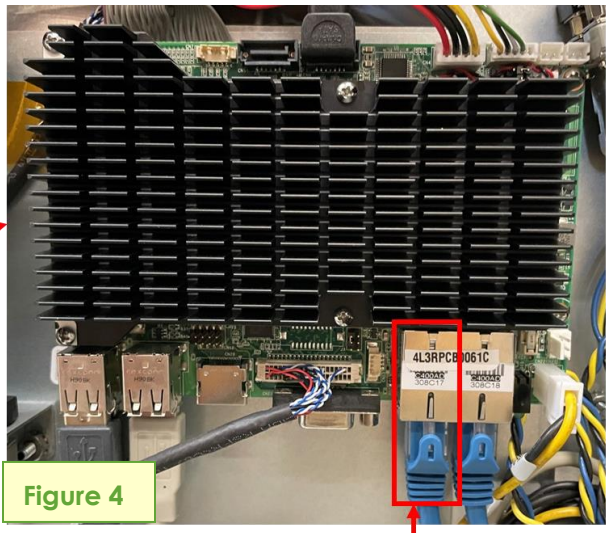


Figure 4

Ethernet Connection to Modem/LAN (Left-Side Port)

7. Verification and Inspection

Commissioning

Prior and during system start-up, perform verification and inspection on the charger using the **100kW All-In-One DC Fast Charger Commissioning Checklist**, which was provided together with this manual.

All instructions listed in the commissioning checklist are considered mandatory and must be carried out by the contractor in-charge of the commissioning. Required information and actual measured data shall be filled-in as well.

For any issues, concerns, or questions during commissioning, please email to dispatch@btcpower.com or call **1-855-901-1558**.

After successful commissioning, email the completed commissioning checklist to dispatch@btcpower.com.

8. Operation

8.1. Output Connectors

DANGER

Danger of death, serious personal injury, and burns. Improper handling of the charging cable can cause electric shock and short circuits.

8.1.1. CHAdeMO Connector (200 A)

- Cable Length: **10.5 ft**
- Connector Weight: **approximate 3.97 lbs.**

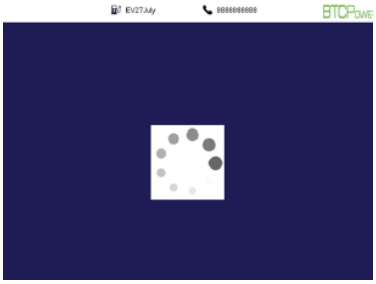
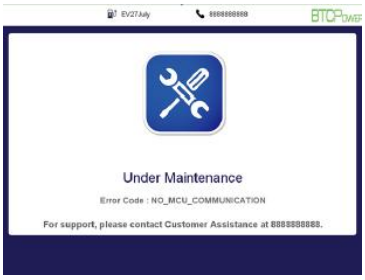
8.1.2. CCS1 Connector (200 A)

- **Cable Length: 13 ft**

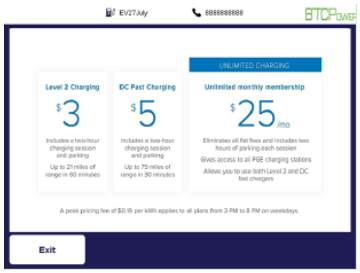
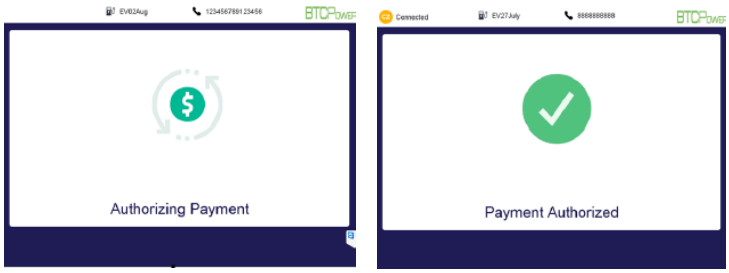
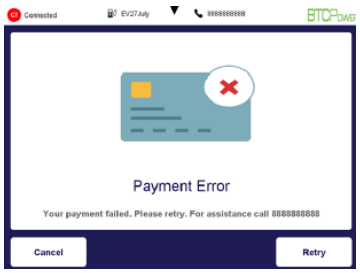
CAUTION

If, at any time, you feel the equipment to be unsafe, shut off the electricity at the Circuit Breaker and immediately contact Customer Support. DO NOT use your charger until the problem can be identified and corrected.

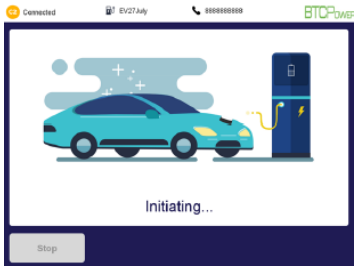
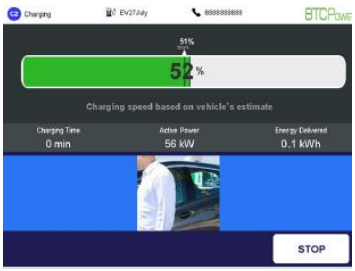
8.2. Charging Session and Operation Procedure

SCREEN	DESCRIPTION
SCREEN 1	
	**STARTUP SCREEN**
SCREEN 1.2	
	**If startup fails, "Under Maintenance" screen will show up.**
SCREEN 2	
	**WELCOME SCREEN** **Displays Connector Options** **Select:** **CHAdeMO** **CCS Combo**

