

PUBLIC UTILITIES COMMISSION

505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298



August 13, 2019

Advice Letter 5585-E

Erik Jacobson
Director, Regulatory Relations
Pacific Gas and Electric Company
77 Beale Street, Mail Code B10C
P.O. Box 770000
San Francisco, CA 94177

**SUBJECT: Description of PG&E's Safety Requirements Checklist Compliance Efforts
for the SB350 Priority Review Projects.**

Dear Mr. Jacobson:

Advice Letter 5585-E is effective as of July 11, 2019.

Sincerely,

A handwritten signature in cursive script that reads "Edward Randolph".

Edward Randolph
Deputy Executive Director for Energy and Climate Policy/
Director, Energy Division



Erik Jacobson
Director
Regulatory Relations

Pacific Gas and Electric Company
77 Beale St., Mail Code B13U
P.O. Box 770000
San Francisco, CA 94177

Fax: 415-973-3582

July 11, 2019

Advice 5585-E

(Pacific Gas and Electric Company ID U 39 E)

Public Utilities Commission of the State of California

Subject: Description of PG&E's Safety Requirements Checklist Compliance Efforts for the SB350 Priority Review Projects

Purpose

As provided in Ordering Paragraph (OP) 39 of Decision (D.)18-01-024 and further described on page 99 of the decision, Pacific Gas and Electric Company (PG&E) hereby submits this Tier 1 advice letter to provide details of its compliance with the Safety Requirements Checklist for its Priority Review Projects (PRPs). Specifically, OP 39 requests that PG&E describe efforts to comply with the Safety Requirements Checklist and provide an attestation signed by the Project Manager.

Background

On January 11, 2018, the California Public Utilities Commission (Commission or CPUC) issued D.18-01-024 approving, with modifications, 15 of the PRPs proposed by California's three largest investor owned electric utilities for a total budget of approximately \$41 million.

The Commission directed the utilities to work with their respective Program Advisory Councils (PACs) to develop the format and template for attestation and other necessary logistical details to support compliance with the Safety Requirements Checklist, made available at <http://www.cpuc.ca.gov/sb350te/>. The Commission also directed each utility to file a Tier 1 Advice Letter describing their compliance efforts no later than 18 months from the date of the decision.

PG&E is responsible for four of the approved 15 PRPs; three of PG&E's PRPs are infrastructure projects which are subject to the Safety Requirements Checklist developed by the CPUC. Included in this advice letter are a description of PG&E's efforts to comply with the Safety Requirements Checklist, along with supporting documentation when available, and an attestation signed by PG&E's Project Manager.

Discussion

Included in the table below is a copy of the Safety Requirements Checklist with accompanying notes describing PG&E’s compliance efforts. Included in Appendix A is an attestation signed by PG&E’s Senior Project Manager confirming PG&E’s compliance with the Safety Requirements Checklist as described in detail below.

Safety Requirement	
Pre-construction: These EV charging equipment safety requirements must be specified in procurement documents:	
<p>1. Charging equipment must be certified by a Nationally Recognized Testing Lab (NRTL).</p>	<p>The following charging hardware was/is being installed for PG&E’s PRPs, which have been certified by a NRTL</p> <ol style="list-style-type: none"> 1. Medium/Heavy Duty Fleet Customer Demonstration: Proterra 60kW Power Control System 2. Electric School Bus Renewables Integration: ClipperCreek CS-100 3. Idle Reduction Technology: SafeConnect 480V Single Standard Docking Station <p>Please refer to attached Spec Sheets/Manuals in Appendix B for more details on the certifications.</p>
<p>2. Infrastructure must comply with applicable safety performance requirements associated with the type of TE infrastructure being installed including:</p>	
<ul style="list-style-type: none"> • For light-duty vehicles, compliance with the Society of Automotive Engineers (SAE) J-1772 Standard for Level 1 or Level 2 charging. Compliance with CHAdeMO and CCS for DC fast charging would be appropriate evidence of compliance with this requirement. 	<p>All PG&E PRPs are commercial installations for medium- and heavy-duty applications and thus are not applicable to this requirement. However, the Medium/Heavy Duty Fleet Customer Demonstration installed a Proterra 60kW Power Control System which complies with the J1772 CCS for DC fast charging.</p>

	<p>The Electric School Bus Renewables Integration installed ClipperCreek CS-100 which complies with the J1772 Level 2 standard.</p>
<ul style="list-style-type: none"> • For other types of TE infrastructure, including any nonstandardized EVSE, the following basic connector safety measures will be required: <ul style="list-style-type: none"> ○ A passing EVSE safety performance evaluation report performed by a Nationally Recognized Testing Lab (NRTL); ○ When not connected, the vehicle inlet and the EVSE connector must be designed to prevent direct contact with any live components; ○ The vehicle inlet and EVSE connector shall be free of sharp edges and potentially injurious protrusions; • The coupler between the vehicle and the EVSE should avoid or mitigate any potentially hazardous conditions such as fires, electrical shock to users, or other personal injuries 	<p>For the Idle Reduction Technology pilot, the SafeConnect 480V Single Standard Docking Station complies with the requirements listed in the Safety Checklist.</p> <p>Please refer to attached Spec Sheets in Appendix B for more details</p>
<p>3. Infrastructure and its planned installation must comply with California Electrical Code Article 625.2¹</p>	<p>All PRPs were submitted to relevant Authorities Having Jurisdiction (AHJs) and were approved for permits, as outlined in California Electrical Code Article 625.2. Permit details can be provided upon request of the Commission.</p>
<p>4. Infrastructure and its planned installation must comply with the Americans with Disabilities Act (ADA), 42 U.S.C. § 12101 et seq., and California Building Code</p>	<p>ADA requirements are not applicable. All PG&E PRPs are commercial installations for private fleet use and not available to the public. Pertaining to compliance for California Building Code 11B, all PG&E PRPs</p>

¹ California Electrical Code Article 625 covers Electric Vehicle Charging System safety and standards as installed in place. California Code of Regulations, Title 24, Article 625.

Chapter 11B, ² if applicable, per the AHJ where the EVSE will be installed, unless the appropriate waiver is obtained from local authorities.	were submitted to the relevant AHJ and permits were received. Permit details can be provided upon request of the Commission.
5. Outdoor-mounted EVSE must be rated to be installed for outdoor use.	All of the PRPs comply with this requirement. Please refer to attached Spec Sheets in Appendix B for more details. ³
6. For utility infrastructure work on the customer side of the meter, contractors must provide proof of EVITP Certification prior to construction.	PG&E used the PRPs as an opportunity to test contractors and compile learnings in advance of the Standard Review Projects (SRPs). In addition, PG&E moved quickly to sign contracts with customers and contractors in order to meet the accelerated nature of the PRP projects which had a target installation within one year of regulatory approval. As a result, contractors were selected and contracted prior to the finalization of the safety requirements checklist and did not obtain EVITP certification prior to construction. Going forward, PG&E, in consultation with the IBEW, will ensure all PG&E contractors performing work behind-the-meter will be EVITP certified.
7. Contractors must provide the utility proof of a full site assessment, including the appropriate load calculations to ensure existing infrastructure can accommodate additional EV load, or that appropriate infrastructure upgrades will be completed.	During the design phase of the PRPs, contractors performed the appropriate load calculations to inform whether infrastructure upgrades would be required. Details can be provided upon request of the Commission.
During Construction:	
1. All utility infrastructure work on the customer side of the meter not performed by employees of the IOUs shall be	In all three PRPs, none of the work on the customer side of the meter was performed by employees of the IOUs.

² California Building Code Chapter 2 includes definition associated with electric vehicle charging stations. CBC Chapter 11B defines requirements for 'Accessibility to Public Buildings, Public Accommodations, Commercial Buildings, and Public Housing.

³ While the spec sheet for SafeConnect Systems does not specify the charger's outdoor rating, PG&E confirmed with the company that the chargers are NEMA-4X certified for outdoor installation.

performed by fully licensed electricians. For commercial installations, all electrical contractors should hold a valid C-10 contractor's license.	Installations were performed by fully licensed electricians who hold valid C-10 contractor's licenses. Details can be provided upon request of the Commission.
2. Installations will be designed per Article 625 of the California Electrical Code.	All PRPs were submitted to relevant Authorities Having Jurisdiction (AHJs) and were approved for permits, as outlined in California Electrical Code Article 625. Permit details can be provided upon request of the Commission.
Operational Safety:	
1. Overcurrent protection associated with utility transformers and distribution circuits that feed power to the charging stations.	All PRPs were designed and constructed to provide overcurrent protection. Details can be provided upon request of the Commission.
2. Overcurrent protection in the meter pedestal/circuit breaker panel that feeds each of the charging stations.	Please refer to the attached Spec Sheets in Appendix B for more details.
3. Bollard equipment protection installed where appropriate as defined by utility design standards and AHJ requirements.	All PG&E PRPs were submitted to the relevant AHJ and permits were received. Bollard equipment protection was installed where appropriate. Details can be provided upon request of the Commission.
4. Concrete parking stops to protect equipment where appropriate as defined by utility design standards and AHJ requirements.	All PG&E PRPs were submitted to the relevant AHJ and permits were received. Concrete parking stops to protect equipment were installed where appropriate. Details can be provided upon request of the Commission.

Protests

Anyone wishing to protest this submittal may do so by letter sent via U.S. mail, facsimile or E-mail, no later than July 31, 2019, which is 20 days after the date of this submittal. Protests must be submitted to:

CPUC Energy Division
ED Tariff Unit
505 Van Ness Avenue, 4th Floor
San Francisco, California 94102

Facsimile: (415) 703-2200
E-mail: EDTariffUnit@cpuc.ca.gov

Copies of protests also should be mailed to the attention of the Director, Energy Division, Room 4004, at the address shown above.

The protest shall also be sent to PG&E either via E-mail or U.S. mail (and by facsimile, if possible) at the address shown below on the same date it is mailed or delivered to the Commission:

Erik Jacobson
Director, Regulatory Relations
c/o Megan Lawson
Pacific Gas and Electric Company
77 Beale Street, Mail Code B13U
P.O. Box 770000
San Francisco, California 94177

Facsimile: (415) 973-3582
E-mail: PGETariffs@pge.com

Any person (including individuals, groups, or organizations) may protest or respond to an advice letter (General Order 96-B, Section 7.4). The protest shall contain the following information: specification of the advice letter protested; grounds for the protest; supporting factual information or legal argument; name, telephone number, postal address, and (where appropriate) e-mail address of the protestant; and statement that the protest was sent to the utility no later than the day on which the protest was submitted to the reviewing Industry Division (General Order 96-B, Section 3.11).

Effective Date

Pursuant to Ordering Paragraph (OP) 39 of Decision (D.)18-01-024, PG&E requests that this Tier 1 advice submittal become effective upon date of submittal, which is July 11, 2019.

Notice

In accordance with General Order 96-B, Section IV, a copy of this advice letter is being sent electronically and via U.S. mail to parties shown on the attached list and the parties on the service lists for A.17-01-022 and R.18-12-006. Address changes to the General Order 96-B service list should be directed to PG&E at email address PGETariffs@pge.com. For changes to any other service list, please contact the Commission's Process Office at (415) 703-2021 or at Process_Office@cpuc.ca.gov.

Send all electronic approvals to PGETariffs@pge.com. Advice letter submittals can also be accessed electronically at: <http://www.pge.com/tariffs/>.

/S/

Erik Jacobson
Director, Regulatory Relations

Attachments

Appendix A – Signed Attestation
Appendix B1 – PROTERRA – 035091 Manual, Pre-Installation, 60KW PCS
Appendix B2 – 60KW Power Control System
Appendix B3 – CS-100 User’s Manual
Appendix B4 – Installation Guide
Appendix B5 – Safe Connect Product Data

cc: Service lists for A.17-01-022 and R.18-12-006.



ADVICE LETTER SUMMARY

ENERGY UTILITY



MUST BE COMPLETED BY UTILITY (Attach additional pages as needed)

Company name/CPUC Utility No.: Pacific Gas and Electric Company (ID U39E)

Utility type:

- ELC GAS WATER
 PLC HEAT

Contact Person: Yvonne Yang

Phone #: (415)973-2094

E-mail: PGETariffs@pge.com

E-mail Disposition Notice to: Yvonne.Yang@pge.com

EXPLANATION OF UTILITY TYPE

ELC = Electric GAS = Gas WATER = Water
 PLC = Pipeline HEAT = Heat

(Date Submitted / Received Stamp by CPUC)

Advice Letter (AL) #: 5585-E

Tier Designation: 1

Subject of AL: Description of PG&E's Safety Requirements Checklist Compliance Efforts for the SB350 Priority Review Projects

Keywords (choose from CPUC listing): Compliance

AL Type: Monthly Quarterly Annual One-Time Other:

If AL submitted in compliance with a Commission order, indicate relevant Decision/Resolution #: D.18-01-024

Does AL replace a withdrawn or rejected AL? If so, identify the prior AL: No

Summarize differences between the AL and the prior withdrawn or rejected AL:

Confidential treatment requested? Yes No

If yes, specification of confidential information: See attached Confidentiality Declaration and Matrix
Confidential information will be made available to appropriate parties who execute a nondisclosure agreement. Name and contact information to request nondisclosure agreement/ access to confidential information:

Resolution required? Yes No

Requested effective date: 7/11/19

No. of tariff sheets: N/A

Estimated system annual revenue effect (%): N/A

Estimated system average rate effect (%): N/A

When rates are affected by AL, include attachment in AL showing average rate effects on customer classes (residential, small commercial, large C/I, agricultural, lighting).

Tariff schedules affected: N/A

Service affected and changes proposed¹: N/A

Pending advice letters that revise the same tariff sheets: N/A

¹Discuss in AL if more space is needed.

Protests and all other correspondence regarding this AL are due no later than 20 days after the date of this submittal, unless otherwise authorized by the Commission, and shall be sent to:

CPUC, Energy Division
Attention: Tariff Unit
505 Van Ness Avenue
San Francisco, CA 94102
Email: EDTariffUnit@cpuc.ca.gov

Name: Erik Jacobson, c/o Megan Lawson
Title: Director, Regulatory Relations
Utility Name: Pacific Gas and Electric Company
Address: 77 Beale Street, Mail Code B13U
City: San Francisco, CA 94177
State: California Zip: 94177
Telephone (xxx) xxx-xxxx: (415)973-2093
Facsimile (xxx) xxx-xxxx: (415)973-3582
Email: PGETariffs@pge.com

Name:
Title:
Utility Name:
Address:
City:
State: District of Columbia Zip:
Telephone (xxx) xxx-xxxx:
Facsimile (xxx) xxx-xxxx:
Email:

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July 11, 2019

Appendix A
Signed Attestation

ATTESTATION PURSUANT TO ORDERING PARAGRAPH 39 OF CALIFORNIA PUBLIC
UTILITIES COMMISSION DECISION NO. 18-01-024

I, the undersigned, say:

I am a Project Manager of electric vehicle programs for Pacific Gas and Electric Company, a corporation, and am authorized to make this attestation on its behalf. The statements in the foregoing Advice Letter pursuant to Ordering Paragraph 39 of Decision No. 18-01-024 are true of my own knowledge, except as to matters which are therein stated on information or belief, and as to those matters I believe them to be true.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on July 8th, 2019, at San Francisco, California.



