TECHNICAL DATA

Fluke FEV150 EV Charging Station Analyzer

Test the safety and functionality of AC electrical vehicle charging stations with the all-in-one tool that is safe, portable, and efficient.

The FEV150 is a complete solution for safety and performance testing of AC EV charging stations with Type 1 (J1772) or Tesla type connectors. Deliver uptime reliability with the FEV150 is Fluke's next generation of EV Charging test solutions, designed for technicians to perform and document multiple tests safely, quickly, and efficiently without carrying multiple tools.

The all-in-one solution includes TruTest™ EV Charging software. TruTest integrates seamlessly with the FEV150 via Bluetooth connection to provide predetermined test plans, pass/fail indications, and pre-test voltage safety information. Use the FEV150 and TruTest automation to get the job done safely, faster, and with less potential for errors.

The FEV150 EV Charging Station Analyzer is compliant with J1772 standards.

MAIN APPLICATIONS

Safety testing of charging stations

Performance testing of charging stations

Troubleshooting/repair of charging stations

Available measurements:

- PE (protective) earth pre-test to ensure no dangerous voltage is present
- Visual inspection
- GFCI Trip Test
- Nominal voltage
- Auto control pilot (CP) with waveform analysis
- Error testing
- Proximity pilot
- Manual Control Pilot
- Advanced GFCI Test

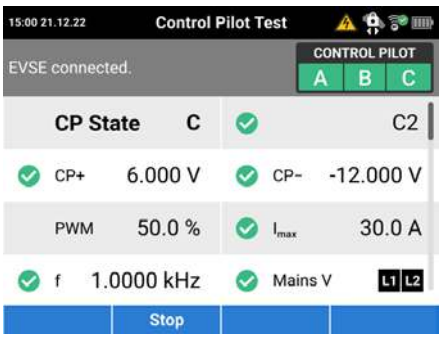
Color screen with integrated interface

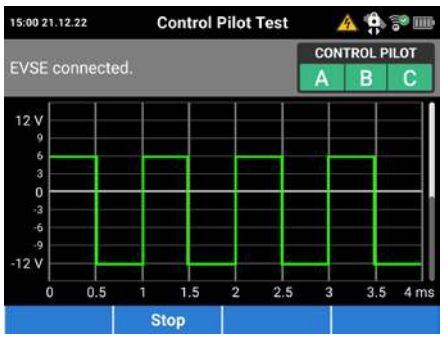
On-screen instructions provide an easy walkthrough of tests with a Pass/Fail indication on all test results.

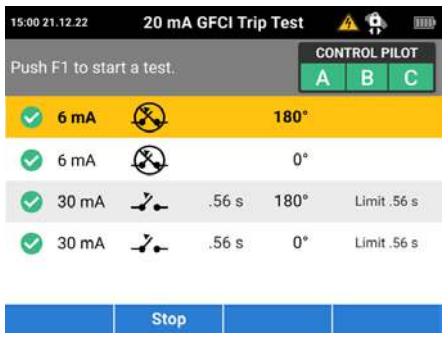
Easily analyze EV charging performance

Auto Control Pilot simulates various charging states with on-screen feedback of nominal results and waveform analysis.

