



tescometering.com

**OPERATIONS**

**MANUAL**

**ELECTRIC VEHICLE  
SUPPLY EQUIPMENT  
(EVSE) LOAD SYSTEM  
– PL4150**

# ELECTRIC VEHICLE SUPPLY EQUIPMENT (EVSE) LOAD SYSTEM – PL4150 OPERATIONS MANUAL



tescometering.com

© 2024 TESCO - The Eastern Specialty Company

All Rights Reserved.

Specifications are subject to change without prior notice.

Revision: 1

**TESCO – The Eastern Specialty Company**

925 Canal Street Bristol, PA, 19007

Phone: 215.228.0500

[support@tescometering.com](mailto:support@tescometering.com)

[instrument.tescometering.com](http://instrument.tescometering.com)

---

## LIMITED WARRANTY & LIMITATION OF LIABILITY

TESCO warrants to the original purchaser that it will correct all defects in material and/or workmanship in the instrument, test equipment or software covered by this warranty (herein called "PRODUCT"), provided that TESCO is notified of such defect within the warranty period (set forth below) in accordance with paragraph four of this Warranty.

**WARRANTY PERIOD.** The warranty period shall begin on the date of shipment of the PRODUCT or the date of the issuance of this warranty certificate, whichever is later. If no warranty period is specified below and signed by an authorized DISTRIBUTOR of TESCO, the Warranty Period shall be one (1) year. In no event shall this Warranty remain in effect for more than the stated Warranty Period plus two (2) months after the date of shipment. TESCO's sole obligation and the purchaser's sole remedy under this Warranty is limited to repair or replacement, at TESCO's option, free of charge, F.O.B. TESCO's factory at Bristol, PA of any workmanship and/or part which in TESCO's sole judgment displays evidence of defect. On-site Warranty repairs will be made when in TESCO's judgment the PRODUCT cannot practically be shipped to TESCO's factory. Any modifications, additions or upgrades made to the PRODUCT or control software after this warranty becomes effective shall not extend the term of this warranty.

**COVERAGE.** The warranty set forth above shall be applicable only if the PRODUCT:

1. Is used for the specific purpose for which it was intended;
2. Is operated in accordance with instructions, if any, supplied by TESCO;
3. Has not been modified, neglected, altered, tampered with, vandalized, abused or misused, or subjected to accident, fire, flood or other casualties;
4. Has not been repaired by unauthorized persons;
5. Has not had its serial number altered, defaced or removed;
6. Has not been connected, installed or adjusted other than in accordance with the instructions, if any, furnished by TESCO.

The warranty set forth herein DOES NOT APPLY to defects resulting from ordinary wear, tear and usage, or any cause, similar or dissimilar, not resulting solely from defective material and/or workmanship.

The Warranty set forth herein shall NOT be effective unless:

1. Notice of defect is given to TESCO by phone, fax, email, or mail as soon as the defect is discovered.
2. Notice of defect contains the following information: PRODUCT serial number, PRODUCT model number, date of original installation, and an accurate and complete description of the defect including the exact circumstances leading to the defect.
3. The defective PRODUCT or part is returned only upon authorization from TESCO as evidenced by the issuing of a Return Merchandise Authorization (RMA) number, and that the transportation charges are prepaid (except that TESCO may, at its option, appoint a qualified DISTRIBUTOR to make field inspections of the PRODUCT for which purpose the purchaser shall permit such DISTRIBUTOR to enter upon its premises and examine the PRODUCT).
4. The Return Merchandise Authorization (RMA) number is written on the shipping label and all paperwork defective PRODUCT or part.
5. The defective PRODUCT or part is returned in the original packing or packing approved by TESCO

TESCO is not responsible for drayage charges, damages or labor costs incurred in conjunction with failure, removal, or reinstallation of any PRODUCT, all of which shall be at the purchaser's expense. TESCO is not responsible for special, incidental, or consequential damages, whether resulting from breach of warranty, negligence, or any other reason.

TESCO manufactured parts will be available for a minimum period of at least two years after the manufacture of a PRODUCT has been discontinued.

TESCO will provide original purchaser during the Warranty Period, unlimited telephone consulting time for the purpose of PRODUCT trouble shooting/servicing and for the first thirty (30) days of the Warranty Period, unlimited telephone consulting time for the purpose of PRODUCT/software application.

**THE WARRANTY CONTAINED HEREIN IS IN LIEU OF ALL OTHER WARRANTIES AND TESCO MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, WARRANTIES OR CONDITION, DESIGN, MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR ANY OTHER MATTER.**

No other Warranty, express or implied, is authorized by TESCO, and no DISTRIBUTOR of TESCO or any other person has any authority to amend, extend, modify, enlarge, or otherwise alter the foregoing warranty and disclaimers in any way whatsoever, except as provided for in an Extended Limited PRODUCT Warranty Agreement.