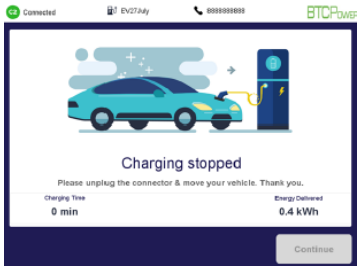
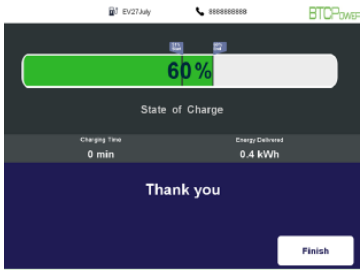
Starting a Charging Session (continued)

SCREEN	DESCRIPTION
SCREEN 3	
	Displays Pricing Details
SCREEN 4	
	Displays Payment Options Credit Card, RFID Card Tap RFID Card to Proceed
SCREEN 5	
	Authorizing Payment
SCREEN 5.1	
	If payment is fails, "Payment Error" will show up.

Starting a Charging Session (continued)

SCREEN	DESCRIPTION
SCREEN 6	
	Connector Plug In
SCREEN 7	
	Charging Initialization
SCREEN 8	
	Charging in Progress and Displays Charging Information Press "STOP" to Discontinue Charging

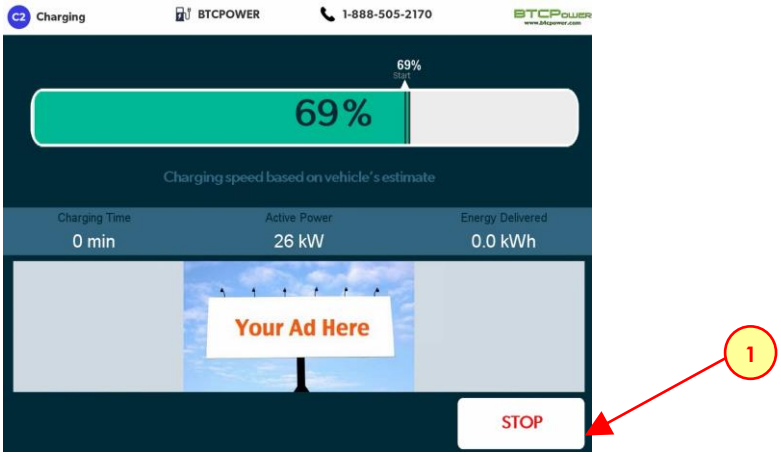
Starting a Charging Session (continued)

SCREEN	DESCRIPTION
SCREEN 9	
	**Charging Stopped / Completed**
SCREEN 10	
	**End of Charging** **Unplug Connector and Return to Holder**

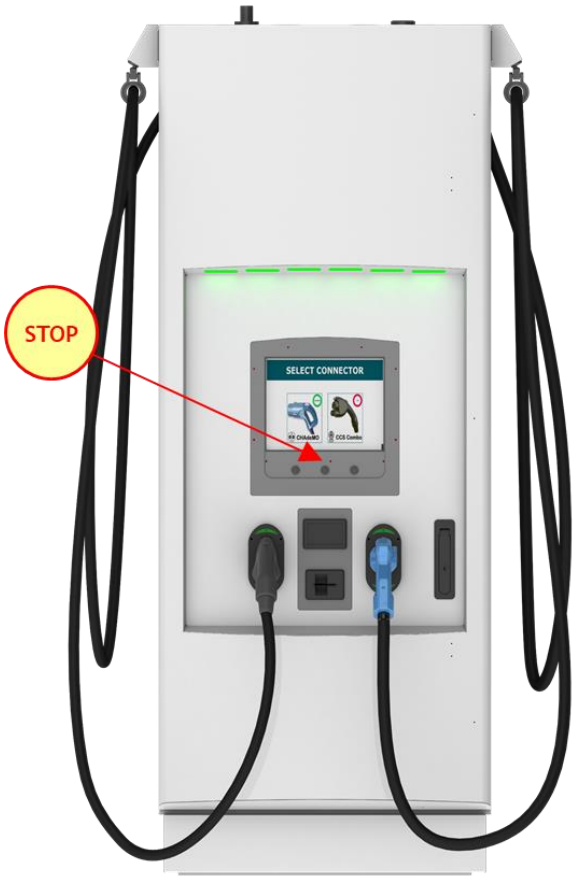
8.3. Stop Procedure

100kW All-In-One DC Fast Charger offers three (3) ways to stop the charging session.

Option 1 – Press STOP on the touchscreen



Option 2 – Press STOP button on the charger



8.4. Time Outs

If for any reason the charge session does not begin within 60 seconds after payment has been processed, CHARGING FAILED screen will display and the credit card transaction gets automatically voided.

In situations like this, user will need to unplug the connector and re-plug before retrying.

