BTCPOWER
www.btcpower.com

BTCPower 50KW DC Fast Charger
Installation and Maintenance Manual

PLEASE NOTE

This user's manual includes the latest information at the time of printing. BTCP reserves the right to make changes to this product without further notice. 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 is should be operated by trained personnelonly.

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SAVE THESE INSTRUCTIONS

This manual contains important instructions for DC Fast Charger that shall be followed during installation, operation and maintenance of the unit

1. SAFETY

1.1 Important Safety Instructions

WARNING ELECTRIAL DANGER – PLEASE READ 

READ THIS MANUAL BEFORE YOU BEGIN

EVSE (Electric Vehicle Supply Equipment) manages electricity and may be hazardous. Failure to follow the below precautions and the Danger, Warning and Caution instructions in this manual may result in serious injury. Follow all rules, codes and laws that apply to your area and installation guidelines.

This equipment should be installed, adjusted and serviced by qualified electrical personnel familiar with the construction and operation of this type of equipment and the hazards involved. Failure to observe this precaution could result in death or severe injury.

Read this manual completely prior to installation and energizing the equipment. Inspection and maintenance of this equipment should be performed in accordance with the operating procedures detailed in this manual

The purpose of this manual is to provide you with information necessary to safely operate, maintain, and troubleshoot this equipment. Keep this manual for future reference.

DO NOT use this product if the EV cable is damaged in any way, cracked or open insulation or any other sign of wear.

THE INFORMATION CONTAINED WITHIN THIS MANUAL IS SUBJECT TO CHANGE WITHOUT NOTICE.

1.2 Symbols and Definitions

The following symbols may be found in your handbook or on labels affixed to your conductive charge station:

	ELECTRICAL WARNING	This symbol indicates high voltage. It calls your attention to items or operations that could be dangerous to you and other persons operating this equipment. Read the message and follow the instructions carefully failure to do so may result in severe injury or possibly death.
	WARNING	Warning indicates a hazard or unsafe situation which, if not avoided, may result in severe injury or possibly death.
	CAUTION	Caution indicates a hazard or unsafe practice which, if not avoided, may result in minor injury
	NOTE	Important information to consider, otherwise, improper installation and/or damage to components may occur.

1.3 Dangers and Cautions

1.3.1 Operation Warnings

When installing the equipment and during regular operation, please ensure the charge station's supply cable is located in such a way that the cable will not be tripped over, stepped on, pulled on, or somehow subjected to damage or stress during normal operation or while stored.

1.3.2 Maintenance Warnings

WARNING 

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 ONLY FACTORY QUALIFIED PERSONNEL.**

WARNING 

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

WARNING 

Turn off input power to your charge station at the circuit breaker panel before servicing or cleaning the unit.

CAUTION 

Do not charge your vehicle indoors if it requires ventilation. Contact your Service representative for information.

1.3.3 Installation Warnings

The EVSE (Electric vehicle supply equipment) should be installed by a qualified electrician in accordance with local codes and all applicable ordinances

WARNING 

This unit is not intended to be used in a commercial garage (repair facility) or closer than 20 feet (508 mm) of an outdoor motor fuel dispensing device.

The charging station is required to be connected to a ground, metal, permanent wiring system. Connections to the charge station should comply with all local codes and ordinances.

Read all installations instructions carefully prior to performing the installation.