# 1.0 INTRODUCTION

1.1 Introduction .....	2
1.2 Contacting TESCO.....	2
1.3 General Safety Summary.....	2
1.3.1 Description of Safety-related Icons .....	2
1.3.2 Safety Precautions .....	2
1.4 Product Features.....	3
1.5.1 Key Features.....	3
1.5 General Specifications.....	3
1.5.1 Product Specifications.....	3
1.5.2 Dimensions .....	3
1.5.3 Environment.....	4
1.6 About this Operations Manual .....	4

## 1.1 Introduction

TESCO's PL4150 is a dedicated load emulator solution providing no-load and adjustable-load modes.

## 1.2 Contacting TESCO



For Technical Support or Calibration/Repair, please call 215.228.0500.

You can also send an email to [support@tescometering.com](mailto:support@tescometering.com) with any questions.

To view, print, or download the latest manual supplement, visit [instrument.tescometering.com](http://instrument.tescometering.com).

## 1.3 General Safety Summary

### 1.3.1 Description of Safety-related Icons

ICONS	DESCRIPTION
	Risk of danger. Important information. See manual.
	Hazardous voltage. Risk of electrical shock.

### 1.3.2 Safety Precautions

This manual contains information and warnings that must be observed to ensure safe operation and keep the PL4150 in a safe condition. Operation or service in conditions or in a manner other than specified could compromise safety. For the correct and safe use of this device, **it is essential that both operating and service personnel follow accepted safety procedures in addition to the safety precautions specified**, including PPE guidelines.

In this manual, a **WARNING** identifies conditions and actions that pose hazard(s) to the user, while a **CAUTION** identifies conditions and actions that may damage the PL4150 or the test equipment.

#### **WARNING**

To avoid electrical shock, personal injury, or fire hazard:

- Both devices, PL4150 and T4350/T4000 must not be switched ON if it is damaged or suspected to be faulty.
- Do not operate the device(s) in wet, condensing, dusty, or explosive gas conditions.
- If the PL4150 gets wet, wait until the unit is completely dry before operation. Droplets of water on the lid could splash inside the frame, and water from the outside of the unit could touch the Staubli pins.

- If the equipment is used in a manner not specified in this manual, the protection provided by the PL4150 and the T4350/T4000 may be impaired.
- Whenever it is likely that safety protection has been impaired, the devices must be made inoperative and be secured against any unintended operation. Inform qualified maintenance or repair personnel.
- Safety protection is likely to be impaired if, for example, the PL4150 and or T4350/T4000 displays visible damage or fails to operate normally.
- NEVER touch the PL4150 during or shortly after operation. The frame can get extremely hot. Only the grill handle can be touched after a completed test finishes the cool down.
- Ensure that after testing, the E-stop is placed in a safe and secure area on the vehicle, so it does not move around during transport.
- Always ensure that the unit is safely secured to your vehicle. It is a good idea to check during each new day of testing that the unit is still properly secured and that nothing came loose.
- Always ensure that the lid is closed before moving your vehicle.

## 1.4 Product Features

### 1.4.1 Key Features

- Accurate Energy Measurement
- Works with T4350/T4000 to connect to EVSE Chargers: J1772 (CCS1), Tesla (With Magic Dock Adapters)
- Lid to open 90° to accommodate more airflow
- Waterproof while lid is closed
- Designed to be mounted in the back of a pickup truck
- Rugged and long-lasting design

## 1.5 General Specifications

### 1.5.1 Product Specifications

PARAMETERS	DATA
Voltage	350V-450V
Current	20A-350A

### 1.5.2 Dimensions

PARAMETERS	DATA
Length	43"

<b>Width</b>	33"
<b>Height</b>	43.5"
<b>Weight</b>	≈350 lbs (≈158.8 kg)

### 1.5.3 Environment

PARAMETERS	DATA
Operating Temp (Min / Max)	0°F to 122°F (-17°C to 50°C)

## 1.6 About this Operations Manual

This manual provides complete information for setting up and operating the PL4150. This document instructs the user on how to prepare the unit, use it in testing, and all safety precautions necessary for operation.



# 2.0 SETUP & INSTALLATION

2.1 Introduction .....	6
2.2 Unpacking and Inspection.....	6
2.3 Installation and Usage Setup .....	6
2.3.1 Setup and Placement before Transport .....	6
2.4 Operating the PL4150 .....	8

## 2.1 Introduction

This chapter provides instructions for installing the PL4150 on to a truck, the procedures on how to operate and connect the PL4150 to the T4350, and how to dismantle the equipment.

Read this chapter before you operate the instrument.

## 2.2 Unpacking and Inspection

The instruments are shipped in a wood crate designed to prevent damage during shipping.

Inspect the instruments carefully for damage, and immediately report any damage to the shipper. A packing list is included in the packaging. When you unpack the instruments, check for all the standard equipment listed and check the shipping order for any additional items ordered. Report any shortage to the place of purchase, to your distributor, or directly to TESCO.

## 2.3 Installation and Usage Setup

### 2.3.1 Setup and Placement before Transportation

Ensure the PL4150 is properly secured to your vehicle. It can be with straps, a fixture or some other mount. The unit cannot have any wiggle room during transportation. If you choose to use straps, ensure they do not cover the latches or the top lid, so that you may open the unit to test. Additionally, leave enough room during securing the PL4150 so that you can properly access both side panels for the E-stop, the circuit breaker box, and the Staubli cord.