Allen Fong

Senior Project Manager

Advice 5585-E
July 11, 2019

Appendix B1

PROTERRA 035091 Manual, Pre-Installation, 60KW PCS

035091 MANUAL,PRE-INSTALLATION,60KW PCS



REV A02



REVISION HISTORY



REV	AUTHOR	DATE	DESCRIPTION
A01	HC	12 MAR 2018	Initial release
A02	HC	13 MAR 2018	Additional detail on PCS-Dispenser Wiring, Layout

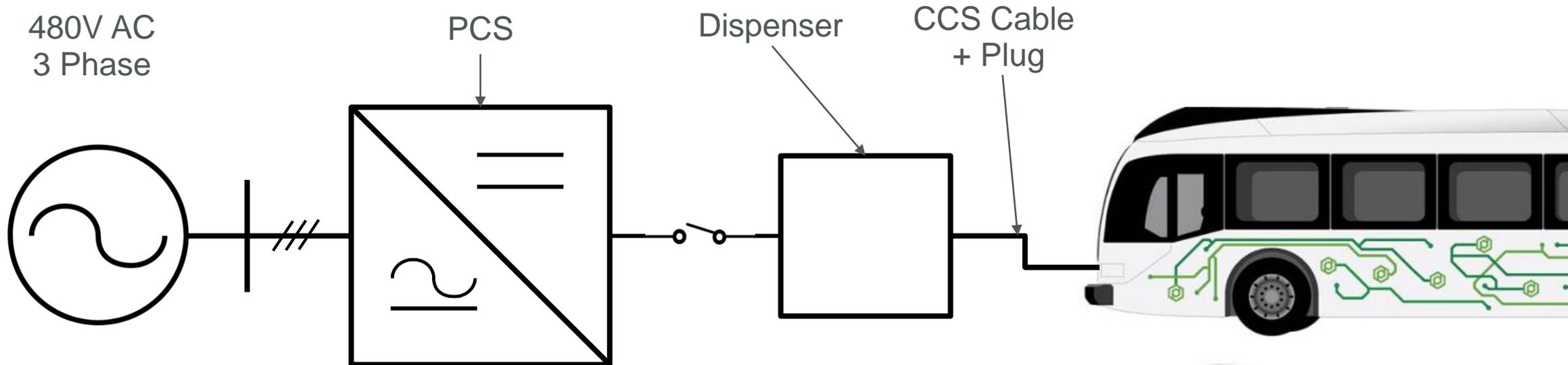


- Revision History
- Contents
- System Overview
- System Wiring – PCS to Dispenser
- Dimensions – 60kW PCS
- Clearances – 60kW PCS
- Installation Template – 034137 TEMPLATE,60KW PCS
- Electrical Specification – 60kW PCS
- Dimensions - Dispenser

The Protterra 60kW Charging System consists of 3 major hardware assemblies:

1. 60kw Power Control System (PCS)
2. Dispenser
3. Vehicle Interface, CCS Type 1 Cable + Plug

The system converts three phase grid voltage to high voltage DC. The high voltage DC is delivered to a vehicle via a Dispenser with a CCS Type 1 cable outlet.



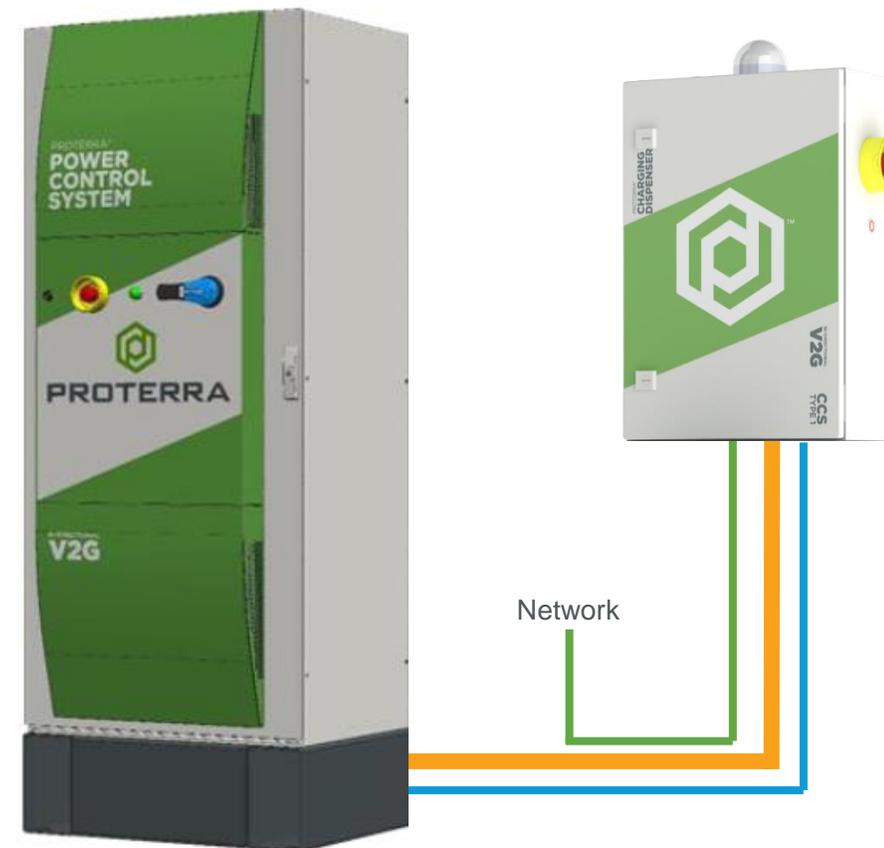
SYSTEM WIRING PCS TO DISPENSER



Conduit Assignment	Key	Name	Minimum Size*	Maximum Size*	Rating	Cables
Conduit 1*		DC-DC Connection	4/0	373 MCM	1000 V DC	2
		Ground	#8 AWG	#4 AWG	1000 V DC	1
		Voltage Sense	#18 AWG TP, Shielded		1000 V DC	2
Conduit 2*		Communication	#18 AWG TP, Shielded		N/A	4
		24V DC	#14 AWG Shielded TP		N/A	2
Site-specific**		Network Connection	Site-specific. Must be hardwire connection.		N/A	1

PCS

Dispenser



*Cables should be run in metal conduit – flexible or rigid is okay

**Do not run in the PCS-Dispenser conduit

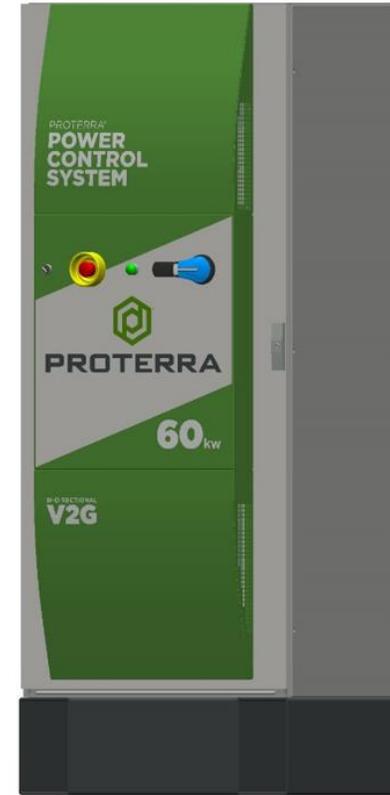
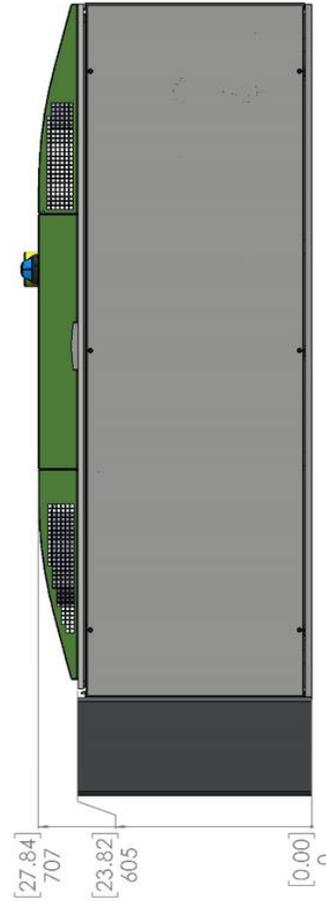
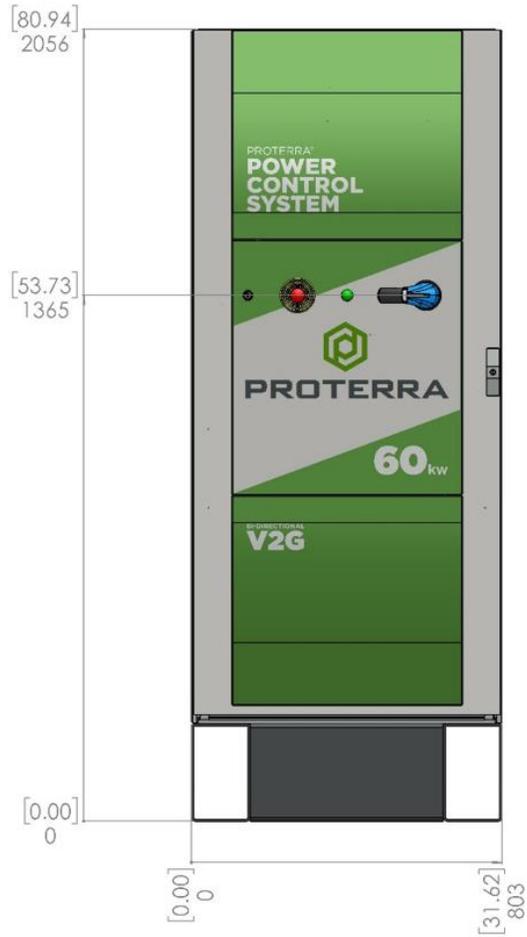
SAFETY AND OPERATIONAL RATING



Enclosure Rating	TYPE NEMA 3R
Safety Standards	UL standards 2202, 2231
Surge Protection	6kV @ 3000A. In geographic areas subject to frequent thunderstorms, supplemental surge protection at the service panel is recommended.
EMC Standards	IEEE1547
Efficiency	>94%
Power Factor	0.97 @ 60KW
Cooling	Forced Air Cooled
Operational Temperature	-30 °C to 45 °C (-22°F to 113°F) Output power derating may apply @ 45°C (113°F) {Optional: Cold Temperatures}
Storage Temperature	-30 °C to 60 °C (-22°F to 140°F)
Operating Humidity	0 to 95% (Non – Condensing)

DIMENSIONS

60KW PCS



ELECTRICAL SPECIFICATIONS

60KW PCS

PROTERRA

REV A02

PAGE 7

035091 MANUAL,PRE-INSTALLATION,60KW PCS

PROTERRA CONFIDENTIAL – DO NOT REDISTRIBUTE

**PROTERRA**

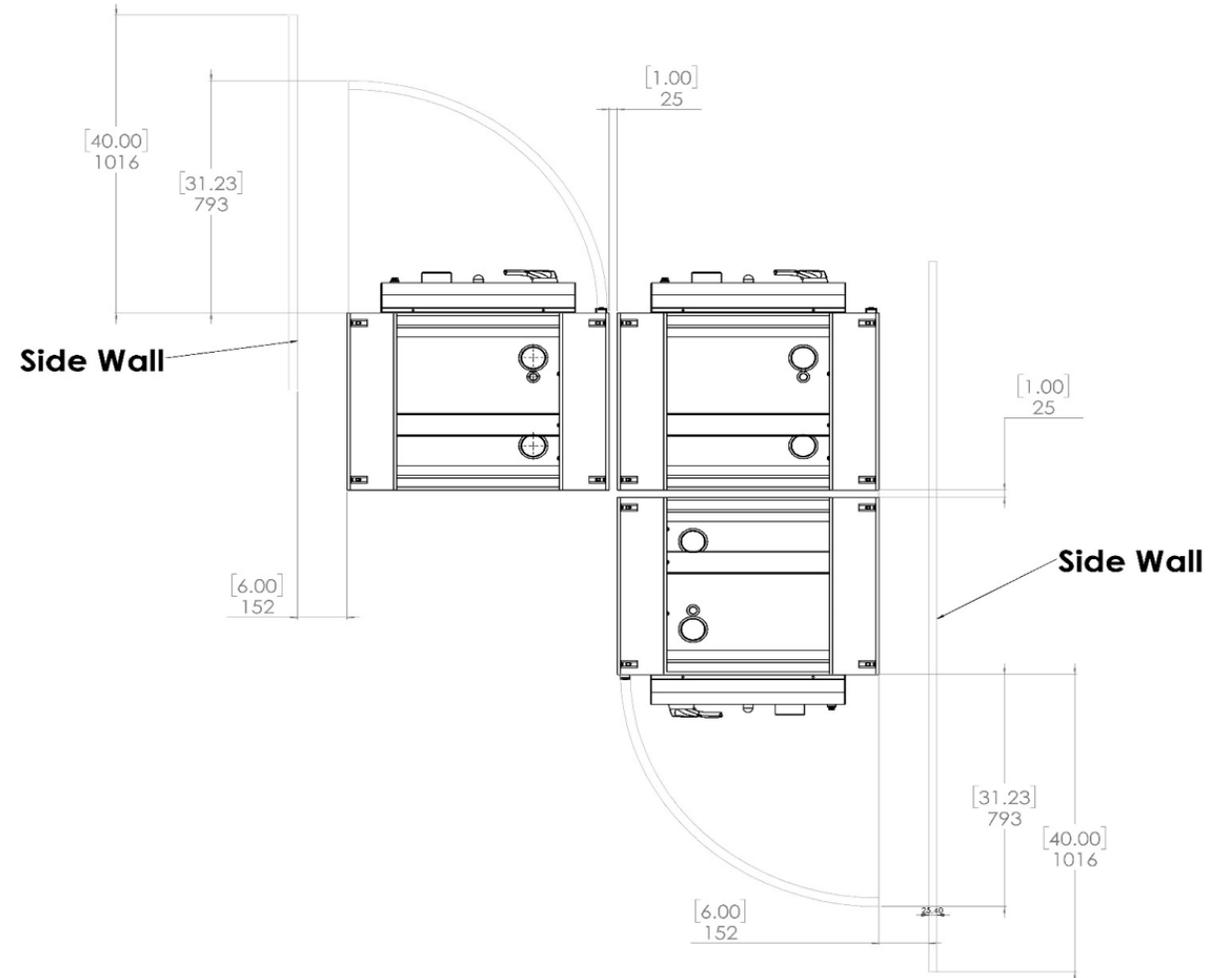
ELECTRICAL INPUT (PCS)	
Utility Grid Voltage (V AC)	422 – 528 Vac (3 phase) {480 +10%, -20%}
Utility Grid Frequency (Hz)	60Hz ±3%
Max Rated Utility Grid Current	79A @480Vac (60Hz)
Standard Wiring	5 - Wire 3 phase, WYE Configuration (L ₁ , L ₂ , L ₃ , Ground, Neutral)
ELECTRICAL OUTPUT (SYSTEM VIA DISPENSER)	
Nominal Output Power	60 kW Max
Output Voltage (V DC)	270 – 840 Vdc
Output Current (I DC)	222A (Max)

CLEARANCES

60KW PCS



- Wall clearance
 - Side: minimum 6 inches
 - Back: minimum 1 inch
- Adjacent PCS units
 - Side: minimum 1 inch gap
 - Back: minimum 1 inch gap
- Door clearance
 - 32 inch clearance in front of unit for door open
 - Adhere to local regulations for further HV clearance requirements