1.3.3 Installation Warnings - Continued

WARNING 

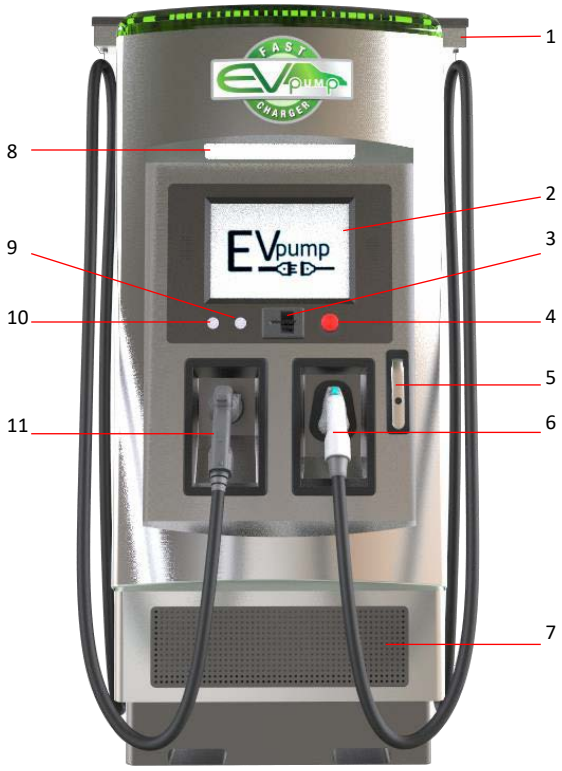
- Charger may be installed outdoors but only use under environments specified within this specification.
- Only qualified personnel should work on this equipment.
- Do not perform any live wire operations.
- Only qualified skilled in electric services personnel shall perform maintenance checks.
- DO NOT touch the inside of the device while it is running.

WARNING 

- **This device includes capacitive components such as electrolytic capacitors. Some parts still remain charged inside of the unit even after the input power is disconnected.**
- This device utilizes high voltages do not attempt to install this equipment if you are not a qualified electrician.

1.4 Charger System Descriptions

Part Names and Functions



1. **Layard Cord Retractor**
2. **15” Outdoor Rated Touch Screen Display**
   - Displays operating states, charging time, charging instructions.
3. **Encrypted Insert Card Reader**
4. **Emergency Stop Button**
   - To be used in an emergency situation to shut down the device.
5. **High Security Lock**
6. **Charging Coupler (Deleted if Single Port)**
   - CHAdeMO, SAE Combo or GB/T
7. **Air Cooling Vent**
8. **LED Lights**
9. **Stop Button**
   - Use to stop charging incase display malfunctions.
10. **Start Button**
    - Use to start charging incase display malfunctions.
11. **Charging Coupler**
    - CHAdeMO, SAE Combo or GB/T

Specifications

Model	EVP-FC-25-001	EVP-FC-50-001	
Power Rating	25kW	50kW	50kW
Connectors	CHAdeMO, SAEJ1772 Combo, GB/T 2016		
Network	Credit Cards accepted (Visa, Master, Discover, AMX)		
Input Power	208 VAC 3-Phase	208 VAC, 3-Phase	480 VAC 3-Phase
Input Power Breaker	100A	200A	100A
Efficiency Rating	>90%	>90%	
Max. Output DC Current	52A	100A	
Max. Output DC Voltage	50-500V		
Plug-Out Detection	Power terminated per SAE J1772 specifications or GB/T		
Surge Protection	6000 VAC		
Ambient Condition	-20°C to +50°C, 95% humidity, 6000ft altitude.		
Dimensions	38"w, 72.75"h, 27.6"d	43"w, 72.75"h, 32.25"d	
Safety Compliance	ETL Listed for USA and Canada; Complies with UL 2594, UL 2231-1, UL2231-2, NEC Article 625, ADA Compliant		

2. INSTALLATION

2.1 ADA Considerations

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)."

2.2 Choosing a Suitable Location

The following should be considered before choosing a location to install the charger:
- 2010 Standards for Accessible Design
- Municipality/Government standards for placement of Electric Vehicle Supply Equipment
- Wiring and conduit needed to connect the EVSE to the circuit panel
- Location of vehicle charging inlets while parked
- Use of protective bollards and wheel stops to protect the EVSE

2.3 Electrical Service Connections

CAUTION 

This is a three-phase 208 VAC EVSE charger or 480 VAC EVSE charger.

The BTCP EV Fast Charger includes over current protection as required by the National Electric Code and has an integrated UL listed 200 Amp breaker for 50KW (208VAC) unit and 100 Amp breaker for 25KW (208 VAC) and for 50KW (480 VAC) unit. Please refer to NEC Article 625 for installation requirements and check in the installed jurisdiction for any other electrical requirements.
GFCI on panel maybe required if not included in the charge station.

