QUICK START

EV Charger Test Adapter

MODELS EV45-NACS and EV45–T2

Introduction

Thank you for your purchase of the FLIR EV45 Series Charger Test Adapter. The EV45 series is rated CAT II 300 V and is compliant with IEC 61851–1 (EV Safety).

This Quick Start provides brief information to get you started, download the user manual from the FLIR website for complete instructions.

EV45–NACS

The FLIR EV45-NACS is designed to test NACS charging stations and AC wall outlets in North American commercial and residential installations. It is equipped with a built-in NACS plug and is compatible with SAE J1772 Type 1 stations. A NACS to Type 1 converter is included.

EV45–T2

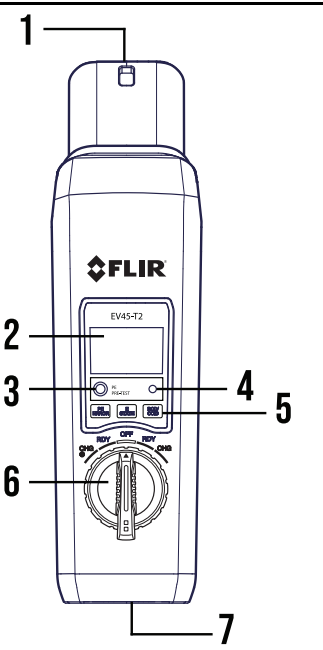
The FLIR EV45-T2 is designed to test level 1 or level 2 EV charging stations and AC wall outlets in commercial and residential installations outside North America. It is equipped with a built-in IEC 62196–2 Type 2 plug for Type 2 charging stations and is compatible with SAE J1772 Type 1 charging stations. A Type 2 to Type 1 converter is included.

Safety Warnings

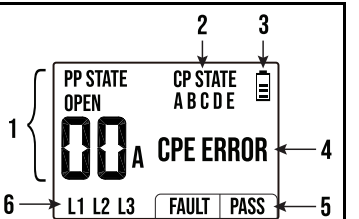
- Read and understand all safety instructions before use.
- Connect this device to charging stations only as indicated.
- Operate this device only at the specified measurement category, voltage, and current.
- Do not use the device if it behaves abnormally or has obvious physical damage.
- Do not use any cable assemblies if they appear damaged. Examine cables for exposed insulation or metal.
- Use care when working with voltages > 30 V AC RMS, 42 V AC peak, or 60 V DC. There is a risk of electrical shock at these voltage levels. Injury to persons can occur.

Descriptions

1. Protective cap for plug
2. Color display
3. PE PRE-TEST pad
4. Green (PASS), Red (FAULT) LED
5. Control buttons
6. Rotary selector switch
7. Output terminals



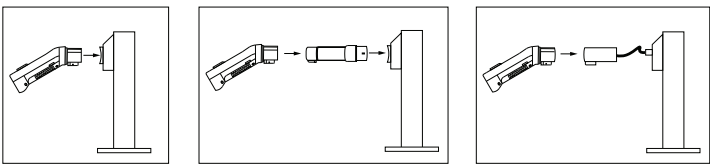
1. Proximity Pilot (PP) indicates charger max. rated current
2. Control Pilot (CP) states: A (disconnected), B (connected, not charging), C (charging), D (charging with ventilation), E (error)
3. Battery power
4. Display alerts
5. Test results
6. Active phase(s)



Quick Steps

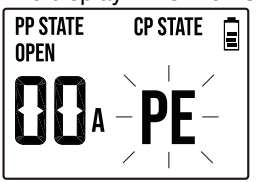
CONNECTIONS

- Plug the EV45 into the charging station port. Use the supplied converter to match the plug type, if necessary.
- Initialize the charging station. For commercial chargers, this is typically done by scanning a QR code using a charging mobile app.
- For the diagram below, connect directly to the charging station socket (1), connect to the supplied converter, and then to the charging station socket (2), or connect to the charging station's cable socket (3).

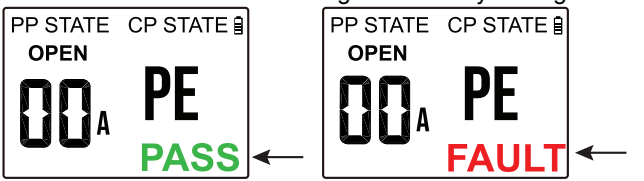


PROTECTIVE EARTH (PE) PRE-TEST

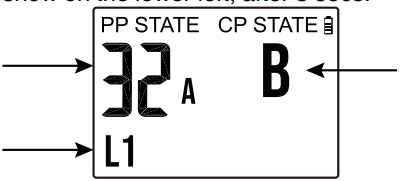
1. Turn the EV45 rotary switch to the RDY position on the right (for unventilated chargers) or on the left (for ventilated chargers). The display will switch ON and **PE** will flash on the display.



2. Wait 3 seconds and place your finger on the PE PRE-TEST pad to perform the protective earth test. The display will flash **PASS** or **FAULT** 3 times on the lower right. Remove your finger.



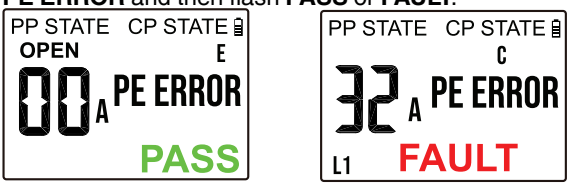
3. If **FAULT** is displayed, the charging system ground circuit is malfunctioning and cannot be tested. Switch off the EV45 and disconnect from the charger.
4. If the test passes, **PASS** and **PE** indicators will switch off, the Control Pilot (CP) state will show **B** on the right, the charger's rated current will appear on the left, and the phase line (**L1**) will show on the lower left, after 3 secs.