INSTALLATION TEMPLATE

034137 TEMPLATE, 60KW PCS

PROTERRA

REV A02

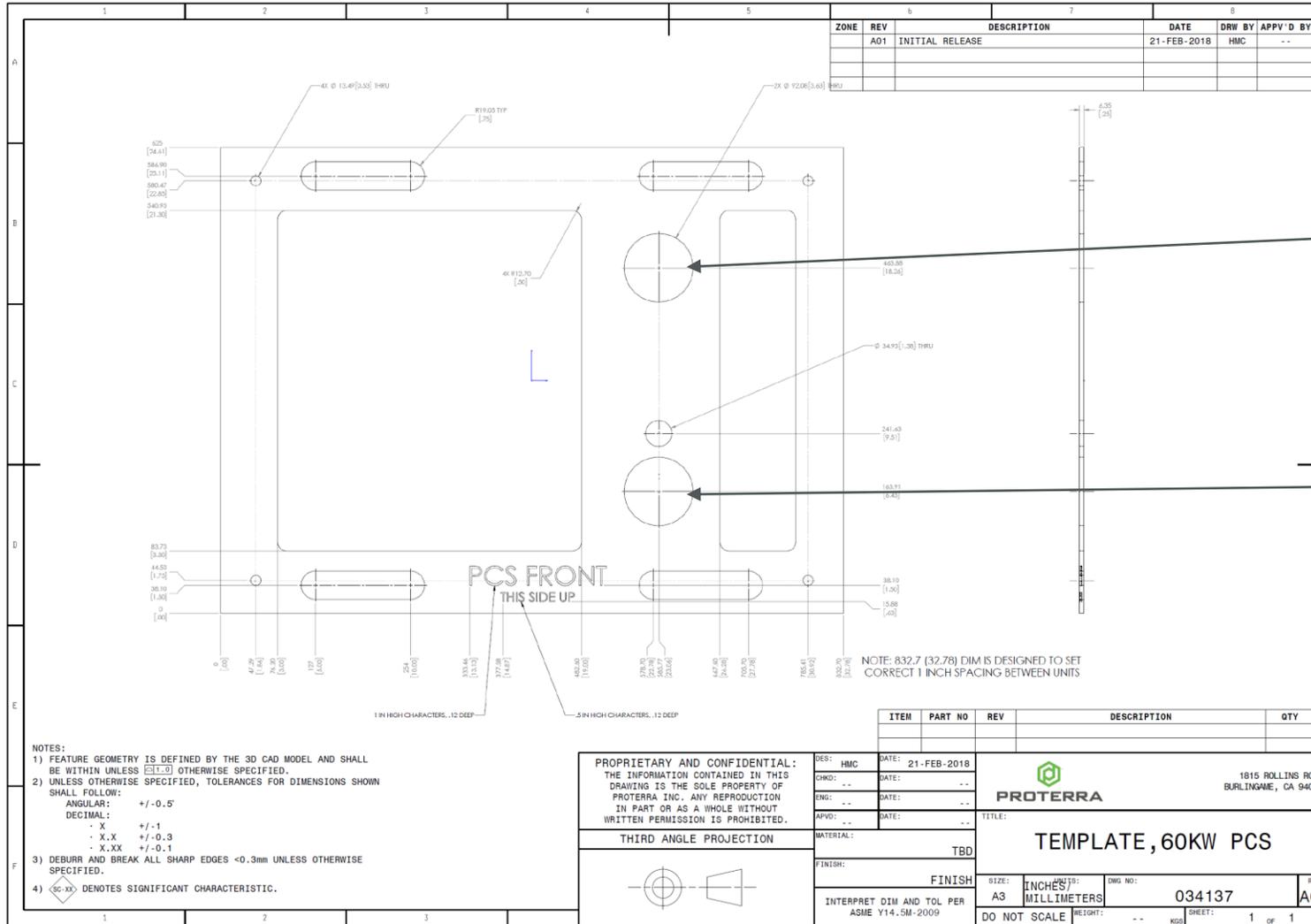
PAGE 9

035091 MANUAL, PRE-INSTALLATION, 60KW PCS

PROTERRA CONFIDENTIAL – DO NOT REDISTRIBUTE



PROTERRA



AC Inlet

DC Outlet
(To Dispenser)

DIMENSIONS DISPENSER



- Base dispenser (used bare for wall mounting)
 - Height: 26.5 in
 - Width: 15.75 in
 - Depth: 8.5 in
 - Door clearance: 17 in
 - Adhere to local regulations for further HV clearance requirements
- Floor mount configuration
 - Total height (Dispenser + pedestal): 58 in
 - Includes pedestal and hook

Base Dispenser
Wall Mount Configuration



Base Dispenser +
Floor Mount Configuration





PROTERRA

THANK YOU.



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July 11, 2019

Appendix B2

60KW Power Control System

60KW POWER CONTROL SYSTEM

SPECIFICATION



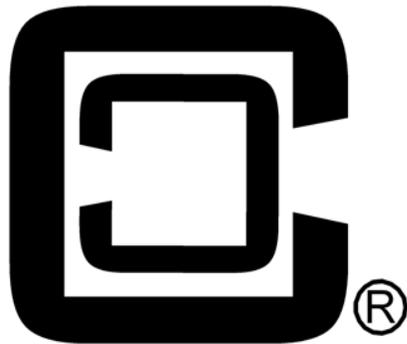
General		
Model	60 kW Power Control System	
Part Number	031738	
Required system components	Proterra Dispenser CCS Type 1 Cable	
Electrical Input		
Nominal Power – Continuous	66 kVA	
Input Voltage	480VAC, 5-Wire WYE (L1, L2, L3, Neutral, Ground)	
Input Current	79A @ 480VAC, 60Hz	
Input Frequency	60 Hz	
Power Factor	>0.995	
Maximum Efficiency	>95%	
THD – Full Power	<3%	
Electrical Output		
Output Power Capability – Continuous	60 kW	
Output Voltage	270 – 870 VDC	
Output Current	± 200ADC	
Charging Module	Remote dispenser with vehicle interface	
Mechanical		
Cooling	Air cooling	
Weight	1400 lb	
Dimensions	Width	31.5 inches
	Depth	23.6 inches
	Height	70.8 inches
Environmental Rated	NEMA 3R	
Wall Clearance	Side	6 inches
	Back	1 inch
Adjacent Unit Clearance	Side	1 inch gap
	Back	1 inch gap
Door Clearance	Facing open space	36 inches
	Facing another door	48 inch gap
Environmental		
Operational Temperature Range	-35°C to 55°C	
Humidity	0% to 95%	
Altitude	De-rates over 2000m above sea level	
Communications Protocols		
Remote management	OCPP 1.6 via 4G Cellular	
Vehicle Communication	SAE J1772 CCS	
Certifications		
UL	2202, 2231	

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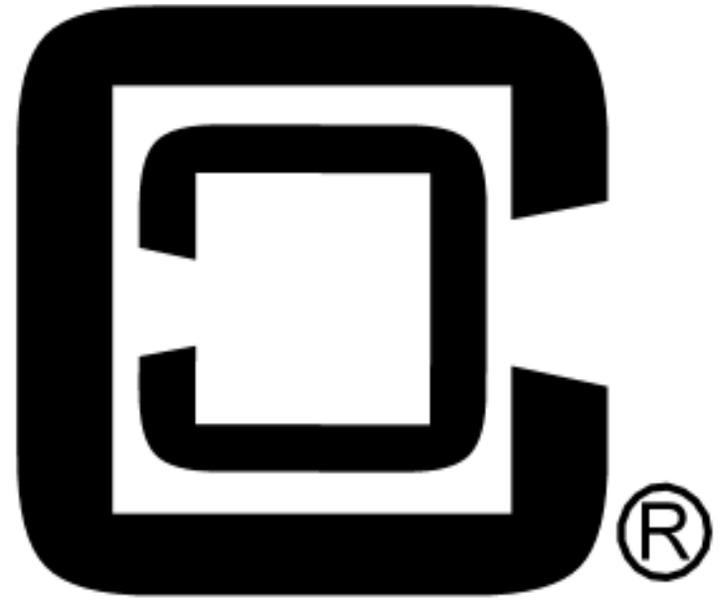
Appendix B3

CS-100 User's Manual

CLIPPERCREEK, INC.
INNOVATIVE INFRASTRUCTURE FOR
ELECTRIC AND HYBRID VEHICLES



CLIPPERCREEK, INC
11850 KEMPER RD., SUITE E
AUBURN, CA 95603



User's Manual



Model CS-100

(80A continuous, 70A Selectable)

PLEASE NOTE

This user's manual includes the latest information at the time of printing. ClipperCreek, Inc. 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. Refer to the Customer Support section located in this guide.

Please visit ClipperCreek's Website @ www.clippercreek.com



WARNING: This product can expose you to chemicals, including Carbon Black, which is known to the State of California to cause cancer. For more information go to: www.P65Warnings.ca.gov

Notes

Notes**CONTENTS****IMPORTANT SAFETY INSTRUCTIONS**

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IMPORTANT SAFETY INSTRUCTIONS

Carefully read these instructions and the charging instructions in your vehicle owner's handbook before charging your electric vehicle.

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

Note *This means pay particular attention.* Notes contain helpful suggestions.



Caution *This symbol means be careful.* You are capable of doing something that might result in damage to the equipment.



Warning *This symbol means danger.* You are in a situation that could cause bodily injury. Before you work on any electrical equipment, be aware of the hazards involved with electrical circuitry and standard practices for preventing accidents.

Safety Guidelines

- Use this charge station to charge electric vehicles equipped with a *conductive charge port only*. See the vehicle's owner's handbook to determine if the vehicle is equipped with a conductive charge port.
- Make certain the charge station's supply cable is positioned so it will not be stepped on, tripped over, or otherwise subjected to damage or stress.
- There are no user serviceable parts inside. Refer to the Customer Support section in this manual for service information. Do not attempt to repair or service the charge station yourself.
- Do not operate your charge station with a visibly damaged supply cable or charge station. Contact your Service Representative for service immediately. Refer to the Customer Support section in this manual for information on the Service Representative in your area.

CUSTOMER SUPPORT

Call your Service Representative at any time, 24 hours a day, at the number below. **PLEASE HAVE THE MODEL NUMBER AND SERIAL NUMBER AVAILABLE WHEN YOU CALL.** These can be found on the side of the enclosure. If your call is made after business hours or on weekends, please leave your name, telephone number, the unit's serial number, and a brief description of the problem. A Service Representative will call back at the earliest opportunity.

**Distributor
Place Contact Information
Sticker Here.**

MAINTENANCE

The CS-100 requires no periodic maintenance other than occasional cleaning.



Warning To reduce the risk of electrical shock or equipment damage, do not allow liquid to enter the unit while cleaning it.

1. Turn off your charge station at the circuit breaker before cleaning.
2. Clean your charge station using a soft cloth lightly moistened with mild detergent solution. Never use any type of abrasive pad, scouring powder, or flammable solvents such as alcohol or benzene.

WARRANTY INFORMATION

LIMITED WARRANTY

ELECTRIC VEHICLE SUPPLY EQUIPMENT and ACCESSORIES

ClipperCreek, Inc.
11850 Kemper Road
Auburn, California 95603
Phone: 530-887-1674
Email: information@clippercreek.net

ClipperCreek shall provide the following warranty with respect to the Products to Representative, its Sub-Representatives and their customers:

Product 1-year parts, 1-year factory labor:

ClipperCreek, Inc. warrants this product to be free from defects in material and workmanship. The warranty period shall commence on the date of installation date (first use). The product installation date must be evidenced and communicated to ClipperCreek by way of the warranty registration card (or its equivalent). The warranty registration card must be filled out completely and accurately, and returned to ClipperCreek within 30 days after installation, and the product installation date shall be within 6 months after the purchase date. If a Product installation date is not communicated to ClipperCreek as described above, the product purchase date shall serve as the warranty commencement date.

If this product is defective in materials or workmanship during the warranty period, ClipperCreek will, at its option, repair or replace the product. Repair parts and/or replacement products may be either new or reconditioned at ClipperCreek's discretion. This limited warranty does not cover service or parts to repair damage due to improper installation or use, including but not limited to improper connections with peripherals, external electrical faults, accident, disaster, misuse, abuse or modifications to the product not approved in writing by ClipperCreek. Any service repair outside the scope of this limited warranty shall be at applicable rates and terms then in effect. This warranty covers factory parts and factory labor only; it does not cover field service or removal and replacement of the product or any other costs.

All other express and implied warranties for this product including the warranties of merchantability and fitness for a particular purpose are hereby disclaimed. Some states do not allow the exclusion of implied warranties or limitations on how long an implied warranty lasts, so the above limitation may not apply to you. If this product is not as warranted above, your sole and exclusive remedy shall be repair or replacement as provided above. In no event will ClipperCreek, any of its authorized sales and service representatives, or its parent company be liable to customer or any third party for any damages in excess of the purchase price of the product. This limitation applies to damages of any kind including any direct or indirect damages, lost profits, lost saving or other special, incidental, exemplary or consequential damages whether for breach of contract, tort or otherwise or whether arising out of the use of or inability to use the product, even if ClipperCreek or an authorized ClipperCreek representative or dealer has been advised of the possibility of such damages or of any claim by any other party. Some states do not allow the exclusion or limitation of incidental damages for some products, so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which may vary from state to state.

To obtain warranty service:

Call your nearest authorized Service Representative or ClipperCreek at the above number. You will receive information as to how service for the product will be provided. If you mail or ship the product in for service, you must insure the product, prepay all shipping charges, and properly pack it for shipment in its original shipping container or its equivalent. You are responsible for all loss or damage that may occur in transit. You must provide proof of purchase of the product and the purchase date before any warranty service can be performed.



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

Note

VENTILATION: Some electric vehicles require an external ventilation system to prevent the accumulation of hazardous or explosive gases when charging indoors. Check the vehicle's owner's handbook to determine if your vehicle requires ventilation during indoor charging.

Note

Those vehicles which follow the SAE J1772 standard for communication with the charging station can inform the CS-100 that they require an exhaust fan. The CS-100 is not equipped to control ventilation fans. If an exhaust fan is requested, the CS-100 will not charge the vehicle. If this function is required, ask your ClipperCreek representative for information on other products which have the exhaust fan control feature.



Caution: DO NOT charge your vehicle indoors if it requires ventilation. Contact your Service Representative for information.

FCC INFORMATION

This device complies with Part 15 of the United States FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

This product has been designed to protect against Radio Frequency Interference (RFI). However there are some instances where high powered radio signals or nearby RF-producing equipment (such as digital phones, RF communications equipment, etc.) could affect operation.

If interference to your charge station is suspected, we suggest the following steps be taken before consulting your ClipperCreek Sales and Service Representative for assistance:

1. Reorient or relocate nearby electrical appliances or equipment during charging.
2. Turn off nearby electrical appliances or equipment during charging.



Caution Changes or modifications to this product by any service provider other than an authorized service facility may void FCC compliance.

OPERATION

The CS-100 Electric Vehicle Charging Station is a conductive charge station that provides the electric vehicle (EV) user with a safe and manageable link between the power grid and the electric vehicle.

Figure 1. The CS-100 Front Panel



The CS-100 Electric Vehicle Charging Station is very easy to use. Just remove the charging connector from its holder, and plug it into the vehicle's charge port. If there is a mechanical latch that holds the connector firmly while charging, be sure the latch has "clicked" into place. Normally, the vehicle will immediately request a charge, the Green CHARGING light will come on, and charging will begin. After an average driving day, it will require a few hours to recharge completely. Charging overnight is the most convenient way to ensure the vehicle's full range will be available for the next day.

If the vehicle has stopped charging, the Green CHARGING light will be out. Remove the cable and you're ready to use the vehicle. If the charging is still in progress, first push the START/STOP button on the CS-100 front panel. The charging light will start blinking and the EV charge connector can be removed.

Load Management Inputs

If the CS-100 has been configured for Off-Peak Charging, the Green CHARGING light may blink after the EV charge cable is plugged into the vehicle. If the vehicle does not charge in this mode it may indicate that a timer or other device has been connected to the Hi/Off input on the 4-position terminal block. In this case, charging will not occur until a specified time - such as later in the evening when electrical rates are lower.

If the vehicle does charge in this mode, the optional 70A current setting has been selected via the Hi/Low input on the 4-position terminal block.

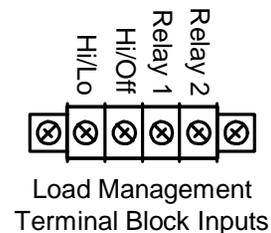
Load Management and Front Panel Button Functionality:

When the Hi/Low terminal is not grounded, pushing the START/STOP button will alternatively stop and restart charging. If the Hi/Low terminal is grounded, the first press of the START/STOP button will select 80A charging (up from 70A). The second press will stop charging. Subsequent button presses will alternate between starting and stopping a 80A charge cycle.

To restart at 70A, disconnect the charge cable then reconnect it to the vehicle.

The two Load Management inputs, labeled High/Low and High/Off, are shown on the 4-position terminal block in Fig. 9 below.

Figure 9. 4-Position Terminal Block



Relay Output

The two rightmost terminals labeled Relay 1 & Relay 2 are dry contacts that are normally open. If the Protection light turns on, or if other internal problem is sensed by the CS-100's computer, these contacts will close. This can be used to power a remote indicator to warn the user that a problem exists, giving them the opportunity to correct the problem and help ensure the vehicle will be charged when needed.

SPECIFICATIONS for CS-100

Line Input Power - Service Entrance

Voltage & Wiring 240V AC single-phase - L1, L2, and Safety Ground
208V AC 3-phase, wye-connected - Any 2 phases, and Safety Ground

240V AC 3-phase, delta-connected. With center-tap on one leg, must use only the two phases on either side of the center-tap. The two phases must both measure 120VAC to ground. **Do not use the third leg (208V “stinger”).**

Current 100A Circuit Breaker. The maximum current for the vehicle is 80A, set by the duty cycle of the Pilot waveform.