Conduit is to be routed per NEC code standards

25KW Charger 208VAC 3Phase Input **50KW Charger 480VAC 3Phase Input**	**50KW Charger 208VAC 3Phase Input**
3 AWG Line for each phase	3/0 AWG Line for each phase
3 AWG GROUND wire	3/0 AWG GROUND wire

Installing the wires

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

WARNING 
Lockout / tagout all electrical source circuits feeding the units in the open position before beginning wiring or terminations. Failure to follow the instructions could result in severe bodily injury or death.

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.

Once the enclosure has been situated in its installation location.

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

CAUTION 
For 208 VAC equipment the phases used must each measure 120VAC to Neutral. Earth Ground must be connected to Neutral at only one point, usually at the Service Entry Breaker Panel.

CAUTION 
The electrical connection to the BTCP requires four wires. Three 120 VAC lines and a ground wire.

2.4 Electrical Service Connection 480 VAC 3 Phase 50 KW DC Fast Charger

CAUTION

480 VAC EVSE charger.

The BTCP 50 KW, 480 VAC 3 Phase input EV Fast Charger includes over current protection as required by the National Electric Code and has an integrated UL listed 100 Amp breaker for 50KW (480VAC). Please refer to NEC Article 625 for installation requirements and check in the installed jurisdiction for any other electrical requirements.

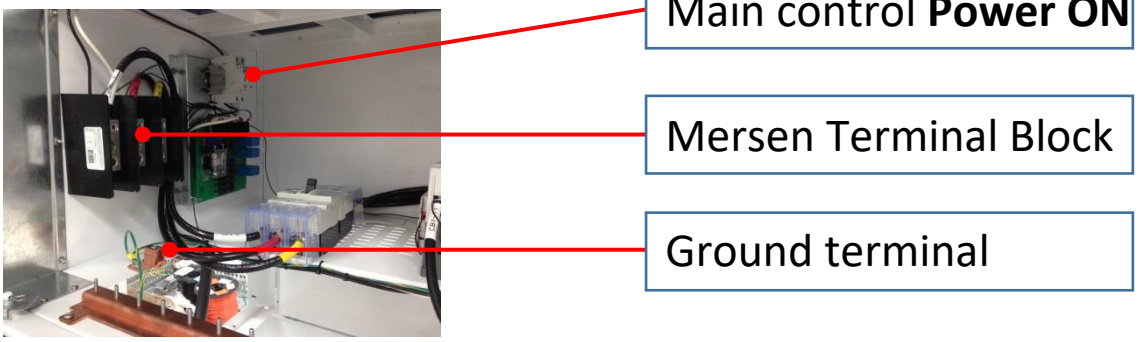
GFCI on panel maybe required if not included in the charge station.

Conduit is to be routed per NEC code standards

Electrical Connection

Connect 3 phase 480 VAC to Mersen MPDB67013 terminal block. Located in lower DC Fast Charger compartment. Each phase to ground should measure 277 VAC to ground.

MERSEN TERMINAL BLOCK MPDB67013 600 V 3 PHASE 250 A AL 310A CU CU9AL			
LINE		**LOAD**	
WIRE RANGE	TORQUE (LB - IN)	WIRE RANGE	TORBE (LB - IN)
(1) 350 - 6	275	(2) 2/0-6	120
		(2) 8-14	50



2.5 Mounting Procedures

Tools and ancillary equipment

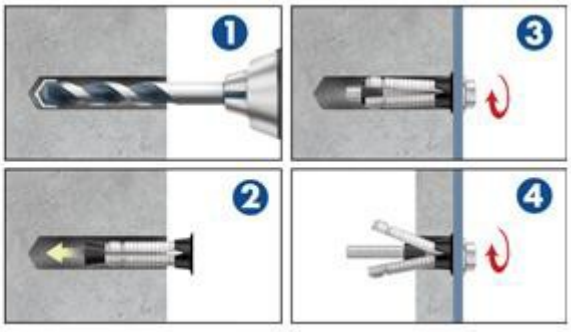
1. Philips head screw driver.
2. QTY 4, ½" x 4" concrete expansion bolts.
3. ½'" torque wrench.
4. 3/16" allen wrench for electrical connections.
5. Keys (shipped with unit), to be used to open the access panels.

