

CLIPPERCREEK

A division of Enphase Energy, Inc.



User Manual



CP-50

PLEASE NOTE

This user manual includes the latest information at the time of printing. Enphase Energy, 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



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OVERVIEW

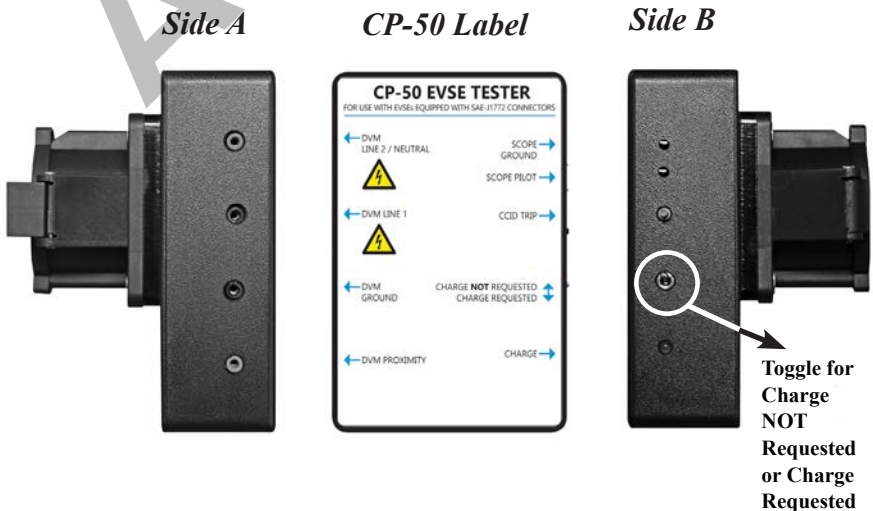
The CP-50 is an optional piece of test equipment which can be used to confirm the correct operation of an EVSE after installation without an electric vehicle present. The primary purpose of the CP-50 is to confirm that the EVSE responds to a charge request and that the EVSE properly responds to a ground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

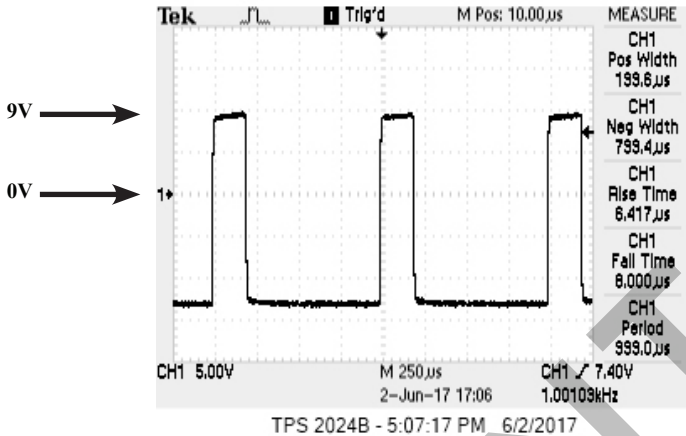
Flip the vehicle Charge Request toggle to “Charge Requested.” The red light will illuminate to indicate that power is applied to the CP-50 tester. The DVM should read line voltage (the same voltage as the service power to the EVSE).

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

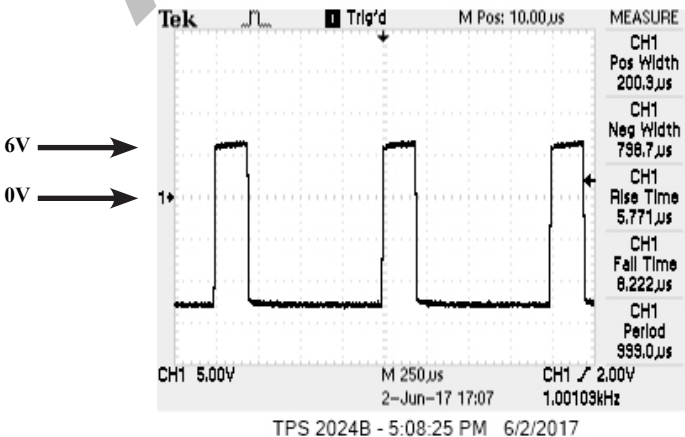
With the vehicle Charge Request toggle in the “Charge NOT Requested” position, plug the EVSE SAE J1772 connector into the CP-50 test fixture and use an oscilloscope to verify the Pilot communication square wave signal. The Scope Ground and Pilot connection point are located on Side B of the CP-50.

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.