8.5. Troubleshooting

Error Codes

ERROR CODE	ERROR SOURCE	LEVEL	DESCRIPTION	ACTION
SECC_OFFLINE	Dispenser	1 High	SECC board is not communicating with charger.	- Contact BTC power for assistance - Attempt to connect via ethernet - Reflash SECC board(s) if possible - If SECC reflash does not correct issue, reboot MCU - Technician may be dispatched if issue cannot be solved remotely
CHARGER_ENGINE_OFFLINE	Dispenser	1 High	Power cabinets are not communicating with Dispenser	- Review logs for error history - If issue is persistent, contact BTC Power for further assistance - Technician may be dispatched if issue cannot be solved remotely
DISPENSER_TYPE_MISMATCH	Dispenser	1 High	Firmware and application configuration mismatch	- Contact BTC Power for assistance - Check if error is persistent. If persistent, dial into system, and reconfigure Payment App and MCU correctly with proper firmware and settings.
LEVEL_SENSOR_FAILURE	Dispenser	1 High	Level of cooling fluid is less than required, or Level sensor failure	- Review logs for error history - If issue is persistent, contact BTC Power for further assistance - Technician may be dispatched if issue cannot be solved remotely
NO_MCU_COMMUNICATION	Dispenser	1 High	Payment application is not able to communicate with controller	- Contact BTC power for assistance - Attempt to reflash code - Dispatch technician if reflashing does not resolve issue
DISPENSER_SAFETY_ERROR	Dispenser	2 High (if in faulted state) /medium (if reason for shutdown)	Dispenser Door is open, or safety on dispenser is lost	- Review logs for error history - If issue is persistent, contact BTC Power for further assistance - Technician may be dispatched if issue cannot be solved remotely
CUBE_OFFLINE_FAILURE	Dispenser	2 High (if in faulted state) / medium (if reason for shutdown)	Dispenser is not able to communicate with Power Module in the power cabinet tower.	No action required
TOWER_SAFETY_ERROR	Tower	2 High (if in faulted state) / medium (if reason for shutdown)	Tower Door is open, or safety in the Tower is lost	- Review logs for error history - If issue is persistent, contact BTC Power for further assistance - Technician may be dispatched if issue cannot be solved remotely

ERROR CODE	ERROR SOURCE	LEVEL	DESCRIPTION	ACTION
CHARGER_DOOR_OPEN	Dispenser	2 High (if in faulted state) / medium (if reason for shutdown)	Charger door open is detected	- Review logs for error history - If issue is persistent, contact BTC Power for further assistance - Technician may be dispatched if issue cannot be solved remotely
DISPENSER_INTERMITTENT_SAFETY_ERROR	Dispenser	3 Medium/if frequent, High	Dispenser safety is getting removed, which is causing reset on the MCU	- Review logs for error history - If issue is persistent, contact BTC Power for further assistance - Technician may be dispatched if issue cannot be solved remotely
CHARGER_OVERVOLTAGE_ERROR	Dispenser	4 Medium	Over voltage fault detected on power module by Dispenser. Can be caused due to opening contactors by vehicle or charger in emergency shutdown situations.	- Check calibration via TeamViewer - Check settings
CHARGER_OVERCURRENT_ERROR	Dispenser	4 Medium	Charger over current fault detected on power module	- Check calibration via TeamViewer - Check settings
TOWER_INTERMITTENT_SAFETY_ERROR	Tower	4 Medium	Tower Safety is getting removed, which is causing charge session to drop to 0A and stay in that state.	- Review logs for error history - If issue is persistent, contact BTC Power for further assistance - Technician may be dispatched if issue cannot be solved remotely
DISP_ISO_CIRCUIT_FAIL	Dispenser	4 Medium	Charge session failed due to ISO detect	No action needed
OFFSET_VOLTAGE_IDLE_ERROR	Dispenser	4 Medium	Charger detects voltage in idle state	- Check calibration via TeamViewer
TOWER_INITIATED_SHUTDOWN	Tower	4 Medium	This error can be generated due to different reasons. Initiating phase: 1. Power module is not able to turn on and unable give ready status. 2. Timeout for vehicle ready signal. Cable Check phase: 1. Cable Check fails because charger is not able to generate requested voltage. 2. Cable check fails because charger bleed register is not able to bleed generated voltage. 3. Timeout for precharge completion. Charging Phase: 1. If vehicle opens contactor and Power module detects it before Dispenser, then it initiates shutdown sequence. 2. Any fault detected on Power Module, which initiates shutdown sequence. i.e., driver error 3. Communication loss detected by power module and initiates shutdown sequence, etc.	- Review logs for error history - Reattempt charging session - If issue is persistent, contact BTC Power for further assistance - Technician may be dispatched if issue cannot be solved remotely
MASTER_CAN_TIMEOUT	Dispenser	4 Medium	Dispenser to Tower - one of the CAN fibers is broken and tower master board is not able to receive any CAN messages from dispenser while charging.	No action required

