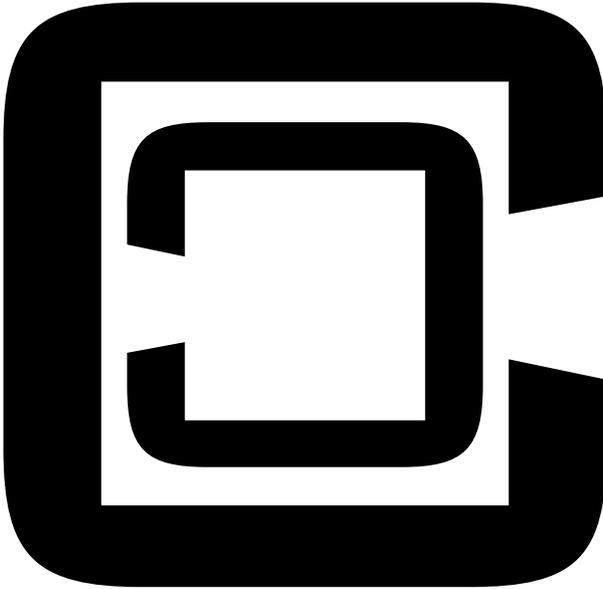


CLIPPERCREEK, INC.

INNOVATIVE INFRASTRUCTURE FOR
ELECTRIC AND HYBRID VEHICLES



User Manual



CP-50

PLEASE NOTE

This user 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 may void the product warranty.

Contact a Customer Service Representative with any questions about the use of this product.



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



AVERTISSEMENT: Ce produit peut vous exposer à des agents chimiques, y compris Noir Carbone, identifiés par l'État de Californie comme pouvant causer le cancer. Pour de plus amples informations, prière de consulter: www.P65Warnings.ca.gov



ADVERTENCIA: Este producto puede exponerte a químicos, incluso Negro Carbón, que se conocido por el Estado de California como causante de cáncer. Para más información visite: www.P65Warnings.ca.gov

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CONTENTS

OVERVIEW5

VERIFY VEHICLE CHARGE REQUEST RESPONSE6

PROXIMITY SIGNAL TEST6

LINE 1, LINE 2/N EVSE OUTPUT TEST.....7

PILOT COMMUNICATION SIGNAL TEST7

CCID TRIP POINT9

RESET THE EVSE.....9

CUSTOMER SUPPORT10

WARRANTY INFORMATION11

ILLUSTRATIONS

Figures

1. The CP-50	5
2. Connector in CP-50	6
3. Pilot Signal State B, Charge Not Requested	8
4. Pilot Signal State C, Charge Requested	8
5. CCID Trip Point	9

OVERVIEW

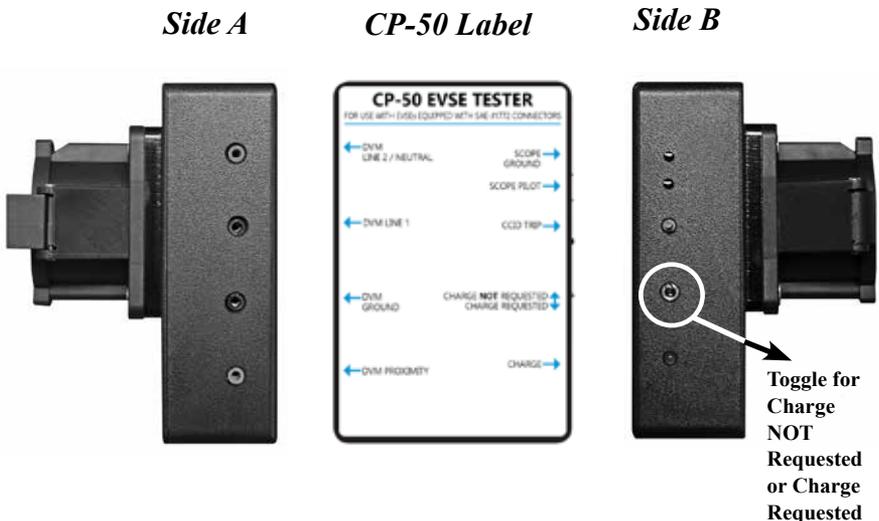
The CP-50 is an optional piece of test equipment which can be used to confirm the correct operation of an EVSE after installation without an electric vehicle present. The primary purpose of the CP-50 is to confirm that the EVSE responds to a charge request and that the EVSE properly responds to a ground fault condition.