Frequency 50/60 Hz

Output Power Variable depending on vehicle. Vehicles will be limited to a maximum of 80A. At 240V, this will be about 19.2 KW.

Dimensions

Height 304 mm (12 in)
Width 457 mm (18 in)
Depth 203 mm (8 in)

Color Gray

Cable Length Approximately 7.6 m (25 ft)

Weight (with Cable) 16.5 kg (36 lbs)

Environment

Operating Temperature -30°C (-40°F) to +40°C (+122°F)
NEMA Rating NEMA 4 - outdoor use, watertight.

Timer Connection Ground to disable charging, leave open to charge. 12 volts with 1K source resistance when open circuit, 12 ma sink current when grounded.

Error Relay Contacts Dry contact, 24V AC/DC max, 5A current max, closed if error present.

Agency Approvals cULus, cETLus, FCC Part 15 Class B

Front Panel

The front panel of the CS-100 has one GREEN and one RED light to indicate the status of the unit. The operational state of the unit can be determined by looking at the panel lights and comparing them with table 1 below.

Table 1. Front Panel Indicators

(Green)	(Red)	Status of CS-100
CHARGING	PROTECTION	
--	--	- Vehicle is not connected - or vehicle is not requesting a charge
lit	--	Vehicle is charging at 80A
--	lit	- The ground fault is tripped - or the ground is missing - or service is required
lit	lit	There is a problem on the vehicle.
blink	--	- Vehicle is charging at 70A - or charging interrupted by the user - or charging disabled by external timer - or unit is in Cold Load Pickup mode

In Case of Difficulty

ClipperCreek recognizes that this Charging Station will be heavily relied upon to charge your electric vehicle for daily transportation needs. Therefore, every effort will be made to restore service should problems arise.

In the event of a problem, charging will stop and the Red PROTECTION light will turn on. If this happens, please try the two simple steps below before calling your Service Representative.

1. Remove the cable connector from the vehicle socket. The Red PROTECTION light may turn off. If it *does* turn off, plug the connector back into the socket, and see if charging begins normally.
2. If the Red PROTECTION light *does not* go out when the connector is removed, be sure the connector is removed from the vehicle socket and switch off power at the circuit breaker feeding power to the CS-100. Wait a few seconds and switch the circuit breaker back on again. If the Red PROTECTION light does not turn on, re-connect the cable to the vehicle. Charging should begin normally. If charging does not begin, or if the Red PROTECTION light turns back on, call your Service Representative.

The information obtained by following the above steps will help the Service Representative decide what the problem is, and how best to get your CS-100 operational again as quickly as possible.

FEATURES

The following features are supported by the CS-100:

Personnel Protection System: Ground Fault protection with Self-Testing and Auto-Reclosure (see below), no manual resetting or testing is necessary.

Ground Monitoring Circuit: Constantly checking for the presence of a Safety Ground connection.

Auto-Reclosure: If a problem occurs that interrupts charging, the unit will automatically clear all error indications after 5 minutes, and attempt to begin charging again. If the problem is immediately sensed a second time, it will wait another 5 minutes and try again. This process will repeat several times, at which point power will be removed and no further attempt will be made. The Red PROTECTION light on the front panel will be lit.

This feature helps ensure that the vehicle will be charged and ready for use when needed. Temporary problem indications such as ground-faults or utility power surges can be overcome automatically without the need for the user to manually re-initiate charging.

Off-Peak Charging: For this feature, an external timer must be installed (purchased separately.) A utility may also install a special Time-of-Use meter to provide special rates for Off-Peak Charging. If a timer is installed, it is not necessary to wait until late evening to plug the CS-100 charge connector into the vehicle. The CS-100 may be connected to the vehicle at any time. Even though the vehicle may immediately request a charge, the timer will cause the CS-100 to delay energizing the cable until the specified time period. With this feature, the Green CHARGING light will blink while the vehicle waits for the timer to allow charging.

Making the best use of the Off-Peak Charging feature will require the following:

1. Installation of a Time-Of-Use meter by the electric utility.
2. Installation of a clock/timer to allow the CS-100 to charge only during Off-Peak hours.
3. Connecting the timer's control wire to the High/Off pin on the 4-position terminal block. The correct pin can easily be identified by looking at the wiring diagram for the CS-100 on page 11.

If this feature is desired, please call your local utility to be sure the Time of Use meter is available in your area before having the timer installed. Technical information to help connect the timer to the CS-100 can be found in the section titled Load Management Inputs on page 16 in this manual.

Note that many vehicles are equipped with programmable timers for the purpose of setting the charge time independent of the charging station.

Ground Missing: Lit when the unit has detected a missing Service Ground. The CS-100 will not close the contactor until a proper Service Ground has been connected. The front panel Red PROTECTION light will be lit, and the Diagnostic LED will be flashing at a faster rate.

Note: If a missing Service Ground is discovered, power should be turned off before re-connecting the Service Ground. If Service Ground is reconnected without turning off the power, it will be necessary to wait 5 minutes for the CS-100 to clear the Ground Missing error.

Table 2 below illustrates the information that can be obtained from the 4 LEDs on the PC board.

Table 2. PC Board Diagnostic LEDs

Status	LED 1	LED 2	LED 3	LED 4
	Diagnostic Blink Rate	Load Mgmt Disable	GFCI Trip	Ground Missing
Normal Operation	slow	--	--	--
Charging	slow	--	--	--
Charge Disabled	slow	lit	--	--
CCID Trip	fast	--	lit	--
Ground Missing	fast	--	--	lit
Service Required	fast	--	--	--

Note: a (--) symbol indicates the LED is off.

FOR THE SERVICE TECHNICIAN

There are four small LEDs on the PC board to help diagnose problems:

Diagnostic: this is the “heartbeat” of the system. When *only* this LED is slowly flashing, the system has not detected any failures. If it is lit but not flashing, the board is defective. If its not lit, either no power is applied, or the board is defective.

To test the system, press and hold the two Charge Test buttons simultaneously. If the contactor closes, the CS-100 is operating normally. If a vehicle is available, connect the charging cable. The contactor should close. If not, the charging cable or vehicle socket may be defective, or the vehicle is not requesting a charge.

If the CS-100 detects an internal failure, the Diagnostic LED will blink at a faster rate. One of the other LEDs may also be lit and indicate the nature of the problem, such as an inoperative Ground Fault circuitry, or a missing Service Ground.

Load Management Disable: This status indicator LED will turn on in conjunction with a slow-blinking Diagnostic LED when either the Cold Load Pickup or External Timer mode is active. This indicator will also turn on when the CS-100 is in 70A charging mode. If a vehicle is connected, the front panel Green CHARGING light will blink when the Load Management Disable LED is on. If a vehicle is not connected, the Green CHARGING light will not activate.

GFCI Trip: This Diagnostic LED is lit when the unit has detected a ground fault. When a fault has occurred the contactor will open, the front panel Red PROTECTION light will turn on and the Diagnostic LED will blink at a faster rate. The system waits 5 minutes after sensing a fault, then automatically attempts recovery. After several such attempts, the unit will remain in Protection mode.

If a ground fault error or an EV connection error has been detected:

1. Disconnect the EV charge cable from the vehicle's inlet charge port.
2. Inspect the EV charge cable connector and the vehicle's inlet charge port. Be sure both are clean and undamaged.
3. Reconnect the EV charge cable connector to the vehicle's inlet charge port.
4. If the fault condition persists, a problem may exist on the vehicle. Refer to the vehicle owner's manual for instructions on inspecting and cleaning the inlet charge port
5. If the charge cable connector and vehicle charge port appear to be in good condition and the error condition does not clear, contact your Service Representative.

Cold Load Pickup: This feature is built-in to the CS-100, but will only be apparent when the utility power fails during charging. If the charging connector is still plugged into the vehicle when utility power is restored, the Green CHARGING light will blink and the unit will not energize the cable for a random time between 2 and 12 minutes. This is to prevent the utility's grid from experiencing a large surge at turn-on, allowing EV's in the area to begin drawing current at random times rather than all at once.

Note: The vehicle does not need the owners attention after a power outage. The CS-100 will automatically resume charging when power is restored.

External Error Indication: Whenever the Red PROTECTION light is lit, a relay on the board will provide a contact closure that can be used to remotely indicate that a problem exists. A fleet vehicle yard, for example, could use this feature to light a lamp or ring a bell in the main office, letting them know immediately that a vehicle has a charging problem. This early warning helps assure that each vehicle will be properly charged and ready for use when needed. The two rightmost pins on the 4-position terminal block are the relay contacts for the External Error Indication. More information on the Relay Output feature can be found in the section titled Load Management Inputs on page 16 in this manual.

Selectable Current: This version of the CS-100 is configured to permit the user to select the maximum current available to the vehicle. Normally, the CS-100 will communicate to the vehicle that a up to 80A is available for charging. Some vehicles, however, do not recognize the 80A signal. For these vehicles, the maximum current can be reduced to 70A while still allowing for 80A charging.

To make use of this feature, wire the High/Low pin on the 4-position terminal block to chassis ground. With this pin grounded, the default maximum current will be set to 70A. In this mode, the Green CHARGING light on the CS-100 front panel will flash while a charge is in progress.

To select between 70A and 80A maximum chaging, follow this sequence:

- Plug in
- Flashing green CHARGING light = 70A
- Press START/STOP button once to select 80A
- Solid green CHARGING light = 80A
- Unplug then plug in to restart at 70A

Note: Should a vehicle be set to charge at a specific time, it may not immediately begin the charge cycle when plugged in. If this is the case, changing the current setting on the CS-100 will not cause the vehicle to begin a charge cycle.

INSTALLATION

Service Connections



Caution This is a single-phase device. Do not connect all 3 phases of a 3-phase feed !!! You may use any two phases of a 3-phase wye-connected feed. The center-point of the 3 phases (usually used as Neutral) must be grounded somewhere in the system. A current-carrying Neutral is not needed by the CS-100. Only Line 1, Line 2, and Ground are required, as shown in Fig 4.



Caution The two phases used must each measure 120V to Neutral. Earth Ground must be connected to Neutral at only one point, usually at the Service Entry Breaker Panel.



Caution If a 240V 3-phase feed is from a Delta-connected secondary, the leg used must have a center-tap. That tap must be Grounded. Only the two phases either side of the center-tapped leg can be used. See Fig. 5 below.



Caution Warranty is void if this unit is wired improperly



Warning Only a qualified electrician should perform the installation. The installation must be performed in accordance with all local electrical codes and ordinances.

Only 3 wires are connected, but care must be taken that the service transformer secondary connection is definitely known, and the 3 wires from the main circuit breaker panel are connected and labeled correctly. Figures 3, 4, and 5 below show the most common service transformer secondary wiring formats.

Notice that L1, L2, & Gnd are labeled on each diagram. Those transformer outputs correspond to the same inputs on the CS-100. Also, each of the two 3-phase diagrams shows an L3 output, which *is not used*. **Do not connect all three phases of a 3-phase secondary to the CS-100. This is a single-phase device.**

The Neutral at the service panel must be connected to earth ground somewhere in the system on any of the three connection arrangements. Ground-fault protection is not possible unless the Neutral (center-tap on the service transformer) is connected to an earth ground. If no ground is provided by the electrical service, a grounding stake must be driven into the ground nearby, following local electrical codes. The grounding stake must be connected to the ground bar in the main breaker panel, and Neutral connected to ground at that point.

- The CS-100 requires a dedicated 208/240 VAC 50/60 Hz, single-phase circuit. A CS-100 programmed for 80A continuous should be installed on a 100A circuit breaker.
- Do not use a GFCI breaker with the CS-100. The CS-100 contains a Personnel Protection circuit that is the equivalent and specifically designed for use with electric vehicles.
- Only 3 wires are needed to wire the CS-100: LINE 1, LINE 2, and SERVICE GROUND, as shown in Figure 8. Wire the unit from the breaker panel using wire sized in accordance with local electrical codes. The circuit breaker should be rated at 100A. Derating a 100A breaker 20% for continuous duty allows 80A of continuous current.
- The LINE 1 and LINE 2 phases are terminated on the input side of the contactor itself, as shown in Figure 8. The SERVICE GROUND is terminated on the Ground Terminal at the bottom of the enclosure.
- Be careful not to damage the PC Board when removing the power-entry knockout, attaching the conduit, or when wiring the service conductors to the contactor.

Testing After Installation

- Apply utility power, and observe that only the Diagnostic LED is flashing on the circuit board. If it is not flashing, the board may be defective.
- The two Charge Test buttons on the PC board simulate a connection to the vehicle. Simultaneously press on the two Charge Test buttons. The contactor should close and the large Green CHARGING light should turn on.
- If a vehicle is available, connect the CS-100 to the vehicle and verify that the contactor closes and the Green CHARGING light turns on.
- Once the installation has been tested, close the enclosure door and resecure the latch. Reinsert the two Torx screws on the left-hand side and hand-tighten them with a T15 Torx L driver until snug.

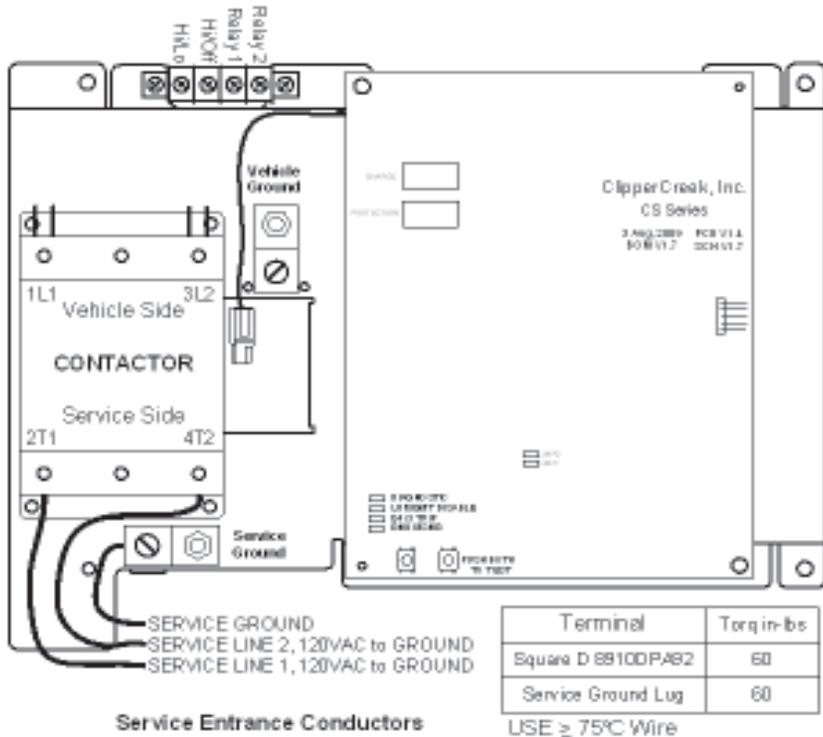
Installation is complete.

Wiring Instructions

To open the enclosure door, remove the two screws on the left-hand side, using a T15 Torx L driver. Once the screws are removed, unhook the latch located on the bottom of the unit over the charging connector holder.

Before connecting wires to the CS-100, please carefully read the section of this manual titled Service Connections, on page 7. If you are unsure of the type of power provided at the service panel, please consult with your local utility or call your Service Representative for assistance.

Figure 8. CS-100 Service Wiring



Warning Local electrical codes must always be followed when installing the grounding stake.

The following diagrams illustrate the 3 service transformer secondary connections most common in the United States.