Auto control pilot, waveform analysis, and GFCI trip test





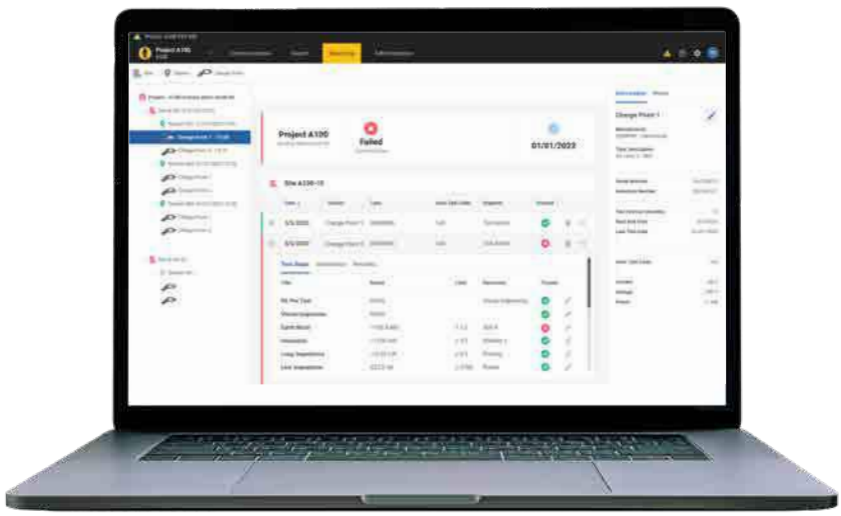


TruTest™
Data Management and Reporting Software with EVSE Module

Leverage TruTest automation to process test results and compile client reports with ease

TruTest is the modern, fast, and reliable software platform to cover your reporting and documentation needs. Now you can perform asset management, data storage, and reporting on a single platform that seamlessly integrates with the FEV150 on any job. Whether you are analyzing Control Pilot waveforms or safety testing the system, TruTest guides you through each test and generates easy-to-understand reports for clients.

- **Easily manage** measurement data from EVSE inspections
- **Quickly create** inspections and reports
- **Control Pilot waveform analysis** with easy pass/fail visuals
- **Compare site data** to previous site data to see changes over time
- **Quickly access** the latest firmware to update your FEV150
- **A free 60-day demo version of TruTest™** is available for download on fluke.com. Purchase a software key to unlock the Lite or Advanced version.



TruTest

Model: FEV150

The operational error specification reference for digit counts is defined as ±(% of reading +digit counts). The operational error for other specifications that reference a % are defined as the % of the reading unless otherwise specified. The operational error specification reference temperature for all readings is 23 °C ± 5K temperature coefficient of 0.1 %/°C.

Test/function	Display range	Measurement range	Operational error	Nominal values
PE pre-test				
Touch voltage, safe range	≤ 50 V AC/DC		-50 %	–
Touch voltage, dangerous range	> 50 V AC/DC		-0 %	–
Visual inspection	•		–	–
GFCI Trip				
Quick trip	30 mA, trip time limit: 0.56 s		Test current: 0% to 10%	100 V ac to 253 Vac, 45 Hz to 66 Hz
Trouble shooting 6 mA GFCI	3.5 mA, no trip		Test current: -10% to 0%	
	10 mA, trip time limit: 2.69 s		Test current: 0% to 10%	
Trouble shooting 20 mA GFCI	6 mA, no trip		Test current: -10% to 0%	
	30 mA, trip time limit: 0.56 s		Test current: 0% to 10%	
Nominal voltage				
L1-L2/N	0 V ac to 280 Vac	0 Vac to 253 Vac	± (3% + 3 digits)	40 Hz to 70 Hz, crest factor 2
Frequency	40.00 Hz to 70.00 Hz		± 0.20 Hz	–
CP signal analysis				
Voltage	-15.000 V to 15.000 V	-15.000 V to -2.000 V, 2.000 V to 15.000 V	± 0.5 %	RIN: 1 MΩ 0.9000 kHz to 1.1000 kHz; UCP+ > 2.000 V, UCP- < -2.000 V
PWM duty cycle	2.0 % to 98.0 %	3.0 % to 97.0 %	± 5 digits	
Current indication	0.0 A to 80.0 A	–	Based on duty cycle[2]	
Frequency	0.9000 kHz to 1.1000 kHz		0.1%	
	A, B, C, D	–	Based on voltage[1]	
CP state indication	x1, x2	–	Based on frequency[1]	