ERROR CODE	ERROR SOURCE	LEVEL	DESCRIPTION	ACTION
MASTER_PROCESS_TIMEOUT	Dispenser	4 Medium	Master statemachine timeout - need to send to engineering	- Analyze logs and send to BTC Power engineering
MASTER_STATE_MISMATCH	Dispenser	4 Medium	State mismatch between Tower MCU and Dispenser MCU	- Analyze logs and send to BTC Power engineering
COMMUNICATION_FAILED	Vehicle/Dispenser	4 Medium	Multiple conditions can cause this error code. 1. Vehicle is not responding to charger. 2. SLAC failed. 3. Charger is not able to complete initial communication with vehicle. 4. Vehicle not connected properly. 5. Cable connector not making proper contact with vehicle due to weight/length of cable.	- Dial into system and close safety in Dispenser - Recommend to attempt another charging session - If issue is persistent, contact BTC Power for further assistance - Technician may be dispatched if issue cannot be solved remotely
TIMEOUT_POWERMODULE_TURNON	Tower	4 Medium	If any power module is not enabled after start signal	- Analyze logs - BTC Power will issue dispatch instructions
WAITING_ISOLATION_TEST_TIMEOUT	Dispenser	4 Medium	- Charger is not able to complete CableCheck in time - Application side - Tower may not be sending voltage	- Review logs for error history - If issue is persistent, contact BTC Power for further assistance - Technician may be dispatched if issue cannot be solved remotely
INTERLOCK_FAILURE	Tower/Dispenser	4 Medium	Interlock between Tower and Dispenser is lost while charging	No action required
CUBE_ERROR_1	Tower	4 Medium	Power module loses ready signal. Can be caused by overheating.	- Review logs for error history - If issue is persistent, contact BTC Power for further assistance - Technician may be dispatched if issue cannot be solved remotely
CUBE_NOT_READY	Tower	4 Medium	Ready signal on Power Module not present	No action required
CUBE_DERR_ERROR	Tower	4 Medium	Power module detects Driver error (IGBT issue)	- Review logs for error history - If issue is persistent, contact BTC Power for further assistance - Technician may be dispatched if issue cannot be solved remotely
CUBE_INIT_FAILURE	Tower	4 Medium	Power module fails to initialize	- Review logs for error history - Technician may be dispatched if issue cannot be solved remotely
ISOLATIONTEST_TIMEOUT	Dispenser/Vehicle	4 Medium	Power module not able to generate voltage to complete isolation test on charger side	- Check logs - Check power module status
VEHICLE_CHARGE_SYSTEM_ERROR	Vehicle	4 Medium	Vehicle timeout	- Attempt another charge session
PRECHARGE_TIMEOUT	Dispenser	5 Low	Timeout to reach precharge voltage or vehicle contactor close on CCS vehicle	- Check logs and find if precharge voltage was generated or not and then find issue - Check calibration on charger
GET_EVCERT_TIMEOUT	PNC	5 Low	Timeout while waiting for EV certificate in PNC (PlugNCharge)	- Check logs and find issue. - Check certificate on charger

ERROR CODE	ERROR SOURCE	LEVEL	DESCRIPTION	ACTION
GET_EVCERT_DECLINE	PNC	5 Low	Decline of EV certificate by server in PNC (PlugNCharge)	- Check logs and find issue. - Check certificate on charger
PNC_AUTH_NOTAPPROVED	Server	5 Low	PNC (PlugNCharge) authorization message declined by server	- Check logs and find issue. - Check certificate on charger
TIMEOUT_VEHICLE_EV_CONTACTOR_CLOSE	Vehicle	5 Low	This is timeout after Cable Check is completed. For CHAdeMO vehicle, it should close the contactor in 4 seconds after D2 signal raised by charger.	- Note vehicle model - Recommend customer to attempt charging again - Monitor vehicle types and frequency of error - If issue is persistent, contact BTC Power for further assistance - Technician may be dispatched if issue cannot be solved remotely
TIMEOUT_VEHICLE_EV_CONTACTOR_OPEN	Dispenser/Vehicle	5 Low	In shutdown sequence, if present voltage is not dropped below 20V in 4 seconds, then charger triggers this error. This is not reason for shutdown.	No action required
TIMEOUT_CHARGING_CURRENT_REQUEST	Vehicle	5 Low	After vehicle contactor is closed, vehicle should send current command request in 4 seconds.	- Note vehicle model - Recommend customer to attempt charging again - Monitor vehicle types and frequency of error - If issue is persistent, contact BTC Power for further assistance - Technician may be dispatched if issue cannot be solved remotely
TOWER_NOPOWER_AVAILABLE	Tower	5 Low	All power modules are either occupied or in faulted state, so the Tower cannot assign any power for charge session.	- Check tower status and fault on charger
CUBE_OVERVOLTAGE_ERROR	Tower	5 Low	Power module detects over voltage error	- Review logs for error history - If issue is persistent, contact BTC Power for further assistance - Technician may be dispatched if issue cannot be solved remotely
WAITING_CHARGING_PERMISSION_TIMEOUT	Dispenser/Vehicle	4 Medium	If charger does not receive permission from vehicle to start session before timeout.	- Note vehicle model - Recommend customer to attempt charging again - Monitor vehicle types and frequency of error - If issue is persistent, contact BTC Power for further assistance - Technician may be dispatched if issue cannot be solved remotely