Concrete pad installation requirements.
Use 4 (minimum 4) 1/2" x 4" (PN RHPA-3830) concrete expansion bolts to anchor the steel pedestal provided with the BTCP EV Charging Station.

WARNING

BTCP EV Charging Station can only be installed onto undamaged concrete slab.
A minimum of 4 expansion bolts should be mounted on the bottom enclosure footer.
In order to install the expansion bolts please follow the following steps:

Installation Steps



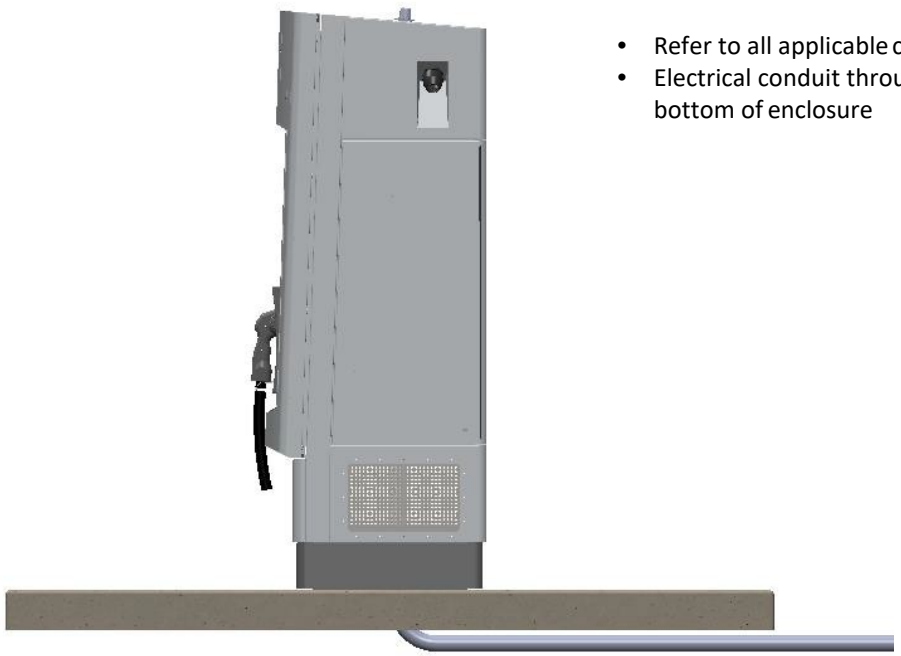
1. Drill a hole at the proper drill bit diameter (5/8"). Clean hole thoroughly
   PLEASE NOTE: Drill depth required is 3.5 inches.

   WARNING
   If the drill length is less than specified then bolt will bottom out prior to engaging the bottom installation footer on the BTCP EV charging station. The system will be able to be rocked or moved.

2. Insert the expansion bolt sleeve entirely in the hole without the fixture as shown in fig. 2 above.
3. Position the fixture to be anchored, twist the expansion bolt until it is flush with the fixture. Place enclosure.
4. Tighten the expansion bolt to the specified installation torque.

BTCP EV CHARGING STATION is provisioned to receive an electrical power connection from one of two locations.

Option 1: Bottom of the enclosure.
Option 2: Rear of the enclosure through a liquid tight fitting.



- Refer to all applicable codes.
- Electrical conduit through the bottom of enclosure

Figure 1.
EVSE Side view

OPTION 2: ELECTRICAL WIRING REAR CONNECTION.

In cases where the concrete cannot be trenched an electrical connection into the enclosure can be made via the hole provided on the right hand side of the enclosure as shown in Figure 2 & 3.