The installer may test the EVSE charge request response with the CP-50 tester alone. Additional communications signal, proximity signal and output voltage measurements are facilitated by using an oscilloscope or Digital Voltage Meter (DVM) in conjunction with the CP-50.

Functions of the CP-50 include:

- 1) Verification of EVSE response to vehicle charge request
- 2) Verification of the Proximity Signal with a DVM
- 3) Verification of Line 1, Line 2 / Neutral EVSE outputs with a DVM
- 4) Verification of the Pilot communication signal with an oscilloscope
- 5) Verification that the CCID safety circuit is functioning properly

Figure 1: The CP-50



VERIFY VEHICLE CHARGE REQUEST RESPONSE

Confirm service line power is applied to the EVSE; the “Power” light will be lit on the EVSE. On Side B of the CP-50, verify that the toggle is switched to “Charge NOT Requested.” See **Figure 1**.

Plug the EVSE *SAE-J1772*TM Connector into the CP-50 test fixture. See **Figure 2**. No lights on the CP-50 will be illuminated when a charge is not requested. Flip the vehicle Charge Request toggle to “Charge Requested.” The red light on the side of the CP-50 will illuminate to indicate that power is applied to the CP-50 tester.

Figure 2: Connector in CP-50



PROXIMITY SIGNAL TEST

Flip the vehicle Charge Request toggle to “Charge NOT Requested,” then plug the EVSE *SAE-J1772*TM connector the into the CP-50 test fixture. See **Figure 2**.

Set DVM to measure ohms and connect to the DVM Proximity and DVM Ground testpoints located on Side A of the CP-50. See **Figure 1**. The resistance should measure between 127 and 156 ohms.

Press and hold the *SAE-J1772*TM connector button down to disengage the proximity circuit, leaving the EVSE plugged in. The resistance should now measure between 366 and 448 ohms.

LINE 1, LINE 2/N EVSE OUTPUT TEST



WARNING: RISK OF ELECTRIC SHOCK! Service line voltage is present at these testpoints. It is suggested that the following steps be performed in the order shown below.

Plug the EVSE *SAE-J1772™* connector into the CP-50 test fixture. Connect a DVM to the DVM Line 1 and DVM Line 2 / Neutral testpoints located on Side A of the CP-50. See **Figure 1**. The DVM should read less than 15VAC.

Flip the vehicle Charge Request toggle to “Charge Requested.” The red light will illuminate to indicate that power is applied to the CP-50 tester. The DVM should read line voltage (the same voltage as the service power to the EVSE).

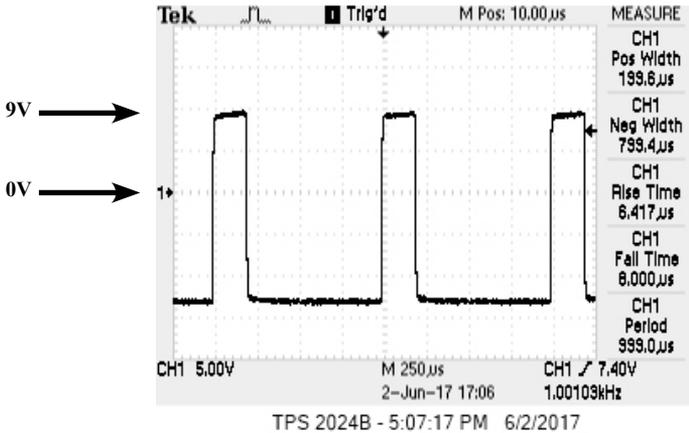
Reverse the vehicle Charge Request toggle to “Charge NOT Requested” to turn off the charge. The red light turns off on the CP-50 tester when a charge is no longer requested. This process can also be used to measure the voltage on each line to ground if additional troubleshooting is required.

PILOT COMMUNICATION SIGNAL TEST

With the vehicle Charge Request toggle in the “Charge NOT Requested” position, plug the EVSE *SAE-J1772™* connector into the CP-50 test fixture and use an oscilloscope to verify the Pilot communication square wave signal. The Scope Ground and Pilot connection point are located on Side B of the CP-50.

SAE-J1772™ Pilot State B should be visible on the oscilloscope. The positive portion of the signal should be approximately +9 VDC, indicating a charge has not been requested. See **Figure 3**.