Figure 3. 220/240V Single Phase

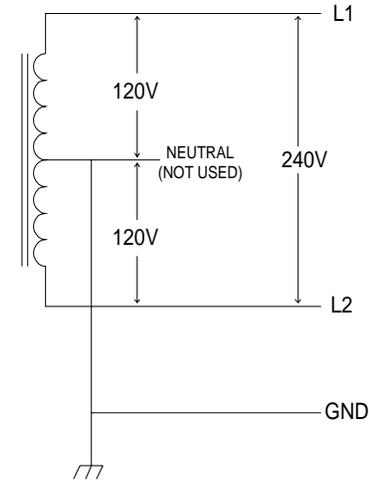
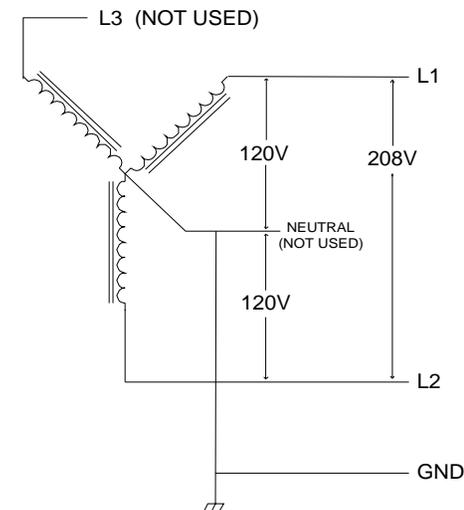
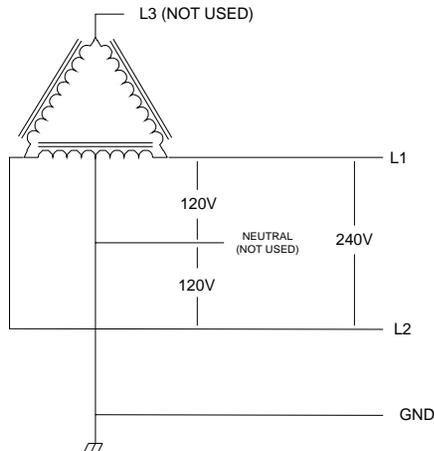


Figure 4. 208V 3-Phase, Wye-Connected



Note With a wye-connected secondary, any two of the legs can be used to provide 208V to the CS-100. For example, L1 & L2, or L1 & L3, or L2 & L3. Leave the unused leg open. Do not connect it to a Neutral bar, or to Ground. Be sure the center point is grounded to earth somewhere in the system.

Figure 5. 240V 3-Phase, Delta-Connected, with center-tap on one leg.



Caution With the delta connection, one leg must be center-tapped, and only the two phases on either side of the center tap can be used. The two phases must both measure 120V to neutral. The third line (L3) of the delta is 208V, with respect to neutral, and is sometimes referred to as a “stinger”. **Do not use this third line!** Consult the transformer manufacturer’s literature to be sure the single leg can supply the required power..



Caution A 3-phase delta-connected transformer secondary without a center-tap on one leg is not usable with the CS-100. No “neutral” point is available to be connected to ground for ground-fault protection, and the CS-100 will not allow the contactor to close if it does not sense the presence of a ground wire connected to a “neutral” point on the transformer secondary.

Mounting Procedures

- 1 Locate the wall mounting position of the EVSE:
 - Position the bottom of the charge station 38 inches above the ground.
 - The mounting holes are spaced 16" apart to accommodate wall studs.
 - If you do not have solid structural framing on those centers, you must provide an adequate alternative mounting surface for the EVSE.
- 2 Attach the charge station to the wall studs using (4) ¼ x 2 ½" lag screws.
- 3 Use a multi-set or equivalent if mounting on a concrete wall.
- 4 Remove the applicable knock-out in the charge station, push the power leads through the hole, then connect the power conduit to the hole.
- 5 After mounting, continue the installation using the Wiring Instructions beginning on Page 11.

Figure 6. Wall mounting of CS-100

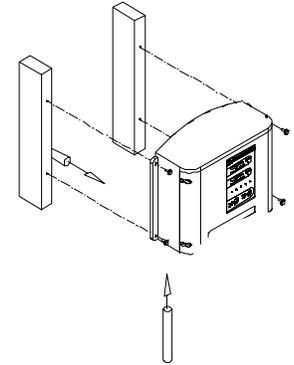
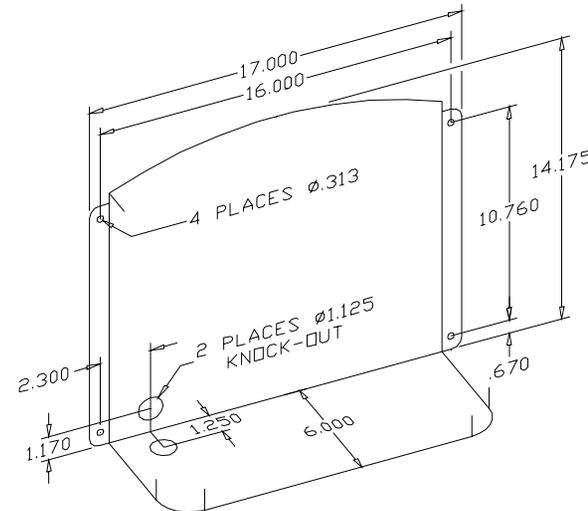


Figure 7. CS-100 Installation Template



Advice 5585-E
July 11, 2019

Appendix B4
Installation Guide



STANDARD EVSE PEDESTAL INSTALLATION GUIDE

Please Note

This installation guide includes the latest information at the time of printing. ClipperCreek, Inc. reserves the right to make changes to this product without further notice.

Before You Begin:

Read these instructions completely, including the Safety Instructions. If you have questions about the use of this product, contact your Service Representative.

Note to the Installer:

Be sure to leave these instructions with the user.

Note to the User:

Keep these instructions for further reference.

Important Safety Instructions

ClipperCreek Electric Vehicle Service Equipment (EVSE or “charger”) is designed with the safety concerns of the end user as an utmost priority; however, the following safety precautions must be read and followed:

- The charger and electrical wiring should be installed by a qualified electrician in accordance with local electrical codes and ordinances.
- Grounding Instructions - The charger should be connected to a grounded, metal, permanent wiring system; or an equipment-grounding conductor should be run with circuit conductors and connected to a grounding terminal or lead on the charger. Connections to the charger should comply with all local electrical codes and ordinances.
- Call your local service provider anytime a procedural question arises; DO NOT attempt to perform a procedure you are unsure of.
- Read all installation instructions carefully before performing the pedestal and charger installation.

Installation Requirements

Required Equipment for a Single-Mount Pedestal with one Charging Station (One EVSE per Pedestal):

- One (1) ClipperCreek Standard EVSE Pedestal Kit.
- One (1) ClipperCreek Charging Station (EVSE).
- One (1) dedicated 208 or 240 VAC branch circuit.
- One (1) circuit breaker appropriately sized for the EVSE charging capacity.¹
- Two (2) Live Line conductors.²
- One (1) Ground Line conductor.²
- Conduit sized to fit all three conductors.
- Four (4) Anchor Bolts with Nuts and Washers

Required Equipment for a Dual-Mount Pedestal with two Charging Stations (Two EVSEs per Pedestal):

- One (1) ClipperCreek Standard EVSE Pedestal Kit.
- One (1) ClipperCreek Dual-Mount Pedestal Kit.
- Two (2) ClipperCreek Charging Stations (EVSEs).
- Two (2) dedicated 208 or 240 VAC branch circuits.
- Two (2) circuit breakers, appropriately sized with respect to the charging capacity of each EVSE.¹
- Four (4) Live Line conductors (Two for each EVSE).²
- Two (2) Ground Line conductors (One for each EVSE) or a single bonded Ground Line.²
- Conduit sized to fit all Live Line and Ground Line conductors.
- Four (4) Anchor Bolts with Nuts and Washers

¹ Refer to the EVSE documentation to determine the appropriate circuit breaker current capacity.

² All conductors must be appropriately sized for the EVSE current capacity, in accordance with local and NEC electrical codes.

Tools Required for Assembling the Pedestal

The following tools are required for the installation and assembly of the pedestal components.

- T27 Torx Driver
- #2 Phillips Head Screwdriver
- Box Wrench (appropriately sized for the Anchor Nuts)
- Tube of Silicone Sealant

Tools Required for Wiring the EVSE

The following tools are required for wiring the service conductors to a charger rated for a branch circuit of *up to* 60A.

- T15 Torx Driver (for EVSE Door Access)
- 3/16” Flathead Screwdriver (for Ground Block Lug)
- ¼” Flathead Screwdriver (for Contactor Lugs)

The following tools are required for wiring the service conductors to a charger rated for a branch circuit *greater than* 60A.

- T15 Torx Driver (for EVSE Door Access)
- 5/16” Flathead Screwdriver (for Ground Block Lug)
- 5/32” Hex Head Wrench (for Contactor Lugs)

Pedestal Dimensions

Figure 1: Pedestal Dimensions for Single-Mount and Dual-Mount Installations

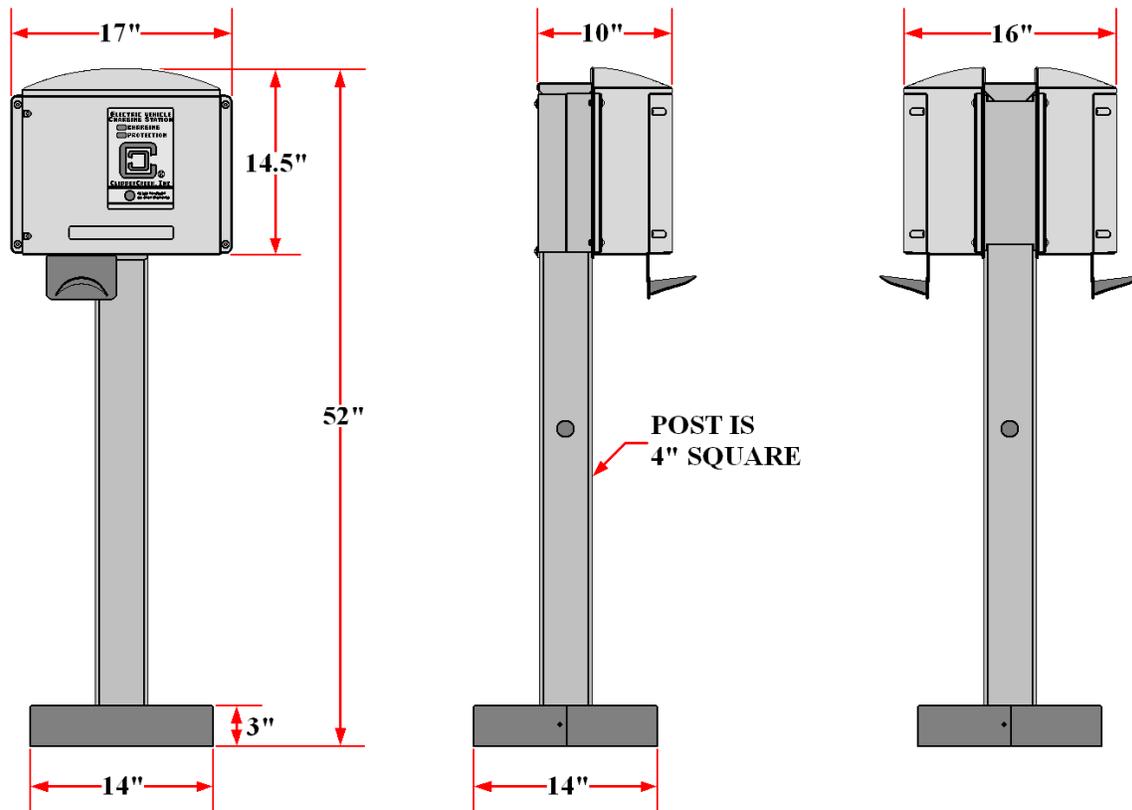


Figure 2: Pedestal Base Dimensions

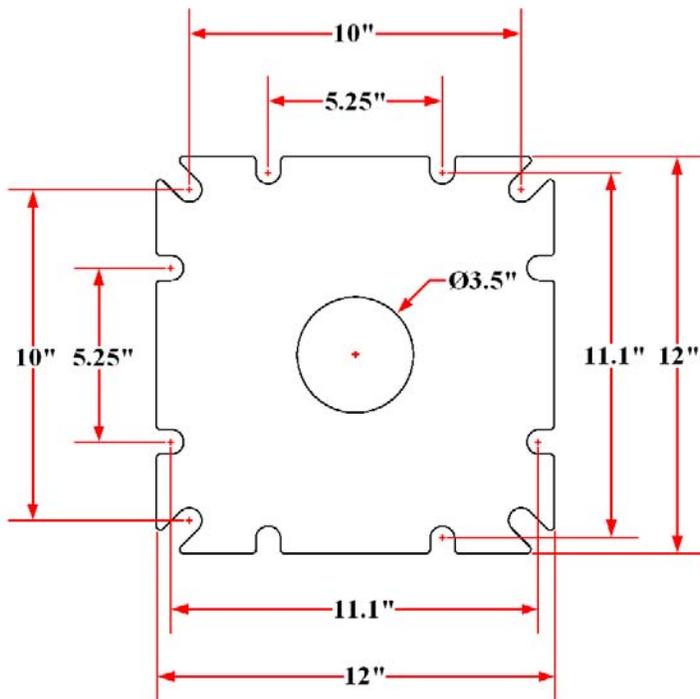
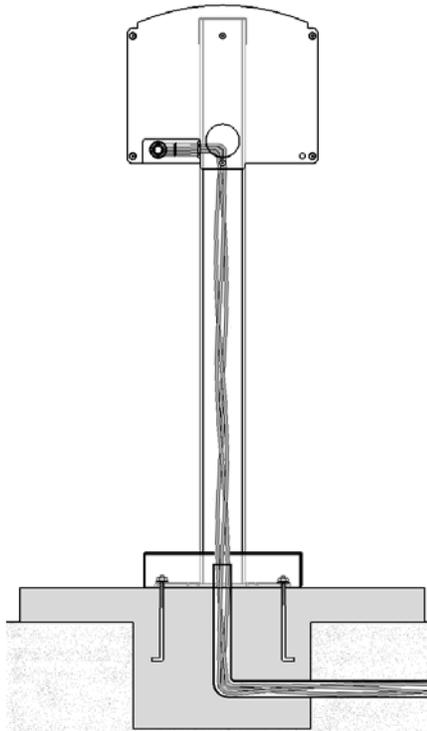


Figure 3: An Installation Cross-Section



Packing Lists**0300-00-014 Pedestal Kit, Standard 4 Foot, Single Mount**

Part Number	QTY	Description
0300-06-001	1	Pedestal Conduit Assembly, Standard 3/4" Fitting
1003-0014	1	Pedestal Metalwork, Cap with Rear Flange
1003-0019	1	Pedestal Metalwork, Back Bracket
1003-0023	2	Pedestal Metalwork, Base Cover
1003-0030	1	Pedestal Metalwork, Charger Mounting Plate
1003-0031	1	Pedestal Metalwork, 4-Foot Post
4000-0010	4	Machine Screw, Tapered Flat Head, 6-32 Size, 3/8" Length, Phillips
4000-0011	2	Machine Screw, Tapered Flat Head, 1/4-20 Size, 3/4" Length, T27 Torx
4000-0012	8	Machine Screw, Button Head, 1/4-20 Size, 1" Length, T27 Torx
4002-0002	8	Washer, Galvanized Steel, Neoprene Bonded Seal, 1/4" ID, 5/8" OD
4015-0000	4	Plug, Plastic Push-In, 1-3/32" ID, 1-7/32" OD
4015-0001	2	Plug, Plastic Push-In, 1-3/8" ID, 1-1/2" OD

Optional Orderable Items**0300-00-013 Dual-Mount Kit for Standard 4 Foot Pedestal (Optional)**

Part Number	QTY	Description
0300-06-001	1	Pedestal Conduit Assembly, Standard 3/4" Fitting
1003-0015	1	Pedestal Metalwork, Cap without Rear Flange
1003-0017	2	Pedestal Metalwork, Side Bracket
1003-0030	1	Pedestal Metalwork, Charger Mounting Plate
4000-0011	2	Machine Screw, Tapered Flat Head, 1/4-20 Size, 3/4" Length, T27 Torx
4000-0012	4	Machine Screw, Button Head, 1/4-20 Size, 1" Length, T27 Torx
4002-0002	4	Washer, Galvanized Steel, Neoprene Bonded Seal, 1/4" ID, 5/8" OD

0300-06-000 120V Ground Fault Receptacle Kit*

Part Number	QTY	Description
4015-0002	1	Plug, Knockout Bushing, 1.109" OD, 3/4" Trade Size Aperture
4301-0000	1	GFCI Ground Fault Receptacle, 15A, 125V, NEMA 5-15R, Single Socket with Switch
4301-0001	1	Gang Box, Single, Silver Metal
4301-0002	1	Weatherproof Receptacle Cover, Clear, Single Gang, 2-3/4" Depth

* The Ground Fault Receptacle Kit includes a 120VAC GFCI receptacle and housing. It may be installed at the knock-outs located 24 inches above the base on either side of the pedestal.