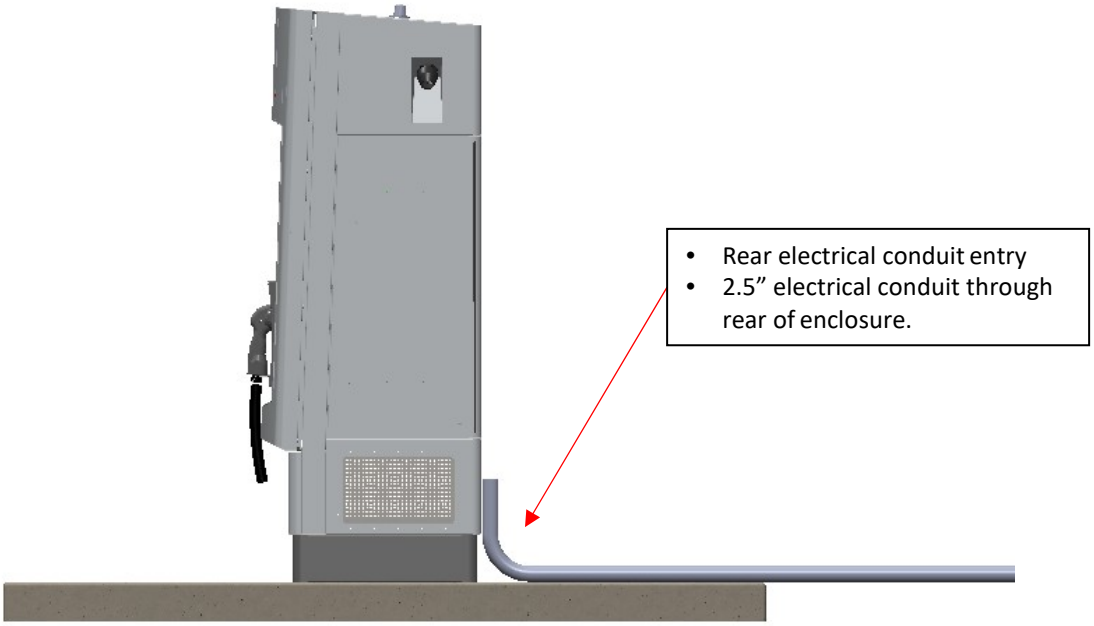


Figure 2.

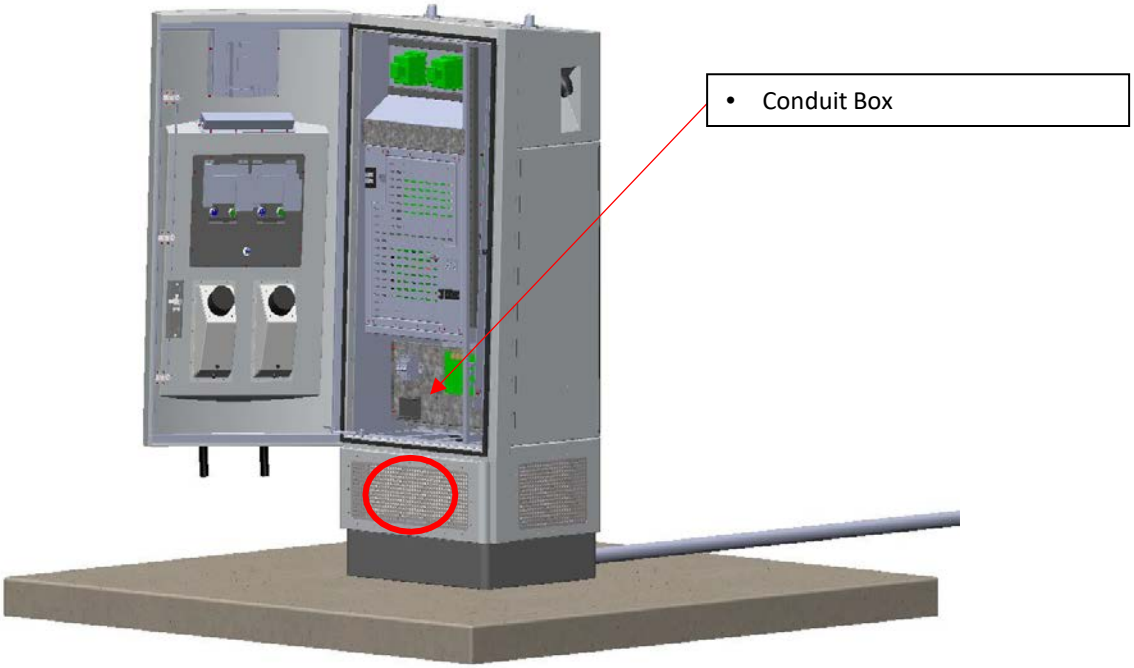


Figure 3.