NOTE: If you perform a PE PRE-TEST with the EV45 disconnected from the charger, the test will pass, but the Control Pilot state will show **E** for error.

PE ERROR TEST

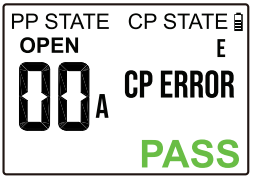
1. Set the rotary switch to the CHG position. The display will show the phase line (**L1, L2, L3**) on the lower left and the CP state will show **C** or **D** on the upper right, after 3 seconds. If the CP state is not detected in 3 seconds, the CP state will show **E** (error).
2. Press the PE ERROR button > 2 seconds. The display will show **PE ERROR** and then flash **PASS** or **FAULT**.

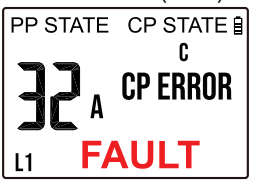


3. If **FAULT** is displayed, the charger did not respond correctly to a simulated protective earth error and so it must be serviced.

CP ERROR TEST

1. Press the E STATE button > 2 seconds. The display will show **CP ERROR** and flash **PASS** or **FAULT**. If the CP state is not detected in 3 seconds, the CP state will show **E** (error).



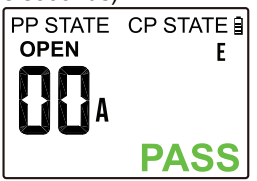


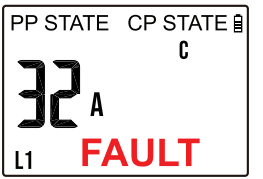
2. If **FAULT** is displayed, the charger did not respond correctly to a simulated Control Pilot error and so it must be serviced.

RCD/CCID ERROR TEST

Note: This test will trip the circuit breaker in the charging station. Do not perform this test if you cannot reset the breaker after the test.

1. Press the RCD/CCID button > 2 seconds. The display will show **RD/CCID** and then flash **PASS** (after 1 second) or **FAULT** (after 3 seconds).





2. If **FAULT** is displayed, the charger system breaker did not trip and so it must be serviced.
3. After the test, switch off and disconnect the EV45, and then reset the breaker.

Battery Power

The EV45 is powered by four (4) AA alkaline batteries, housed in the rear compartment, secured by two screws.

Using External Meters

MULTIMETERS

An external digital multimeter (DMM) can be used to indicate a charger's voltage and frequency. First connect the EV45 to the charging station and then connect the DMM to the EV45. If you purchased a kit (EV-KIT-1 or EV-KIT-2), it includes the FLIR DM286 DMM. See EV45 and DM286 user manuals for complete details.

INSULATION RESISTANCE TESTERS

An external insulation resistance tester, such as the FLIR IM75–2, can be used to check the integrity of the charger's cable insulation. First connect the EV45 to the charging station and then connect the insulation tester to the EV45. See EV45 and IM75–2 user manuals for complete details.

Specifications

GENERAL

	EV45–T2	**EV45–NACS**
Display	Color FSTN type	
Plug	IEC 62196-2 Type 2 plug	NACS plug
Converter accessory	IEC 62196-2 Type 2 to SAE J1772 Type 1	NACS to SAE J1772 Type 1
Category rating	CAT II 300 V	

PHYSICAL

Weight	1.3 lbs. (600 g)
Dimensions	9.3 x 2.6 x 2.2 in. (237 x 65 x 56 mm)

ENVIRONMENTAL

Operating temperature and relative humidity	14 to 86°F (-10 to 30°C), <85% RH 86 to 104°F (30 to 40°C), <75% RH 104 to 122°F (40 to 50°C), <45% RH
Storage temperature and relative humidity	-4 to 140°F (-20 to 60°C), 0 to 80% RH (without batteries)

ELECTRICAL TESTS

Protective Earth (PE) pre-test	Passes when < 50 V AC/DC is detected
Proximity Pilot (PP) states	OPEN or current measurement up to 63 A
Control Pilot (CP) states	A (Disconnected) , B (Connected) , C (Charging), D (Charging w/ ventilation), E (Error)
Voltage phase indication	Three phase (EV45–T2); Single phase (EV45–NACS)
CP error (E state) simulation	Pass / Fault (CP signal short-circuited to PE)
PE error simulation	Pass / Fault (interruption of PE conductor)
RCD/CCID trip test	Pass / Fault (Test RCD/CCID activation, when tripped)

OUTPUTS

	EV45–T2	**EV45–NACS**
Terminals L1, L2, L3, PE, N	Max. 250 V (Single Phase) / 430 V (3 phase), 50 / 60 Hz, CAT II 300 V, Max. 10 A	Max. 250 V (Single Phase), 50 / 60 Hz, CAT II 300 V, Max. 10 A

CERTIFICATIONS

Certifications	ETL, CE
Safety standards	IEC 61010-1 CAT II-300 V
EMC standards	EN61326-1

Customer Support

Customer Support Telephone List	https://support.flir.com/contact
Repair, Calibration, and Technical Support	https://support.flir.com

Warranty

This product is protected by FLIR's Limited Three-Year Warranty. Visit www.flir.com/testwarranty to read the warranty document.

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Website
http://www.flir.com

Customer support
http://support.flir.com

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