ERROR CODE	ERROR SOURCE	LEVEL	DESCRIPTION	ACTION
VEHICLE_JINSIGNAL_REMOVED	Vehicle	4 Medium	In shutdown sequence, if vehicle will not remove JIN signal in time, then charger sends this error. This is not the reason which caused charging session shutdown. This is while completing shutdown sequence. (CHAdeMO issue)	- Note vehicle model - Recommend customer to attempt charging again - Monitor vehicle types and frequency of error - If issue is persistent, contact BTC Power for further assistance - Technician may be dispatched if issue cannot be solved remotely
PROXIMITY_ERROR1	Vehicle	5 Low	Timeout of vehicle communication. For CHAdeMO, it is 6 seconds after D1 signal turned on. For CCS, we will not receive parameter discovery in 30 seconds (changed from 10 seconds to 30 seconds for Etron).	- Note vehicle model - Recommend customer to attempt charging again - Monitor vehicle types and frequency of error - Check logs on SECC Board via PUTTY - If issue is persistent, contact BTC Power for further assistance - Technician may be dispatched if issue cannot be solved remotely
PROXIMITY_ERROR2	Vehicle	5 Low	For CHAdeMO vehicle, after initial communication, the vehicle should send "vehicle ready flag" which is ChargeEnable flag. JINSignal should be raised in 8 seconds from D1 signal enabled.	- Note vehicle model - Customer needs to make sure vehicle is plugged in correctly, turned off and in park state. - Recommend removing charger, then power cycling car (turning off then on again), and finally re-attempting charging session - If issue persists, contact BTC Power for further assistance
APP_VEHICLE_RESPONSE_TIMEOUT	Vehicle	5 Low	Vehicle did not respond to initial handshaking	if frequent then. - Check configuration and calibration of board - Check certificates on SECC
VEHICLE_TIMEOUT	Vehicle	5 Low	Vehicle timeout in contact authentication loop. Mostly when customer takes more time to pay or if vehicle needs time between 2 attempts.	- Have customer reattempt charging session - If error persists, contact BTC Power - Connect to system remotely and execute ping using PUTTY - Check firmware version of SECC Board
CHARGER_NOTCOMPATIBLE	Dispenser	5 Low	Vehicle is not compatible with charger.	No action required

ERROR CODE	ERROR SOURCE	LEVEL	DESCRIPTION	ACTION
VEHICLE_JINSIGNAL_REMOVED	Vehicle	4 Medium	In shutdown sequence, if vehicle will not remove JIN signal in time, then charger sends this error. This is not the reason which caused charging session shutdown. This is while completing shutdown sequence. (CHAdeMO issue)	- Note vehicle model - Recommend customer to attempt charging again - Monitor vehicle types and frequency of error - If issue is persistent, contact BTC Power for further assistance - Technician may be dispatched if issue cannot be solved remotely
PROXIMITY_ERROR1	Vehicle	5 Low	Timeout of vehicle communication. For CHAdeMO, it is 6 seconds after D1 signal turned on. For CCS, we will not receive parameter discovery in 30 seconds (changed from 10 seconds to 30 seconds for Etron).	- Note vehicle model - Recommend customer to attempt charging again - Monitor vehicle types and frequency of error - Check logs on SECC Board via PUTTY - If issue is persistent, contact BTC Power for further assistance - Technician may be dispatched if issue cannot be solved remotely
PROXIMITY_ERROR2	Vehicle	5 Low	For CHAdeMO vehicle, after initial communication, the vehicle should send "vehicle ready flag" which is ChargeEnable flag. JINSignal should be raised in 8 seconds from D1 signal enabled.	- Note vehicle model - Customer needs to make sure vehicle is plugged in correctly, turned off and in park state. - Recommend removing charger, then power cycling car (turning off then on again), and finally re-attempting charging session - If issue persists, contact BTC Power for further assistance
APP_VEHICLE_RESPONSE_TIMEOUT	Vehicle	5 Low	Vehicle did not respond to initial handshaking	if frequent then. - Check configuration and calibration of board - Check certificates on SECC
VEHICLE_TIMEOUT	Vehicle	5 Low	Vehicle timeout in contact authentication loop. Mostly when customer takes more time to pay or if vehicle needs time between 2 attempts.	- Have customer reattempt charging session - If error persists, contact BTC Power - Connect to system remotely and execute ping using PUTTY - Check firmware version of SECC Board
CHARGER_NOTCOMPATIBLE	Dispenser	5 Low	Vehicle is not compatible with charger.	No action required

ERROR CODE	ERROR SOURCE	LEVEL	DESCRIPTION	ACTION
VEHICLE_BATTERY_TEMP_INHIBIT	Vehicle	5 Low	Vehicle battery voltage is greater than threshold.	No action required
VEHICLE_SHIFT_POSITION	Vehicle	5 Low	Vehicle is not in park state.	No action required
VEHICLE_CONNECTOR_LOCK_FAULT	Vehicle	5 Low	Vehicle is not able to lock connector.	No action required
VEHICLE_CHARGING_CURRENT_DIFFERENTIAL	Vehicle/Dispenser	5 Low	Vehicle issue or charger calibration	- Review logs for error history - If issue is persistent, contact BTC Power for further assistance - Technician may be dispatched if issue cannot be solved remotely
VEHICLE_CHARGING_VOLTAGE_RANGE_ERROR	Vehicle/Dispenser	5 Low	Vehicle issue or charger calibration	- Review logs for error history - If issue is persistent, contact BTC Power for further assistance - Technician may be dispatched if issue cannot be solved remotely
VEHICLE_CHARGING_SYSTEM_INCOMPATIBILITY	Vehicle	5 Low	Charger compatibility error	No action required
VEHICLE_NO_DATA_ERROR	Vehicle	5 Low	No charge parameters from vehicle	No action required
VEHICLE_CHARGER_INTERNAL_ERROR	Vehicle	5 Low	Vehicle internal error	No action required
VEHICLE_PILOT_FAILURE	Vehicle	5 Low	CCS vehicle pilot signal changed from StateC to StateB. Pilot signal failure.	- Note vehicle model - May need to adjust CCS cable while plugged in to make proper contact with vehicle socket (prevalent in Chevrolet Bolt) - If issue is persistent, contact BTC Power for further assistance.
VEHICLE_PROXCAN_TIMEOUT	Vehicle	5 Low	Communication lost in between session	- Check logs and find issue
VEHICLE_PROTOCOL_MISMATCH_ERROR	Vehicle	5 Low	Vehicle protocol number is not supported on charger	No action required
AUTH_NOT_APPROVED	Payment terminal / User	5 Low	Other payment failed (Non-Nayax and NFC)	- Recommend to try payment again. If second try does not work, try with another payment method. - If issue is persistent, contact BTC Power for further assistance. - Technician may be dispatched if issue cannot be solved remotely.
NFC_AUTH_NOTAPPROVED	Payment terminal / User	5 Low	NFC Payment failed. Only UIC reader	- Recommend to try payment again. If second try does not work, try with another payment method - If issue is persistent, contact BTC Power for further assistance - Technician may be dispatched if issue cannot be solved remotely.