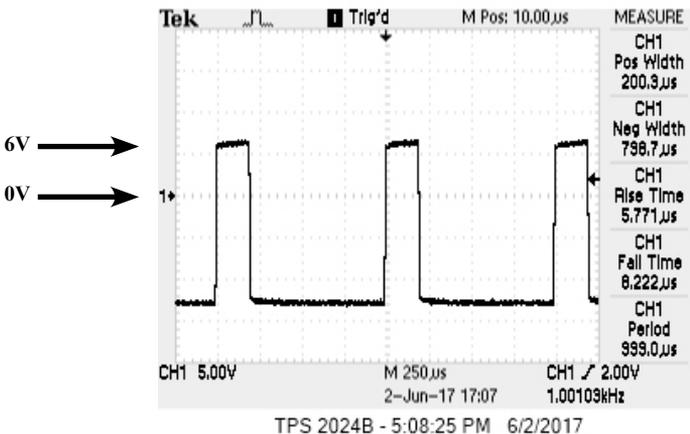
Figure 3: Pilot Signal State B, Charge Not Requested



Flip the vehicle Charge Request toggle to “Charge Requested.” The red light will illuminate to indicate that power is applied to the CP-50 tester and the EVSE will also indicate a charge in progress.

Use an oscilloscope to verify the Pilot communication square wave signal. The Scope Ground and Pilot connection point are located on Side B of the CP-50. *SAE-J1772™* Pilot State C should be visible on the oscilloscope. The positive portion of the signal should be approximately +6 VDC, indicating a charge has been requested. See **Figure 4**.

Figure 4: Pilot Signal State C, Charge Requested



CCID TRIP POINT

Verify that the toggle is switched to “Charge Not Requested” plug the EVSE SAE-J1772™ connector into the CP-50 test fixture. Flip the toggle to “Charge Requested,” simulate a ground fault by pressing the pushbutton on Side B labeled “CCID TRIP.” The red LED light on the CP-50 will turn off when the fault is found. The Fault or Protection light on an EVSE will illuminate to indicate a fault. **Figure 5** shows the “CHARGING FAULT” light that illuminates on a ClipperCreek EVSE when the CCID TRIP button is pushed. Note that other brands of EVSEs may appear differently when indicating a fault.

Figure 5: CCID Trip Point



RESET THE EVSE

Depending on the manufacture date ClipperCreek HCS, LCS, ECS, ACS, and PCS product lines will automatically clear the fault condition after approximately 30 seconds or 17 minutes; to clear the fault immediately, cycle power to the EVSE by turning the supply breaker off and back on. To reset ClipperCreek CS Series disconnect the CP-50 and reconnect it. If testing another brand of EVSE, refer to the manufacturer-provided user manual for reset instructions.

CUSTOMER SUPPORT

Call your ClipperCreek, Inc. 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.** This information is printed on the label on the back of the CP-50 enclosure. If your call is made after business hours or on weekends, please leave your name, telephone number, the unit serial number, and a brief description of the problem. A Service Representative will call back at the earliest opportunity.

<p>Distributor Service Number Here</p>

TO CONTACT CLIPPERCREEK, INC. DIRECTLY FOR SERVICE CALL (877) 694-4194 MONDAY - FRIDAY BETWEEN 8:00AM AND 5:00PM PACIFIC TIME.

WARRANTY INFORMATION

LIMITED WARRANTY ELECTRIC VEHICLE SUPPLY EQUIPMENT and ACCESSORIES

ClipperCreek, Inc.
11850 Kemper Road
Auburn, California 95603
Phone: (877) 694-4194
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:

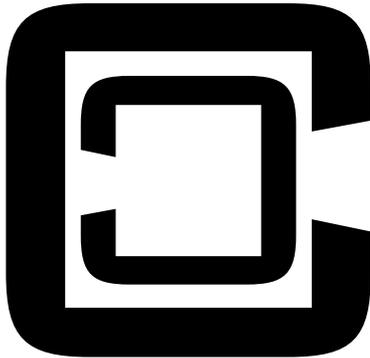
ClipperCreek, Inc. warrants this product to be free from defects in material and workmanship. The warranty period shall commence on the date of installation date (first use). The product installation date must be evidenced and communicated to ClipperCreek by way of the warranty registration card (or 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.



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