Test/function	Display range	Measurement range	Operational error	Nominal values
CP state simulation	A	–	–	> 900 kΩ ± 0.2 %
	B	–	–	Upper level: 4610 Ω ± 0.2 %[1] Nominal level: 2740 Ω ± 0.2 %[1] Lower level: 1870 Ω ± 0.2 %[1]
	C	–	–	Upper level: 1254.2 Ω ± 0.2 %[1] Nominal level: 881.7 Ω ± 0.2 %[1] Lower level: 611.7 Ω ± 0.2 %[1]
	D	–	–	Upper level: 408.3 Ω ± 0.2 %[1] Nominal level: 245.8 Ω ± 0.2 %[1] Lower level: 130.2 Ω ± 0.2 %[1]
Fault simulation	PE error (earth fault/PE open)	Pass/Fail	–	–
	CP error E	Pass/Fail	0 Ω +2 Ω	–
	Diode short	Pass/Fail	–	–
	Error D	Pass/Fail	–	–
PP resistor measurement Type 1 with cable (S3, R6, R7)	50.0 Ω to 499.9 Ω, 500 Ω to 5000 Ω		± 1.0 %	Imax charge limit: 25.0 A
CP resistor measurement (R1)	800 Ω to 1200 Ω		± 1.0 %	–

[1] According to IEC 61851-1.
[2] According to table A.8 of IEC 61851-1.

Specifications

Input electrical ratings	250 V max 50/60 Hz, max 1 A
EV connector	SAE J1772 socket (type 1, 5P single-phase)
Internal power consumption	3W max
Size (H x W x D)	~(263 mm x 123 mm x 63 mm) ~(10.35 in x 4.84 in x 2.48 in) without the TY1
Weight	~0.9 kg, without the TY1 connector ~1.4 kgn with the TY1 connector”
Battery	4 x AA/IEC LR6 alkaline or IEC HR6 NiMH
Temperature	
Operating	-10 °C to 40 °C (14 °F to 104 °F)
Storage	-20 °C to 50 °C (-4 °F to 122 °F)
Relative humidity	
Operating	10 % to 85 %, 0 °C to 40 °C (32 °F to 104 °F), non-condensing
Storage	up to 95 %
Altitude	3000 m
Safety	IEC 61010-1: Pollution Degree 2, IEC 61010-2-030, CAT II 300 V, Protection Class II
Ingress protection	IP40
Wireless radio, Bluetooth 5.0	
Frequency range	2400 MHz to 2483.5 MHz
Output power	< 100 mW
Electromagnetic Compatibility (EMC)	
International	IEC 61326-1: Portable, Electromagnetic Environment, IEC 61326-2-2 CISPR 11: Group 1, Class A Group 1: Equipment has intentionally generated and/or uses conductively-coupled radio frequency energy that is necessary for the internal function of the equipment itself. Class A: Equipment is suitable for use in all establishments other than domestic and those directly connected to a low-voltage power supply network that supplies buildings used for domestic purposes. There may be potential difficulties in ensuring electromagnetic compatibility in other environments due to conducted and radiated disturbances. Caution: This equipment is not intended for use in residential environments and may not provide adequate protection to radio reception in such environments. Emissions that exceed the levels required by CISPR 11 can occur when the equipment is connected to a test object.
USA (FCC)	47 CFR 15 subpart B. This product is considered an exempt device per clause 15.103.

Included in test adapter kits

	FEV150/TY1	FEV150/TY1 PRO	FEV150/TY1/TSL	FEV150/TY1/TSL PRO
FEV150/BASIC Test Analyzer	•	•	•	•
FEV-CON-TY1	•	•	•	•
FEV-CON-TSL			•	•
TPAK Magnetic Hanger	•	•	•	•
Soft Carrying Bag	•	•	•	•
Trutest Software License		•		•

Ordering information

FLK-FEV150/TY1/TSL

FLK-FEV150/TY1

FEV150/TY1/TSL PRO

FLK-FEV150/TY1 PRO

Add a Fluke Premium Care Plan

Premium Care 1-year Standard FPC1S-FEV150-1
Premium Care 3-year Standard FPC3S-FEV150-1
FLK-FEV150/TY1 with 1 Year of Premium Care-Standard FLK-FEV150/TY1/FPC5348085

Visit **www.fluke.**com to get complete details on these products or ask your local Fluke sales representative.

FLK-FEV150/TY1 PRO

FLK-FEV150/TY1/TSL PRO

Fluke. Keeping your world up and running.™

www.fluke.com