Ensure the E-stop is properly screwed and secured to the unit.



Before any transport, ensure the Staubli connector is properly secured to the L-bracket and the latch is down and tight so that it cannot move. This also ensures the connector is waterproof. The connector works by aligning the pins into the square and pushing the silver bracket down with force until it locks.



Ensure the breaker cover is secure and tight. This is for waterproofing.



## 2.4 Operating the PL4150

### **WARNING**

To avoid electrical shock, personal injury, or fire hazard, connect the factory supplied power cord to a properly grounded AC power outlet to charge the unit when not being used with an EVSE charger.

Do not charge the unit when it is connected to an EVSE charger.

### 2.4.1 How to Operate the PL4150

Ensure that the Estop is easily accessible at all times. To operate the E-stop, press it down. To undo the E-stop twist the red knob.



Next, unlatch the two metal latches on the side of the unit



To unlatch, pop the bottom of the latch upwards.




Twist the latch counterclockwise until it is completely undone.



Next, lift the unit using the grill handle in the middle. The lid must be open to the maximum height of the gas struts.



Unlatch the Staubli connector by pushing the metal lock in the upwards position.

 **NOTE:** You **MUST** have your opposite hand holding the connector tightly as it can fall off due to the force of gravity and damage the connector and or your vehicle.



Unlock the Staubli connector of the T4350 by pushing down with force on the metal handle.



Lift the gray cover of the Staubli connector.



Put the Staubli connector of the PL4150 into the pins of the T4350. The bottom two circular connectors need to be facing in the downwards position.





Push the bottom of the metal connector upwards with force until the connector is properly secured and it locks. The metal connector should be solidly in place and there should be no wiggle room in this connection.



Turn the T4350 on using the power button.



Navigate through the system using the arrow keys to select your proper testing protocol (CCS1 AC, CCS1 DC, NACS DC).



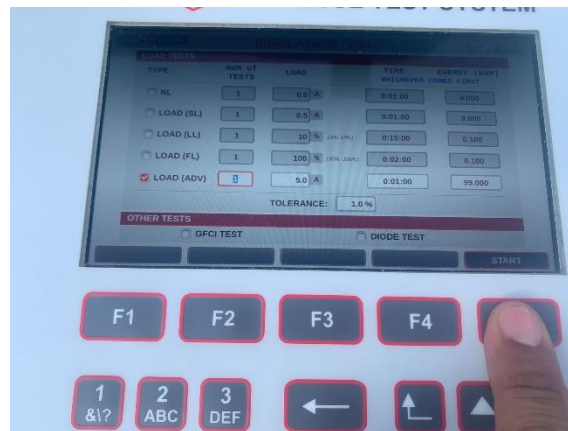
For manual mode testing select F1 on the keypad.



Select Simulation via the F1 key.



Choose your testing parameters, then press F5 to start the test.



Choose your connector type, J1772 DUO (CCS1) or Tesla (NACS). For this demonstration, we've chosen CCS1. Unlock the plastic covers on the T4350 to access the port.



Lock your EVSE connector into the unit until you have it click and stay in place and begin the charge via the EV charger.



When you complete the test, undock the connector, replace it to the charger, and place the rubber holders back on the T4350 and remove the Staubli connector.

To remove the connector from the T4350, lift the metal lock upwards.



**NOTE:** to prevent the Staubli from falling and getting damaged, you should hold the connector with one hand while unlocking the metal lock with the other.



Fully remove the Staubli connector and return it to the PL4150. Ensure that the connector is tightly placed in the square bracket and lift the metal bar in the downwards position to lock it.





Lastly, secure the lid using the grill handle until it is properly back in place.

**NOTE:** you MUST use the grill handle, as the lid of the unit can be extremely hot after operation.



Relatch the two latches by hooking the metal latch to the top of the latch holder.



Spin the latches clockwise until the latch is aligned with the hole in the lock and place the latches down until they connect.





Repeat the process for all future testing.

# 3.0 MAINTENANCE

3.1 Introduction ..... 23

3.1 Cleaning the Instrument External Surface ..... 23

3.3 Repair ..... 23

## 3.1 Introduction

Most of the maintenance will be handled by the technical team from TESCO. The user can, however, perform the basic maintenance routine of cleaning the PL450's external surface.

## 3.2 Cleaning the Instrument External Surface

Clean the exterior of the PL4150 using a soft cloth slightly dampened with either water or a non-abrasive mild cleaning solution that is not harmful to plastics.

**CAUTION** 

**Do not use hydrocarbons or chlorinated solvents for cleaning. They can damage the plastic materials used in the Site Analyzer.**

## 3.3 Repair

For the PL4150 repair, parts replacement, and recalibration, directly contact TESCO through phone or email. See section **1.2 Contacting TESCO** for contact details. TESCO recommends recalibration on an annual basis.