ERROR CODE	ERROR SOURCE	LEVEL	DESCRIPTION	ACTION
POS_AUTH_NOTAPPROVED	Payment terminal / User	5 Low	Nayax device payment not approved.	- Recommend to try payment again. If second try does not work, try with another payment method - Nayax: Confirm correct firmware and UI version on the device - If issue is persistent, contact BTC Power for further assistance - Technician may be dispatched if issue cannot be solved remotely
PAYMENTAPP_COMM_FAILURE	Dispenser	5 Low	Communication between payment application and MCU lost during session	No action required
PAYMENT_AUTH_REJECTED	Server	5 Low	Server rejected payment authorization request.	No action required
APP_PAYMENT_SCREEN_TIMEOUT	Application	6 Info	No payment presented on payment screen	No action required
APP_OTHER_CONNECTOR_OCCUPIED	Application/Dispenser	6 Info	Charging in session in another connector. Charging system can only use one connector at a time.	No action required
ERROR_CODE_XX	Tower/Dispenser	6 Info	Future reference.	No action required
STOPBUTTON_PRESSED	User	6 Info	Customer pressed stop button	No action required
BATTERY_FULL	Dispenser	6 Info	100% SOC on vehicle	No action required
MAX_CHARGING_TIME_COMPLETED	Dispenser	6 Info	If maximum charging time is enabled on the charger, the session shutdown was due to this time limit.	No action required
MAX_SOC_LIMIT	Dispenser	6 Info	If charger has an SOC limit enabled, the session shutdown was due to the set limit.	No action required
USER_STOP_SCREEN	User	6 Info	User pressed stop button on screen	No action required
USER_STOP_BUTTON	User	6 Info	User pressed hardware stop button	No action required
SERVER_SOFT_RESET	Server	6 Info	Server resetting charger payment application.	No action required
SERVER_HARD_RESET	Server	6 Info	Server resetting charger payment controller (PC).	No action required
SERVER_SET_UNAVAILABLE	Server	6 Info	Server set unavailable for connector or for complete charger. Usually thrown when the charger taken offline for servicing on a ticket.	No action required
APP_MAX_CHARGING_TIME	Dispenser	6 Info	If Max charging time enabled and charger reach to max limit.	No action required
TIMEOUT_XX	Tower/Dispenser	6 Info		No action required
USER_STOP_REMOTE	User/server	6 Info	Charging session stopped by user using mobile application or server.	No action required
USER_PAYMENT_CANCEL	User	6 Info	User pressed CANCEL button on present payment screen before pay.	No action required
USER_PRICE_CANCEL	User	6 Info	User pressed cancel button on show price screen.	No action required
UNKNOWN	Payment App	6 Info	Only happens on startup, should clear when system is on. No action required.	No action required

ERROR CODE	ERROR SOURCE	LEVEL	DESCRIPTION	ACTION
OVER_TEMPCORD_J20	Dispenser	4 Medium	Cord Temperature on J20 sensor is higher than threshold	- Review logs for error history - If issue is persistent, contact BTC Power for further assistance - Technician may be dispatched if issue cannot be solved remotely
OVER_TEMPCORD_J22	Dispenser	4 Medium	Cord Temperature on J22 sensor is higher than threshold	
OVER_TEMPCORD_J24	Dispenser	4 Medium	Cord Temperature on J24 sensor is higher than threshold	
OVER_TEMPCORD_J26	Dispenser	4 Medium	Cord Temperature on J26 sensor is higher than threshold	
OVER_TEMPCORD_J23	Dispenser	4 Medium	Cord Temperature on J23 sensor is higher than threshold. (MCU 5.1 Board only)	
OVER_TEMPCORD_J21	Dispenser	4 Medium	Cord Temperature on J21 sensor is higher than threshold. (MCU 5.1 Board only)	
OVER_TEMPCORD_J27	Dispenser	4 Medium	Cord Temperature on J27 sensor is higher than threshold. (MCU 5.1 Board only)	
OVER_TEMPCORD_J25	Dispenser	4 Medium	Cord Temperature on J25 sensor is higher than threshold. (MCU 5.1 Board only)	

9. Maintenance

DANGER

All servicing must be performed ONLY by qualified personnel. Do not attempt to service the 100kW All-In-One DC Fast Charger yourself.

Make sure to turn off the power to the charger before performing any maintenance activity.

Maintenance Precautions

Each of the capacitors in this device have a high voltage for a time after shutting off the input power supply. Must allow five (5) minutes after powering down before servicing internal components.