NOTE:

For testing purposes only the BTCP EV Charge Station has been fitted with an entry point on the top of the enclosure. This modification voids the NEMA 3 design of the cabinet and should not be installed outdoors.

3. OPERATIONS

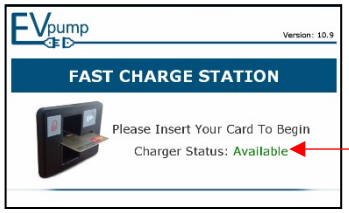
3.1 Charging session and operation procedure

Touch here for CHAdeMO

Touch here for SAE Combo

Screen 1

Screen 1
Welcome Screen.
Choose your connector:
CHAdeMO/ SAE Combo/GBT

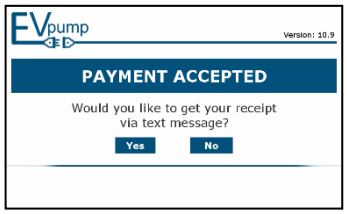


Available only with Payment Option

Charger Status

Screen 2

Screen 2
Insert Credit Card to begin charge session.



Available only with Payment Option

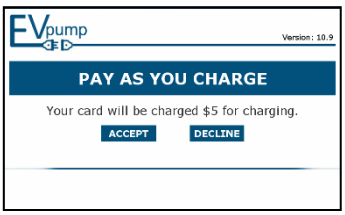
Screen 3

Screen 3
Receipt via text message?
YES – Go to screen 4
NO – Go to screen 5

Available only with Payment Option

Screen 4

Screen 4
Enter the phone number and touch “Enter”



Available only with Payment Option

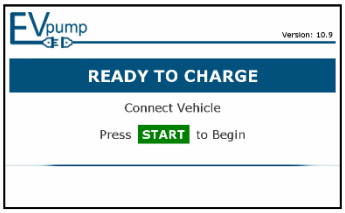
Screen 5

Screen 5
Your card will be charged $X
Select “ACCEPT” to continue.

Screen 6

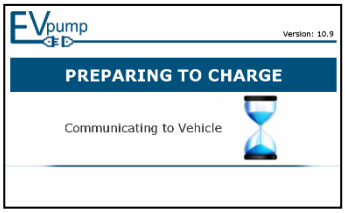
Screen 6
Confirm connector is connected properly.
Select “YES” to continue.

3.1 Charging session and operation procedure –Continued



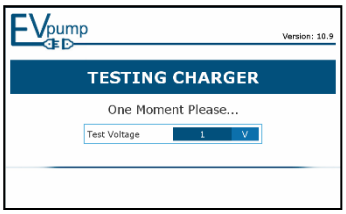
Screen 7

Screen 7
Press “START” to begin your charge session.



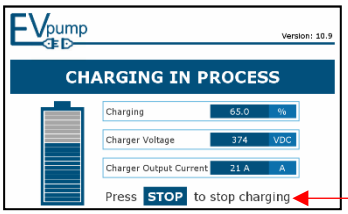
Screen 8

Screen 8
Charger checks communication to the vehicle.



Screen 9

Screen 9
Charger runs self diagnostic test to make sure everything is ok before it begins to charge a vehicle.



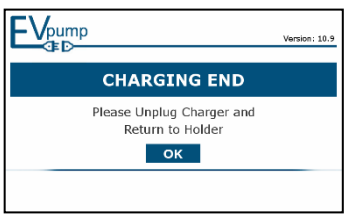
Press STOP to Stop charging

Screen 10

Screen 10
Charging in Process
Current charging info displayed.
To stop charging, press “STOP”

Screen 11

Screen 11
Once charge session is complete, we ask to disconnect the connector from the vehicle.