0300-06-002 Optional 1" Conduit Assembly

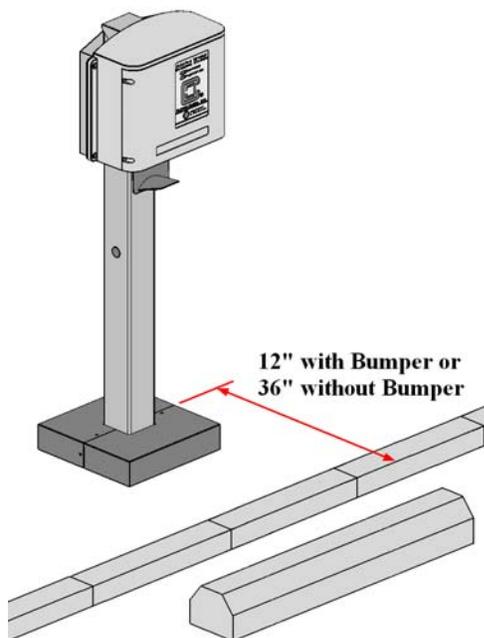
Part Number	QTY	Description
0300-06-002	1	Pedestal Conduit Assembly, Optional 1" Fitting

1. Concrete Pad Requirements

The location, dimensions, and composition of the concrete pad underlying the pedestal should always adhere to local building codes. The following dimensions are minimum recommended values. Always verify that installation plans adhere to local code requirements prior to proceeding.

- The pad area must be a minimum of 18” to a side.
- The concrete must be poured to a minimum depth of 12”.
- If there is no bumper block, the center of the pedestal base should be situated 36” behind the curb.
- If a bumper block is in place, the center of the pedestal base should be situated 12” behind the curb.

Figure 4: Proper Distance to the Curb



2. Anchor Bolt Placement

A minimum of four (4) anchor bolts must be embedded in the concrete pad for the purposes of securing the pedestal post. The pedestal base is designed to permit the anchor bolts to be arranged in a standard 10” by 10” pattern (recommended) or in an alternative 5.25” by 11.1” pattern.

For the Standard 10” Square Pattern:

- Arrange four (4) 1/2” or 3/8” anchor bolts in a 10” square pattern. This placement corresponds to the corner cutouts in the pedestal base.

For the Alternate 5.25” x 11.1” Rectangular Pattern:

- Arrange four (4) 3/8” anchor bolts in a 5.25” by 11.1” rectangular pattern. This placement corresponds to the inner cutouts in the pedestal base.

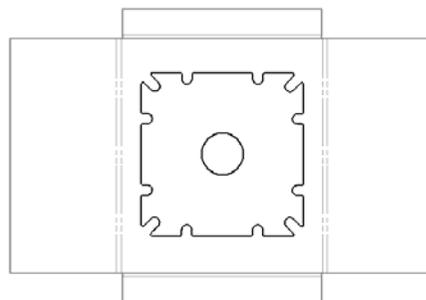
Maximum Anchor Bolt Height:

- The anchor bolts should not protrude more than 3” above the surface of the concrete pad.

Use the Pedestal Base Pattern Template:

To better facilitate the installation of the anchor bolts, a cardboard template in the shape of the pedestal base is included in the pedestal kit. This template is provided as a knock-out piece on the back of the cardboard box in which the charger mounting plate is packaged.

Figure 5: Bolt Pattern Template Knockout

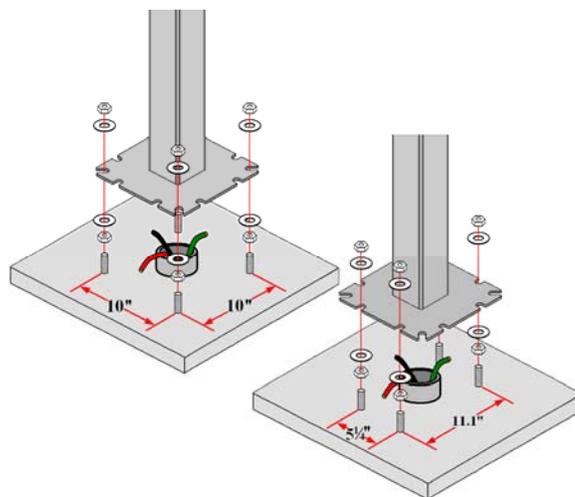


3. Mounting the Pedestal Post

Once the concrete pad with anchor bolts has been prepared and the three service conductors have been pulled through the underground conduit, the pedestal post may be put into place.

- Feed the three service conductors up through the inside of the pedestal post. Ensure that the conductors are of sufficient length to reach up through the body of the post and into the charger.
- Align the pedestal post base notches with the four anchor bolts and ease it into place.
- Nuts and washers may be used under the pedestal base to adjust the vertical alignment of the pedestal should the concrete pad not be level.
- Secure the pedestal post base to the concrete anchor bolts using appropriately sized nuts and washers.
- The anchor bolts, nuts and washers used for the installation of the pedestal base are not included in the pedestal kit and must be purchased separately.

Figure 6: Pedestal Post Mounting by Pattern

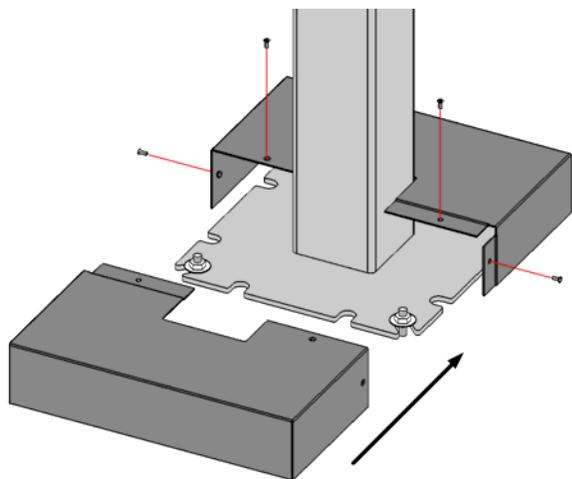


4. Install the Pedestal Base Cover

A two-piece pedestal base cover set is included in the pedestal kit. The purpose of the pedestal base cover is to beautify the installation and to protect against injury from protruding anchor bolts.

- The two covers are of an identical overlapping design. Slide one cover on the front side of the pedestal base until the center notch surrounds half of the pedestal post. Slide the other cover onto the rear side in the same manner. Ensure that the flanges of each cover piece are tucked inside of the opposite cover.
- Align the four screw holes of each cover piece with the corresponding screw holes on the opposite cover.
- Secure each cover piece to the other with four (4) #6-32 x 3/8" flat-head taper screws using a #2 Philips-head screwdriver.

Figure 7: The Pedestal Base Covers



5. Install the Conduit Assembly

The three conductors are routed through the side of the pedestal and into the back of the charger via an external conduit assembly.

For the Standard 3/4" Conduit Assembly:

Follow these instructions to install the standard 3/4" conduit assembly included in the pedestal kit.

- Knock-out the 3/4" plastic plug located 12" down from the top of the pedestal on the left side.
- Unscrew the locknuts on either end of the conduit.
- Route the three conductors through the following:
 - a) The first locknut (inside of the pedestal)
 - b) The open pedestal hole
 - c) The conduit assembly
- Push the threaded end of the straight conduit fitting into the open pedestal hole. Reach inside of the pedestal and hand-tighten the locknut onto the conduit threads.
- Face the open end of the 90 degree conduit fitting forward for later insertion into the back of the charger.

For the Optional 1" Conduit Assembly:

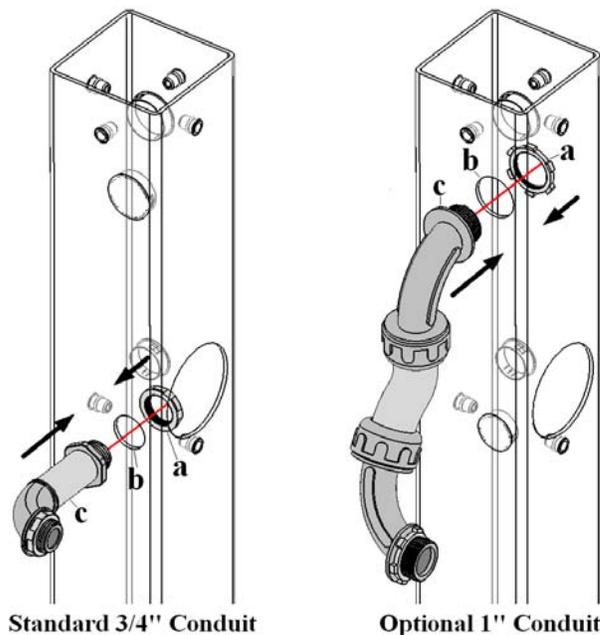
Some installations may require a conduit larger than the standard 3/4" assembly. For this purpose, an *optional 1"* conduit assembly may be requested. Follow these instructions to install the optional 1" conduit.

- Knock-out the 1" plastic plug located 3" down from the top of the pedestal on the left side.
 - Unscrew the locknuts on either end of the conduit.
 - Route the three conductors through the following:
 - a) The first locknut (inside of the pedestal)
 - b) The open pedestal hole
 - c) The conduit assembly
- The 1" conduit assembly may be disassembled to make it easier to pull the conduit through each fitting. Ensure the conduit is fully reassembled before proceeding.
- Push the threaded end of the straight conduit fitting into the open pedestal hole. Reach inside of the pedestal and hand-tighten the locknut onto the conduit threads.
 - Face the open end of the 90 degree conduit fitting forward for later insertion into the back of the charger.

For Dual-Mount Charger Installations:

- Install an appropriately-sized conduit assembly on *each* side of the pedestal post. The Dual-Mount Kit includes an additional 3/4" conduit assembly. The 1" conduit assembly is not included in the Dual-Mount Kit and must be requested separately.
- Face the open end of each conduit assembly toward the side of the pedestal where the corresponding charger will be installed.

Figure 8: Standard 3/4" and Optional 1" Conduit Assemblies



6. Install the Pedestal Post Cap

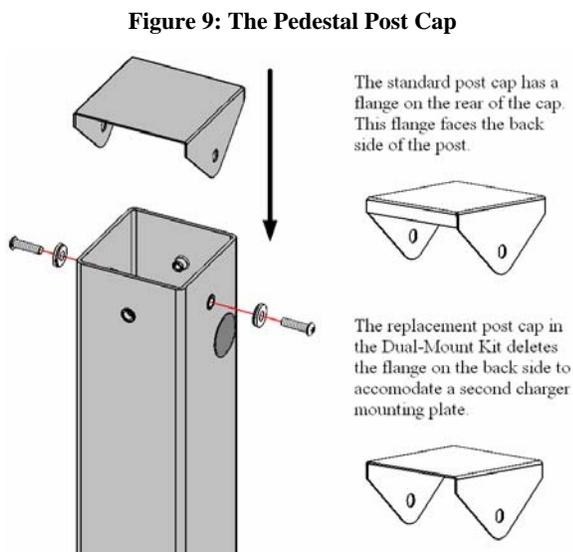
A pedestal cap is provided to cover the opening to protect the conductors and inner pedestal from the elements. Install the appropriate pedestal cap for a single or dual-mount charger installation.

For Single-Mount Charger Installations:

- Single-mount charger installations utilize the standard post cap provided in the pedestal kit. This post cap includes a flange on one side. Place the post cap onto the top of the pedestal, with the flange facing the rear.
- Align the screw hole on each side of the post cap with the corresponding thread insert on the side of the pedestal.
- Place a 1/4" Neoprene-bonded sealing washer around the shaft of two (2) 1/4-20 x 1" Torx button-head screws. The metal portion of the washer should face the head of the screw while the neoprene should face the tip of the screw.
- Secure the cap to the pedestal with the two (2) 1/4-20 x 1" Torx button-head screws (with washers) using a T27 Torx driver.

For Dual-Mount Charger Installations:

- Dual-mount charger installations utilize a *replacement* post cap provided in the Dual-Mount Kit. This post cap lacks a flange at the rear. Place the post cap onto the top of the pedestal.
- Align the screw hole on each side of the post cap with the corresponding thread insert on the side of the pedestal.
- Place a 1/4" Neoprene-bonded sealing washer around the shaft of two (2) 1/4-20 x 1" Torx button-head screws. The metal portion of the washer should face the head of the screw while the neoprene should face the tip of the screw.
- Secure the cap to the pedestal with the two (2) 1/4-20 x 1" Torx button-head screws (with washers) using a T27 Torx driver.



7. Install the Charger Mounting Plate

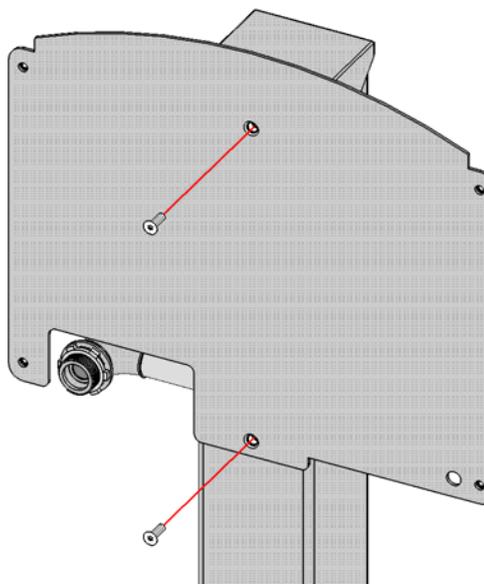
A charger mounting plate is affixed to the front of the pedestal post to provide a flat and rigid base on which the charger can be mounted. In the case of a dual-charger installation, a second mounting plate is affixed to the opposite side of the pedestal post.

- Hold the charger mounting plate against the front side of the pedestal post with the notch toward the left side to allow clearance for the conduit piece.
- Align the two screw holes along the centerline of the mounting plate with the corresponding thread inserts on the front of the pedestal post.
- Secure the mounting plate to the pedestal with the two (2) 1/4-20 x 3/4" Torx flat-head taper screws using a T27 Torx driver. Tighten until the head of the screws are flush with the surface of the mounting plate.

For Dual-Mount Charger Installations:

- The Dual-Mount Kit includes a second charger mounting plate. This second mounting plate is affixed to the back side of the pedestal post, opposite of the first mounting plate.
- As with the first mounting plate, align the two screw holes and tighten two (2) 1/4-20 x 3/4" Torx flat-head taper screws using a T27 Torx driver until the screw heads are flush with the surface of the mounting plate.

Figure 10: The Charger Mounting Plate



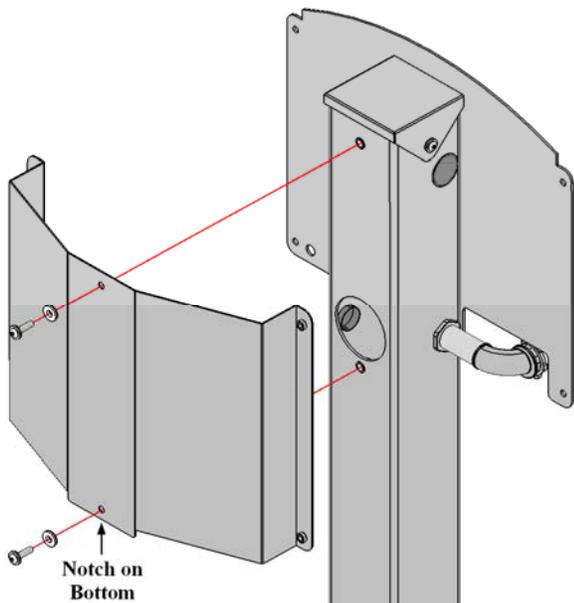
8. Install the Single-Charger Back Bracket

A bracket with thread inserts is included with the pedestal kit to make the installation more rigid and to provide threaded inserts for mounting the charger. *Note that this bracket is **not used** for dual-charger installations.*

- The top edge of the bracket is flush along its length, while the bottom edge of the bracket has metal notch in the middle to accommodate a screw hole.