Maintenance Items

Perform periodic checks.

Visual Check Items

- Check for abnormal sound from running fans and power units. If there is abnormal sound, please contact a BTC Power representative for further assistance.
- Check for abnormal odor, changes of inner materials, corrosion, anomaly in appearance, etc., in this device. If there are any anomalies, please contact a BTC Power representative for further assistance.
- Check for dust and dirt in this device regularly and, if any is found, clean using appropriate procedures.

Replacement of Fixed-Life Components

To prevent the device from failure due to worn out components, it is necessary to replace the components before they reach the end of their lifespan. Use the following replacement intervals as a guideline for the estimate of the total running time. Please contact a BTC Power representative for further assistance when you replace the parts.

- Power feed cable: Approximately three (3) years.
- Intake and exhaust filters (as applicable): Approximately three (3) years.
- Please keep in mind that the replacement interval of each part can vary depending on, for example, the usage environment of the device.

Recommended Parts List

ITEM	PART NUMBER	PART DESCRIPTION
1	110-0085-01	SECC Board
2	110-0175-01	Relay Board 50kW Slim
3	110-0208-01	Mini PCM with Adjustable Gain
4	110-0212-01	MCU Pedestal 5.0
5	140-0160-01	Control Transformer 1000VA
6	170-0031-01	Insert Card Reader
7	170-0032-01	Insert Card Reader USB Cable
8	170-0035-01	Switching Power Supply +5V, +15V, -15V
9	170-0039-01	Safety Relay RT6 24DC
10	170-0049-01	DC Fan 24VDC
11	170-0060-01	Power Line Filter
12	170-0062-01	Ferrite Clamp on Cores
13	170-0066-01	Multi-Point Latch/Lock
14	170-0067-01	Latch Assembly
15	170-0128-01	Hose Clamp
16	170-0144-01	Contactor, 3 Pole, 185A
17	170-0145-01	Contactor, 3 Pole, 12A
18	170-0152-01	Fuse Cartridge 4A 600VAC/300VDC
19	170-0208-01	Circuit Breaker 3-Pole 150A
20	170-0209-01	Circuit Breaker Earth Leakage Module
21	170-0233-01	RFID Card Reader
22	170-0241-01	RFID Card Reader USB Cable
23	170-0243-01	Switching Power Supply 12V
24	170-0288-01	15" TFT Liquid Crystal Display Module
25	170-0289-01	Axial Fan 12VDC
26	170-0308-01	Hexagonal Rod 65"
27	170-0311-01	Switching Power Supply 24V
28	170-0334-01	Single Board Computer
29	170-0336-01	Solid State Drive 128GB
30	190-0078-01	750lb Paracord/Parachute Cord
31	190-0137-01	SAE Combo Cable (200A) 25'
32	190-0218-01	CHAdeMO Output Cable (200A)
33	190-0369-01	L3R-100-480-01-003 Harness
34	201-0209-01	L3R-100-480-01-003 Power Module

FCC INFORMATION

The **100kW All-In-One DC Fast Charger** complies with Part 15 of the FCC rules. Operation is subject to the following two conditions:

1) The charger may not cause harmful interference, and
2) The charger must accept any interference received, including interference that may cause undesired operation.

CAUTION

Changes or modifications to this product by other than an authorized service facility could void warranty, UL and FCC compliance.

10. Product Disposal

BTCPower Inc. carefully considers environmental impacts of our products in every stage of the product life cycle – from design, to manufacturing, to usage, and its disposal.

Proper disposal of our product and parts should be observed to reduce environmental impact. Recyclable parts should be used as suitable. Hazardous waste should be disposed through safe and responsible methods.

The disposal of this charger must comply with the national and regional laws and regulations. Dispose the unit in accordance with the applicable environmental regulations of your country.

11. Warranty

BROADBAND TELECOM POWER, INC.

LIMITED PRODUCT WARRANTY

This Limited Product Warranty applies to customers who have purchased a BTCPower Electric Vehicle Charging Station(s) and/or a related product ("Product(s)") from Broadband Telecom Power, Inc., or one of its authorized distributors.

LIMITED WARRANTY: Subject to the exclusions from warranty coverage set forth below, BTCPower warrants that the Product will be free from any defects in materials and/or workmanship (the "Limited Warranty") for a period of one (1) year after the date of the initial installation of the Product (the "Warranty Period"). If the Product becomes defective in breach of the Limited Warranty, BTCPower will, upon written notice of the defect received during the Warranty Period, either repair or replace, at BTCPower's election, the Product if it proves to be defective; provided, that BTCPower will only be responsible for the cost of any parts associated with the repair or replacement of any defective Product for a period of one (1) year after the date of the initial installation of the Product.

You acknowledge that replacement products provided by BTCPower under the Limited Warranty may be remanufactured or reconditioned Products or, if the exact Product is no longer manufactured by BTCPower, a Product with substantially similar functionality ("Replacement Products") will be supplied. Any Replacement Products so furnished will be warranted for the remainder of the original Warranty Period or ninety (90) days from the date of delivery of such Replacement Product, whichever is greater. Should BTCPower be unable to repair the Product, BTCPower will replace the Product with the latest model/version of a similar product in current production.