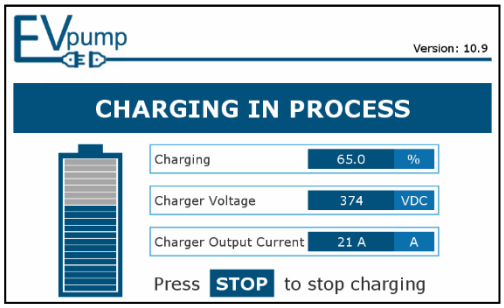


Screen 12

Screen 12
Charging End.

3.2 Stop Procedure.

BTCP EV Charging Station offers 3 ways to stop the charging session.



Option 1. Press STOP on the touch screen

Press STOP on the screen

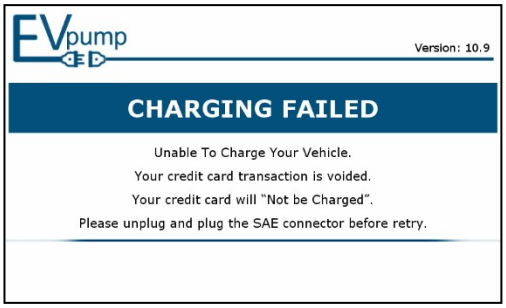
Option 2. Press STOP Button on the Charger

Option 3. Press the EMERGENCY STOP Button

3.3 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 retry.



4. TROUBLESHOOTING

If an error occurs, check the nature of the error by referring to following “Error Code List” and take appropriate actions according to the on-screen instructions.

Error Code	Message	Description	Change
100	No MCU Communication	This is an application fault.	As soon as system resumes, the fault is cleared.
110	Card ready not available	This is an application fault.	As soon as system resumes, the fault is cleared.
120	No internet network	This is an application fault.	As soon as system resumes, the fault is cleared.
200	Not ready from PCM	This is a hard fault that results in “out of service”	Press STOP and then START to restart the application to clear the fault
210	Safety Error	Please turn E-STOP knob to remove error. If fails to start on 2nd attempt, call to customer service no.	Please turn E-STOP knob to Enable Charger. If fails to start on 2nd attempt call to customer service no.
220	Over voltage	This is a hard fault that results in “out of service”	Press STOP and then START to restart the application to clear the fault
230	Over current	This is a hard fault that results in “out of service”	Press STOP and then START to restart the application to clear the fault
240	Over temperature	This is a hard fault that results in “out of service”	Press STOP and then START to restart the application to clear the fault
260	Charger door is open	Front or side door is not completely closed	Please close the door and try again...
270	Emergency Stop	Please turn ESTOP knob to remove error.	Please turn E-STOP knob to Enable Charger
300	Over voltage from vehicle	This error is generated by the vehicle and results in termination of the charge.	Contact Customer Service
310	Under voltage from vehicle	This error is generated by the vehicle and results in termination of the charge.	Contact Customer Service
320	Current deviation from vehicle	This error is generated by the vehicle and results in termination of the charge.	Contact Customer Service
330	High battery temperature	This error is generated by the vehicle and results in termination of the charge.	Suspend charging for a time
340	Voltage deviation error	This error is generated by the vehicle and results in termination of the charge.	Contact Customer Service
250	No CAN communication	Most likely the charge connector is improperly placed.	Reinsert the charge connector and Restart

5. MAINTENANCE

DANGER
READ AND FOLLOW THE "SAFETY CONCERNS" AT THE BEGINNING OF THIS MANUAL BEFORE USING THIS DEVICE

5.1 Maintenance Precautions

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

5.2 Maintenance Items

Perform periodic checks.

5.3 Visual Check Items

1. Check for abnormal sound from running fans and power units. If there is abnormal sound, please contact a BTC Power representative for further assistance.
2. 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.
3. Check for dust and dirt in this device regularly and, if any is found, clean using appropriate procedures.

5.4 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: 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.

6. WARRANTY INFORMATION

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.

EXCLUSIONS FROM LIMITED WARRANTY (con'd)

- 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.