- Hold the bracket against the back side of the pedestal post with the flanges coming into contact with the rear of the previously installed charger mounting plate.
- Align the two screw holes along the centerline of the bracket with the corresponding thread inserts on the back of the pedestal post.
- Place a 1/4" Neoprene-bonded sealing washer around the shaft of two (2) 1/4-20 x 1" Torx button-head screws. The metal portion of the washer should face the head of the screw while the neoprene should face the tip of the screw.
- ➔ **Note that the neoprene washer must be used to maintain a watertight seal.**
- Secure the bracket to the pedestal with the two (2) 1/4-20 x 1" Torx button-head screws (with washers) using a T27 Torx driver.

Figure 11: The Single-Charger Back Bracket

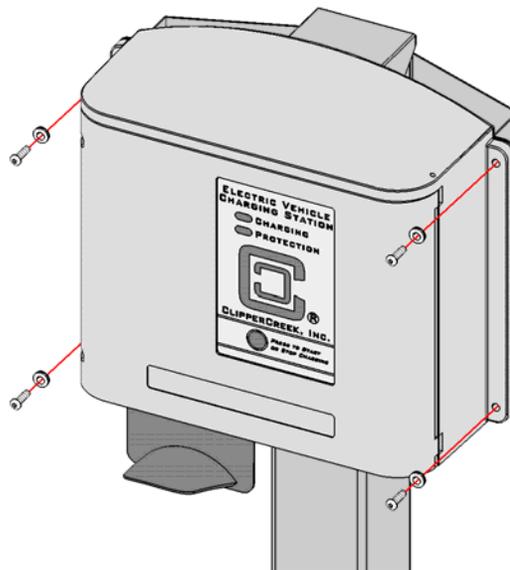


9. Mounting a Single Charger to the Pedestal

With the mounting plate and back bracket in place, the pedestal is now ready for a single charger to be mounted. For a *dual-charger* installation, proceed to step 10.

- Align the four screw holes on the side flanges of the charger with the corresponding screw holes in the mounting plate and the thread inserts on the back bracket.
- Place 1/4" Neoprene-bonded sealing washer around the shaft of four (4) 1/4-20 x 1" Torx button-head screws. The metal portion of the washer should face the head of the screw while the neoprene should face the tip of the screw.
- Secure the charger to the pedestal mounting plate and bracket with the four (4) 1/4-20 x 1" Torx button-head screws (with washers) using a T27 Torx driver.

Figure 12: Mounting a Single Charger



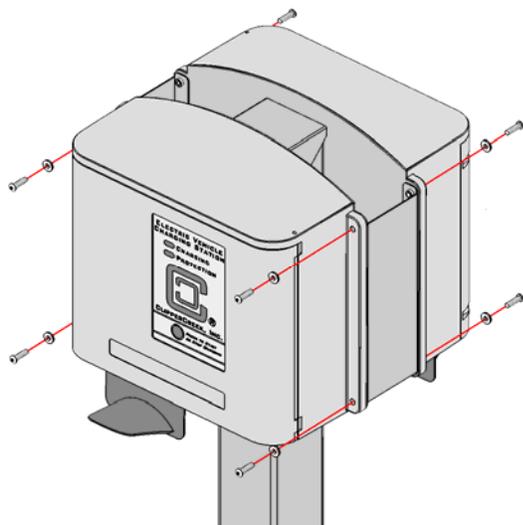
10. Mounting Two Chargers to the Pedestal

For an installation with two chargers affixed to the same post, the Dual-Mount Kit provides two side brackets to be used in place of the single back bracket.

➔ **This operation should be performed by two installers, one to hold the charger in place while the other secures the pedestal hardware.**

- Place 1/4" Neoprene-bonded sealing washer around the shaft of eight (8) 1/4-20 x 1" Torx button-head screws. The metal portion of the washer should face the head of the screw while the neoprene should face the tip of the screw.
- Align the four screw holes on the side flanges of the first charger with the corresponding screw holes in the front mounting plate.
- Align the two threaded inserts of each side bracket with the corresponding screw holes either side of the charger and mounting plate.
- Secure the charger to the side brackets with four (4) 1/4-20 x 1" Torx button-head screws (with washers) using a T27 Torx driver.
- Align the four screw holes on the side flanges of the second charger with the corresponding screw holes in the rear mounting plate.
- Secure the charger to both side brackets with four (4) 1/4-20 x 1" Torx button-head screws (with washers) using a T27 Torx driver.

Figure 13: Mounting Two Chargers with Side Brackets

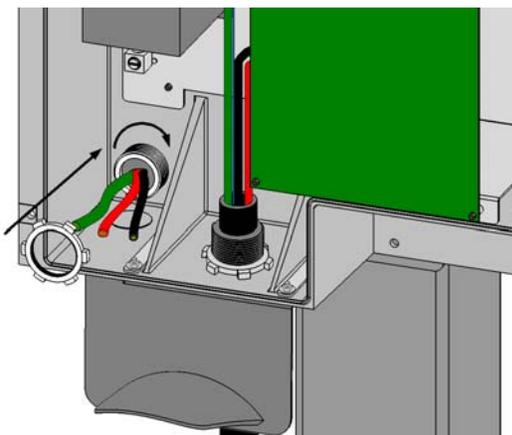


11. Seal the Conduit and Enclosure

It is necessary to ensure a good environmental seal between the conduit piece and the rear wall of the charger.

- To open the charger door, first remove the two door screws on the left side of the charger enclosure using a T15 Torx driver. Unlock the safety latch found on the bottom of the charger enclosure and swing the door open.
 - If it has not already been removed, knock out the plug found at the bottom left corner of the rear wall of the charger enclosure.
 - Pull the three conductor wires into the enclosure and insert the threaded end of the 90 degree conduit fitting into the open aperture.
 - Thread the remaining conduit locknut onto the conduit fitting and hand-tighten it until it is snug.
- ➔ **Apply silicone sealant to fill the conduit where it enters the enclosure. Use a sufficient quantity of silicone to ensure that no water or debris may enter the enclosure through the conduit.**

Figure 14: Tighten the Conduit Lock Nut

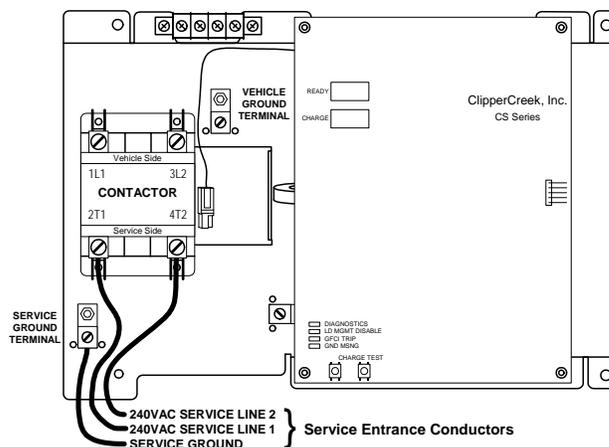


12. Wiring the Conductors to the Charger

The three service conductors must be wired to the charger’s internal chassis and contactor.

- Strip the end of the ground conductor and insert the exposed wire into the *Service Ground Terminal Block*.
- Tighten the *Service Ground Terminal* screw using an appropriately sized flathead screwdriver.
- Strip the ends of the two live conductors. Insert the exposed wire of the first live conductor into the “2T1” terminal on the bottom of the contactor.
- Insert the exposed wire of the second live conductor into the “4T2” terminal on the bottom of the contactor.
- Tighten the contactor terminal blocks using ¼” flathead screwdriver or 5/32” hex head wrench.

Figure 15: Wire Service Conductors to the Chassis



13. Complete the Installation

- Close the charger door and lock the safety latch. Replace the two door screws on the left side of the charger enclosure and tighten them using a T15 Torx driver. **Do not overtighten.**
- Verify the safety of the installation prior to turning on the circuit breaker.
- Refer to the Charging Station User’s Guide for further operational and maintenance information.



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Standard EVSE Pedestal Installation Guide
Version 1.1, November, 2009

Appendix B5

Safe Connect Product Data



**THE HYBRID eTRU
REVOLUTION IS HERE**
HOW YOU PLUG IN MATTERS

A New Standard in **Electric Standby Systems**



6 PINS for safety

Take a closer look at SafeConnect's innovative 6-pin standard for eTRU electric standby connection. The 2 extra pins in the 6-pin plug govern the safety control circuit. Because these 2 extra pins are shorter, upon disconnection, they break contact first, and the system automatically shuts down the high voltage power at every point. In the event of an accidental drive-off, the system's quick release adaptor senses tension and will disconnect from the trailer. SafeConnect eliminates the dangers and costs of human error.

6 REASONS FOR **SAFECONNECT**



Eliminates
Unattended
Live Wires



Mitigates
Arcing



Eliminates
Drive-Off
Damages



EPA
Smartway
Verified



Grant
Opportunities



Easy to
Install
and Use

POTENTIAL **DANGERS** of TRADITIONAL 4-PIN SYSTEMS

Mitigates the human error inherent in other e-Standby connection systems.

REPEATED
ARCING

PLUG
SCARRING

MOTOR
BURNOUT

\$\$\$

REPLACEMENT
COSTS

ACCIDENTAL
ELECTROCUTION

UNATTENDED
LIVE WIRES

DISCHARGE
ARCING

ACCIDENTAL DRIVE-OFFS
EXPOSING LIVE WIRES



THE ONLY ELECTRIC STANDBY SYSTEM THAT OFFERS
BEST PRACTICE SAFETY AND A SECOND ROI

Only SafeConnect can give you a second ROI by mitigating the arcing experienced with traditional 4-pin systems and extending the life of expensive electric motors and plugs. Avoiding the costs of premature motor burnout and scarred plugs can potentially save tens of thousands of dollars annually.

SMARTWAY
VERIFIED

ENERGY SAVINGS

REDUCED
ARCING

GRANT
MONEY

REDUCED
MOTOR BURNOUT
& PLUG SCARRING

It **PAYS** for itself.

REQUEST A **DEMO**

To learn more about SafeConnect or request a product demonstration:

CALL: (844) 787-2332

EMAIL: info@safecconnectsystems.com



Good Afternoon,

This letter's purpose is to introduce you to the **SafeConnect** electric standby connection system for reefer trucks and trailers.

SafeConnect is a patented electric standby connection system designed to safely provide power to "electric standby" and "hybrid electric" TRUs (transport refrigeration units) found on reefer trucks and trailers. **SafeConnect's** exclusive features prevent and eliminate injury, electrocution, and infrastructure damage that can arise from accidents that occur when using traditional 3-phase high voltage/amperage plug-in systems. **SafeConnect** is different!

Traditional e-Standby systems are archaic in their design use of on/off control boxes, heavy extension cords, and 230/480V twist lock plugs. There are no safety features to prevent damage and injury from occurring from an accidental drive-off with a locking plug, or an arc flash from occurring when unplugging a "hot" plug. Unattended systems can be live at any time and expose people to electrocution risk through seemingly limitless scenarios of incidental contact. High voltage/amperage electricity is extremely dangerous!

With **SafeConnect**, there's no such thing as a dangerous unattended live-wire. The **SafeConnect** docking station must be plugged-in to the reefer truck or trailer **before** a power-line communication and control mechanism will allow the unit to be switched-on and energized. It makes use of proprietary quick-release smart plugs, a 6-wire transmission cable, a safety-circuit, and intelligent control box that governs the initial electrical connection, allows for a damage-free quick-release plug separation under tension (**such as a drive-off**), and provides a shock-free, arc-less, failsafe power shut-down in the event of a plug disconnection (**even under load**).

SafeConnect is UL listed and built in the USA to NEC code. It is available in 230V and 480V systems with stanchion mount and dockside use design variants.

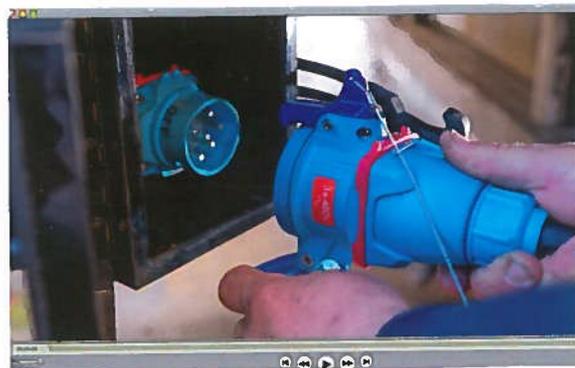
SafeConnect is the **ONLY 100% SAFE** electric standby connection system on the market. Its redundant safety engineering protects people and equipment, and reduces the liability exposure that always accompanies a preventable tragic accident.

For additional information, please go to www.safeconnectsystems.com and watch the 3 minute video to see the **SafeConnect** difference.

Regards,

Bob Provencher

Director of Sales



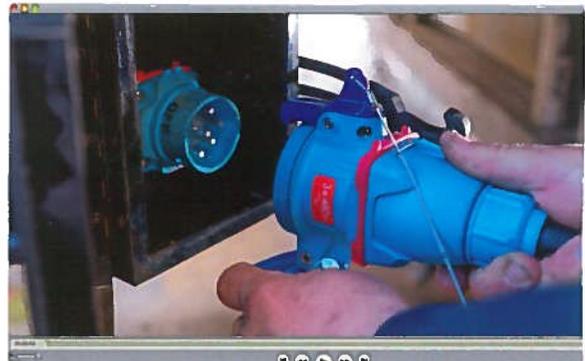
844-R-U-SAFE-2 (844-787-2332)

HOW DOES SAFECONNECT WORK?

SafeConnect is the ONLY 100% SAFE electric standby connection system on the market today. Its patented engineering design eliminates the impact potential of accidents caused by human error.

- The system consists of proprietary quick-release plugs and logic circuitry that incorporate state of the art features.
- The plug design allows for a mechanical disconnect of the receptacle from the plug that will occur upon tension on the power cable (*as in an accidental drive-off*). The spring tensioned silver-nickel butt contacts found in the receptacle will literally cause it to eject from the vehicle mounted male plug should the cable-tension-trigger mechanism be tripped.
- The 3 phase high voltage system is energized by activating its 24V DC low amperage control circuitry that operates on power transformed from its 3 phase power feed.
- Connecting the 6-pin (spring loaded pin & sleeve) plug and receptacle closes a DC jumper circuit imbedded in the 6-wire transmission cable. Once closed, the jumper circuit provides DC power to the green LED "ON" push-button switch. ***The system can NEVER be in an energized state unless its receptacle and plug are connected.***
- Once the receptacle and plug are connected, pressing the "ON" button provides DC power to and closes a 3 phase contactor, which energizes the cable, receptacle, plug, and refrigeration circuitry, lighting up the green LED "ON" indicator and turning off the red LED "OFF" indicator.
- Pressing the "OFF" button while in an energized state with plug and receptacle connected opens the 3 phase contactor, de-energizes the system, lights up the red LED and turns off the green LED.
- Disconnecting the receptacle from the plug while in an energized state (*as in an accidental drive-off or operator forgetting to first shut down the power*) opens the DC jumper control circuit ***before*** opening the individual phase butt contacts in the plug/receptacle connection, which removes DC power to and opens the 3 phase contactor, completely de-energizing the entire system before a dangerous arc has a chance to develop (*as will happen with other plug/system designs when disconnecting under full load*), lighting up the red LED and turning off the green LED.

For more information call (844) R-U-SAFE-2, (844) 787-2332, or go to www.safeconnectsystems.com .



SafeConnect e-Standby Systems Completely Eliminate the Constant Need for Plug & Receptacle Replacements Caused by High Amperage Electrical Arcing...

How Much Money Will THAT Save You?

A series of meetings with a large dairy consortium revealed that they are probably having to replace an average of 2 sets of traditional 230/480V electric standby plug/receptacles per truck/trailer per year because of arc damage to brass contacts caused by the “hot-plugging” of these high amperage connections. The extreme heat generated by even a momentary arc flash causes the contactors to vaporize and erode to the point of failure. Replacement plugs and receptacles are very expensive and require an electrician’s time to install...