EXCLUSIONS FROM LIMITED WARRANTY

IMPORTANT: The Limited Warranty and on your Product shall not apply to defects, or service repairs, resulting from any of the following:

- Force Majeure – any occurrence or extraordinary event or circumstance beyond the control of BTCPower that is an act of God or whether that occurrence is caused by war, riot, storm, (such as hurricane, flooding, earthquake, volcanic eruption, etc.), or other natural forces, or acts of nature or other causes.
- Vandalism.
- Any Alteration or Modification of the Product in any way not approved in writing by BTCPower.
- Abuse, damage or otherwise being subjected to problems caused by negligence (including but not limited to physical damage from being struck by a vehicle) or misapplication, or misuse of the Products by customers or end users.
- Installation or relocation of the Products unless performed by an authorized BTCPower distributor or by an authorized installer or service provider.
- Improper site preparation or maintenance.
- Damage as a result of accidents, extreme power surge, extreme electromagnetic field.
- Use of the Product with software, interfacing, parts or supplies not supplied by BTCPower.

You are responsible for the proper installation and maintenance of the Product. Any service or repairs beyond the scope of the Limited Warranty above are subject to BTCPower's prevailing current labor rates and other applicable charges.

Third Party Products. This Limited Warranty is exclusive of products manufactured by third parties ("Third Party Products"). If such third-party manufacturer provides a separate warranty with respect to the Third-Party Product, BTCPower will include such warranty in the packaging of the BTCPower Product.

OBTAINING WARRANTY SERVICE

To obtain warranty service you must contact BTCPower within 3 business days of realization of the defect at 1-714-259-7996 and ask for Customer Service, provide a written description of the source of the defect along with any pictures and email this information to the email address provided by the customer service agent. If necessary, you may be required to deliver the Product, in accordance with the instructions provided by BTCPower, along with Product's serial number, to BTCPower's repair facility.

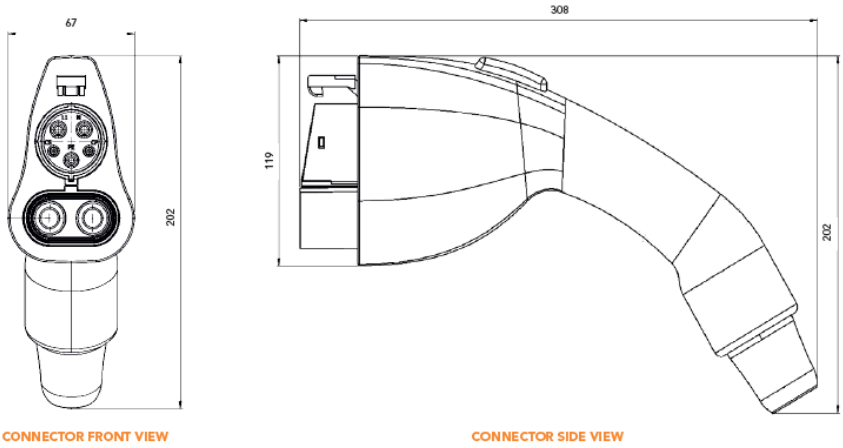
12. Appendix

12.1. Component Information

a) SAE J1772 CCS1 Coupler (200A Rated)

Part Details

Part Number: **190-0137-01**
Manufacturer: **Rema**

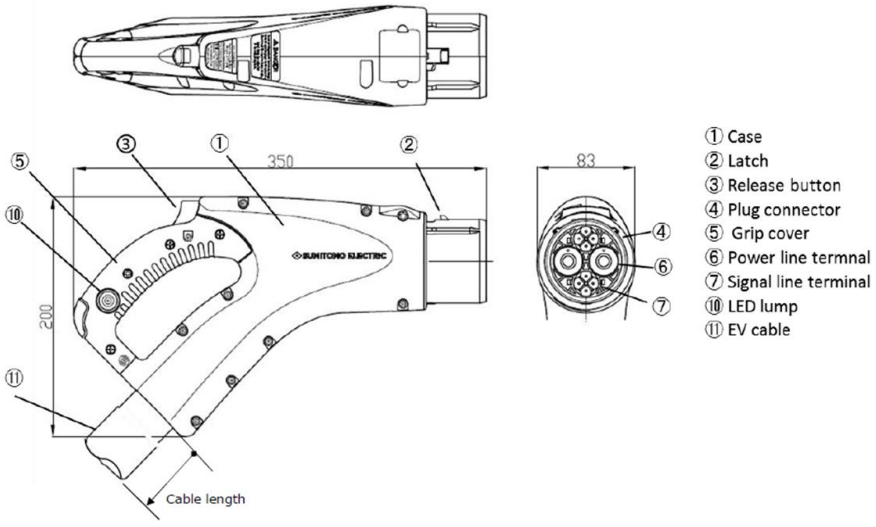


CONNECTOR FRONT VIEW CONNECTOR SIDE VIEW

b) CHAdeMO High Power Coupler (200A Rated)

Part Details

Part Number: **190-0137-01**
Manufacturer: **Rema**



REVISION HISTORY

Revision	Date	Description	Originator
0	03-Oct-19	• Initial Release	Dante Sanchez
A	20-Apr-21	• Added *air flow direction, cable reach, packaging details, tools needed for installation, end-sealing image, ethernet port location, output connectors information, recommended parts list, and verification and inspection section* • Updated *error codes, charging session, and lifting eye bolts image*	Rosh Dihayco
B	16-June-21	• Specifications Section - Changed power factor from .90 to .99	Rosh Dihayco