With SafeConnect, the possibility of arcing is completely eliminated! The result is a plug and receptacle design that will last 10+ years of regular use without the hassle, downtime, and cost of replacement.



www.safeconnectsystems.com

844-R-U-SAFE-2 (844-787-2332)



SAFECONNECT®

SIX pins for safety

Wiring Diagram for SafeConnect 480V Single Standard (SCDS480-0) Docking Station



US Patent Nos.: 8764469 B2 and 9093788 B2

Canada Patent No.: 2886586

Mexico Patent No.: 340097

Manufactured by: SafeConnect Systems, LLC

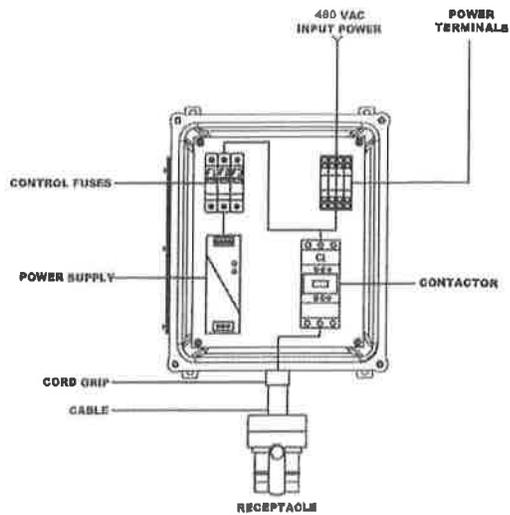
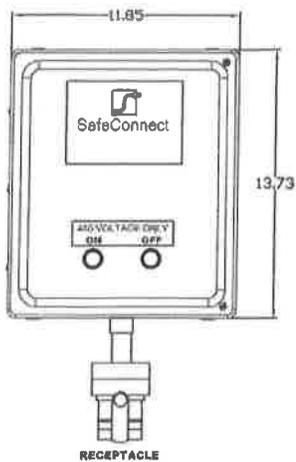
75 Dartmouth Street

South Portland, ME 04106

207-767-7529

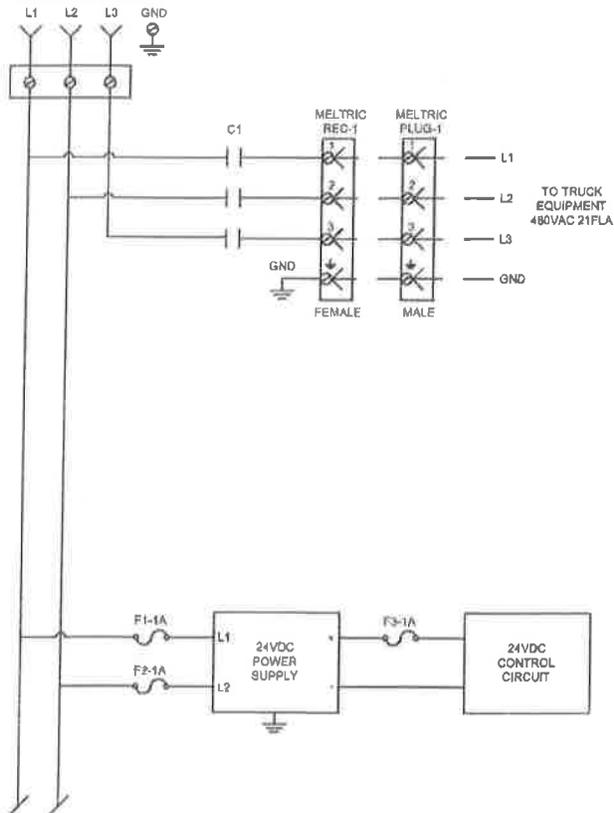
Toll Free: 844 R U SAFE 2

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NOTE:
ENCLOSURE
IS 6" DEEP

480VAC THREE PHASE FEED
DISCONNECT AND BRANCH
CIRCUIT PROTECTION
PROVIDED BY OTHERS



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CUSTOMER PO	DATE	TOTAL SHEETS 1	DWN BY JFK	REV NO. R00	DRAWING NUMBER	SHEET 01



SAFECONNECT®

SIX pins for safety

Wiring Diagram for SafeConnect 480V Single Remote (SCDS480-2) Docking Station



US Patent Nos.: 8764469 B2 and 9093788 B2

Canada Patent No.: 2886586

Mexico Patent No.: 340097

Manufactured by: SafeConnect Systems, LLC

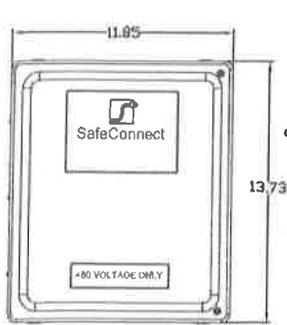
75 Dartmouth Street

South Portland, ME 04106

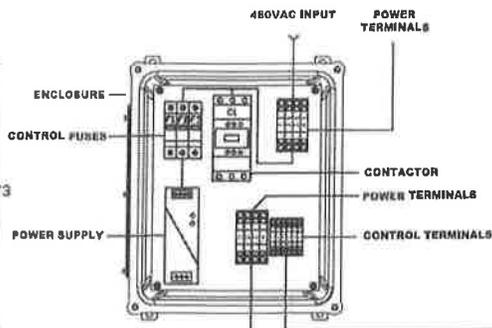
207-767-7529

Toll Free: 844 R U SAFE 2

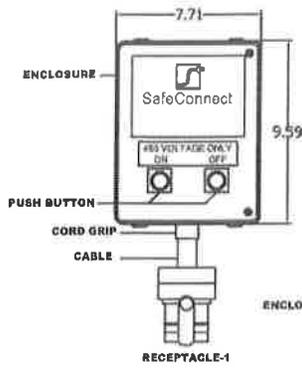
info@SafeConnectSystems.com



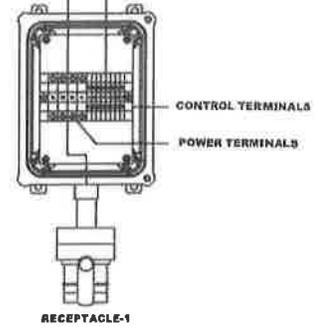
NOTE: ENCLOSURE IS 8" DEEP



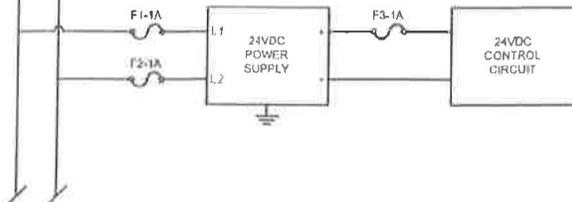
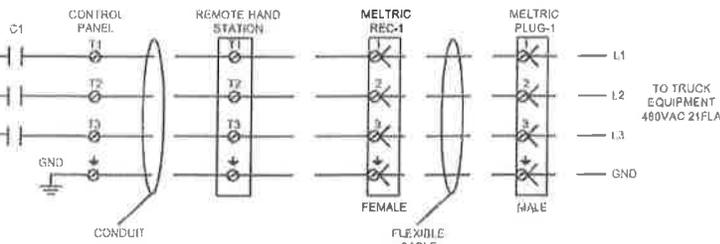
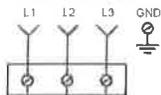
6 CONTROL WIRES
24VDC .5AMP



ENCLOSURE IS 4.81" DEEP



480VAC THREE PHASE FEED
DISCONNECT AND BRANCH
CIRCUIT PROTECTION
PROVIDED BY OTHERS



CUSTOMER ATLANTIC DYNAMICS	TITLE 480V SINGLE REMOTE	SafeConnect (207) 767-7529 safeconnectsystems.com				
CUSTOMER PO	DATE	TOTAL SHEETS 1	DWN BY JFK	REV NO. ROO	DRAWING NUMBER	SHEET 01



SAFECONNECT®

SIX pins for safety

Wiring Diagram for SafeConnect 480V Double Remote (SCDS480-3) Docking Station



US Patent Nos.: 8764469 B2 and 9093788 B2

Canada Patent No.: 2886586

Mexico Patent No.: 340097

Manufactured by: SafeConnect Systems, LLC

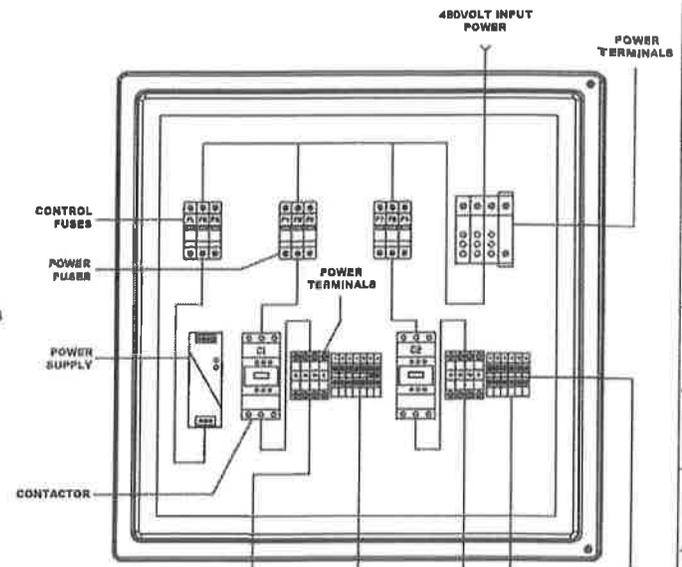
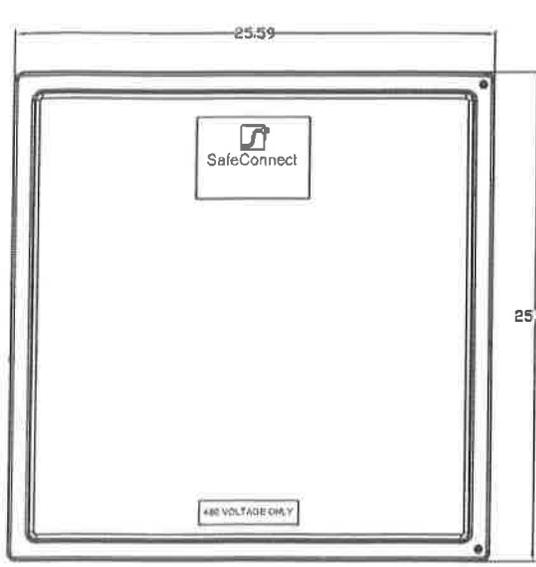
75 Dartmouth Street

South Portland, ME 04106

207-767-7529

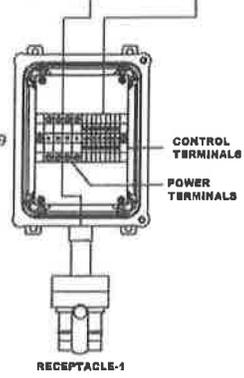
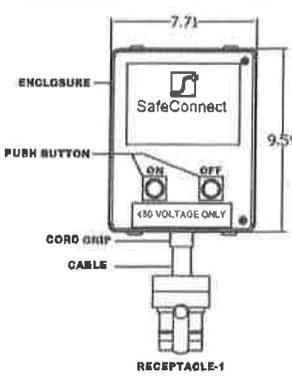
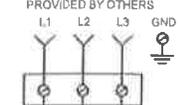
Toll Free: 844 R U SAFE 2

info@SafeConnectSystems.com

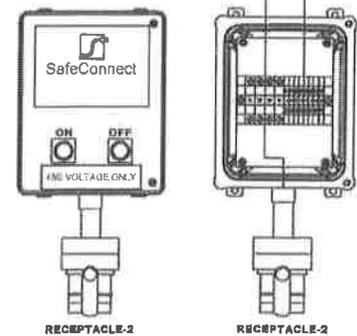
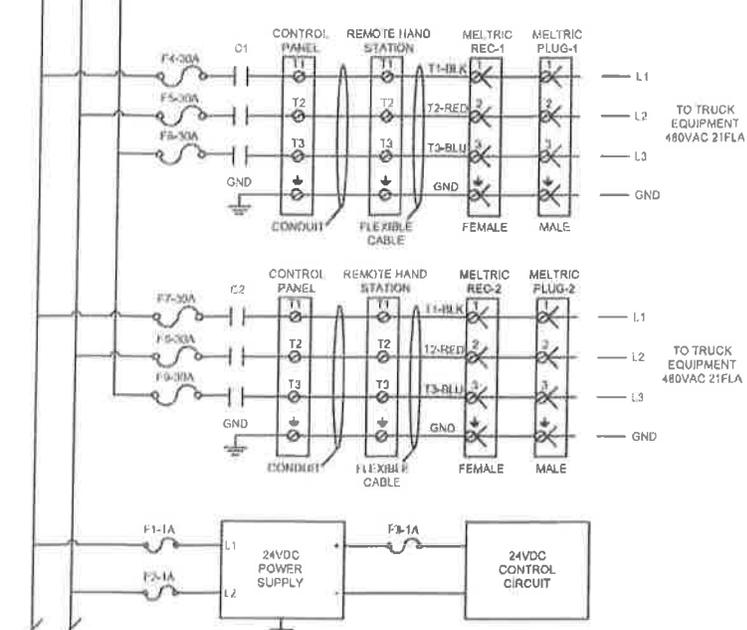


NOTE:
ENCLOSURE
IS 12" DEEP

480VAC THREE PHASE FEED
DISCONNECT AND BRANCH
CIRCUIT PROTECTION
PROVIDED BY OTHERS



6 CONTROL WIRES
24VDC .5AMP



ENCLOSURE IS 4.81" DEEP

CUSTOMER ATLANTIC DYNAMICS	TITLE 480VOLT DOUBLE REMOTE	SafeConnect (207) 767-7529 safeconnectsystems.com			
CUSTOMER PO	DATE	TOTAL SHEETS 1	DWN BY JFK	REV NO. R00	DRAWING NUMBER SHEET 01

**PG&E Gas and Electric
Advice Submittal List
General Order 96-B, Section IV**

AT&T	Downey & Brand	Pioneer Community Energy
Albion Power Company	East Bay Community Energy	Praxair
Alcantar & Kahl LLP	Ellison Schneider & Harris LLP	
	Energy Management Service	
Alta Power Group, LLC	Engineers and Scientists of California	Redwood Coast Energy Authority
Anderson & Poole	Evaluation + Strategy for Social Innovation	Regulatory & Cogeneration Service, Inc.
	GenOn Energy, Inc.	SCD Energy Solutions
Atlas ReFuel	Goodin, MacBride, Squeri, Schlotz & Ritchie	
BART	Green Charge Networks	SCE
	Green Power Institute	SDG&E and SoCalGas
Barkovich & Yap, Inc.	Hanna & Morton	
P.C. CalCom Solar	ICF	SPURR
California Cotton Ginners & Growers Assn	International Power Technology	San Francisco Water Power and Sewer
California Energy Commission	Intestate Gas Services, Inc.	Seattle City Light
California Public Utilities Commission	Kelly Group	Sempra Utilities
California State Association of Counties	Ken Bohn Consulting	Southern California Edison Company
Calpine	Keyes & Fox LLP	Southern California Gas Company
	Leviton Manufacturing Co., Inc. Linde	Spark Energy
Cameron-Daniel, P.C.	Los Angeles County Integrated Waste Management Task Force	Sun Light & Power
Casner, Steve	Los Angeles Dept of Water & Power	Sunshine Design
Cenergy Power	MRW & Associates	Tecogen, Inc.
Center for Biological Diversity	Manatt Phelps Phillips	TerraVerde Renewable Partners
City of Palo Alto	Marin Energy Authority	Tiger Natural Gas, Inc.
	McKenzie & Associates	
City of San Jose	Modesto Irrigation District	TransCanada
Clean Power Research	Morgan Stanley	Troutman Sanders LLP
Coast Economic Consulting	NLine Energy, Inc.	Utility Cost Management
Commercial Energy	NRG Solar	Utility Power Solutions
County of Tehama - Department of Public Works		Utility Specialists
Crossborder Energy	Office of Ratepayer Advocates	
Crown Road Energy, LLC	OnGrid Solar	Verizon
Davis Wright Tremaine LLP	Pacific Gas and Electric Company	Water and Energy Consulting Wellhead Electric Company
Day Carter Murphy	Peninsula Clean Energy	Western Manufactured Housing Communities Association (WMA)
		Yep Energy
Dept of General Services		
Don Pickett & Associates, Inc.		
Douglass & Liddell		