TECHNICAL DATA

Fluke FEV300 Test Adapter Kits for Electric Vehicle Charging Stations

Test the safety and functionality of electrical vehicle charging stations, easily and reliably

The FEV300 Test Adapter Kits are designed to test function and safety of charging stations mode 3 for AC charging. The adapter imitates an electric vehicle and opens up a charging cycle (activating voltage/current output), allowing you to conduct tests in combination with appropriate test instruments like an installation tester (for example the Fluke 1664 FC) and/or an oscilloscope (for example the Fluke 120B Series Industrial ScopeMeter®). With the FEV300 Adapter Kit, charging stations can be tested in accordance with IEC/EN 61851-1 and IEC/HD 60364-7-722.

Features and functions:

- **Suitable to vehicle charging stations** with charging mode 3
- **Fits to charging stations** with EV socket-outlet type 2 and EV-connectors for type 2 and type 1
- **PE Pre-Test:** With this safety feature the PE conductor will be tested for possible presence of dangerous voltage against earth.
- **Proximity Pilot (PP) state "Cable Simulation":** With PP State rotary switch the adapter can simulate various current capabilities of charging cables.
- **Control Pilot (CP) state "Vehicle Simulation":** With CP State rotary switch selector all charging states can be simulated.
- **Separate phase indication by three LED lamps** for easy check if voltage is present at the charging output.
- **Measuring terminals L1, L2, L3, N and PE** to connect test device like installation tester to perform safety and functional tests.
- **Compatibility:** Integrates into Fluke portfolio of test and measurement tools, by allowing direct connection through FEV measurement terminals.
- **The Fluke 1664 FC** allows safety measurements via the measuring terminals like:
  - earth bond
  - insulation
  - loop/line impedance
  - RCD trip test
- **Simulation of CP error state "E"**
- **Simulation of PE error state "F" (Earth fault)**
- **Terminals for CP signal output** to check communication between adapter (simulated electrical vehicle) and charging station. This can be measured by a ScopeMeter® or multimeter. The voltage level defines the charging modes and the duty cycle of this PWM (Pulse Width Modulation) signal defines the maximum allowable charging current.
- **IP 54 rating** – Dust and splashing water protected

Fluke FEV300
Test Adapter Kits

Terminals for CP signal output to check communication protocol

Proximity Pilot (PP) state selector

Control Pilot (CP) state selector

PE Pre-Test to check if possible hazard touch voltage is present

Error simulation for CP error state "E" and PE error state "F"

Measuring terminals to check safety and function of charging station using the Fluke 1664 FC installation tester

Connect to EV charging station Type 1 with vehicle connector

FEV300-CON-TY1 can be used with EV charging station type 1 with fixed cable and vehicle connector

Connect to EV charging station Type 2 with socket outlet or vehicle connector

FEV300-CON-TY2 can be used with EV charging station type 2 with socket outlet or fixed cable and vehicle connector

Main Applications

- **Safety testing of charging stations**
- **Functional testing of charging stations**
- **Troubleshooting/repair of charging stations**

Correlation between vehicle state and CP signal

Vehicle State	Description	PWM voltage at CP terminal
A	Electric vehicle (EV) not connected	A1: +12 V or A2: ±12 V PWM (1 kHz)
B	Electric vehicle (EV) connected, not ready to charge	B1: +9 V or B2: +9 V / –12 V PWM (1 kHz)
C	Electric vehicle (EV) connected, ventilation not required, ready to charge	C1: +6 V or C2: +6 V / –12 V PWM (1 kHz)
D	Electric vehicle (EV) connected, ventilation required, ready to charge	D1: +3 V or D2: +3 V / –12 V PWM (1 kHz)

Specifications

General features	
Input voltage	Up to 250 V (single phase system) / up to 480 V (three phase system), 50/60 Hz, max 10 A
Internal power consumption	3 W max.
FEV300-CON-TY2 Plug	AC charging mode 3, suitable to IEC 62196-2 type 2 socket outlet or fixed cable with vehicle connector (type 2, 7P three-phase)
FEV300-CON-TY1 Plug	AC charging mode 3, suitable to IEC 62196-2 type 1 or SAE J1772 with vehicle connector (type 1, 5P single-phase)
Dimensions (H × W × D)	110 × 45 × 220 mm length without connection cable and test cable
Weight (including type 1 or type 2 connection cable)	Approx. 1 kg
Safety standards	IEC/EN 61010-1, pollution degree 2 IEC/EN 61010-2-030, CAT II 300 V, protection class II
Ingress protection	IEC 60529: IP54 (housing) IEC 60529: IP54 (measuring terminals with protection caps in place, connector/ plug in connected condition or with protection caps in place, otherwise IP20)
Operating temperature	-20 °C to 40 °C
Storage temperature	-20 °C to 50 °C
Operating humidity range	10 % to 85 % relative humidity non-condensing
Storage relative humidity	0 % to 85 % non-condensing
Operating altitude	2000 m max.
Functions	
PE Pre-Test	Visible indication >50 V AC/DC between PE conductor and touch sensor
PP Simulation	Open, 13 A, 20 A, 32 A, 63 A
CP States	State A, B, C, D
CP Error state "E"	On/off (CP signal short-circuited to PE)
PE Error state "F" (Earth fault)	On/off (interruption of PE conductor)
Outputs (for test purpose only)	
Measuring terminals L1, L2, L3, N, PE	Max. 250/480 V, max. 10 A
CP signal output terminals	Approx. +/-12 V

Included in Test Adapter Kits

	FEV300/TY2	FEV300/TY1 & TY2	FEV300/KIT
FEV300/BASIC Test Adapter	•	•	•
FEV300-CON-TY1		•	
FEV300-CON-TY2	•	•	•
1664 FC Multifunction Tester			•
Soft Carrying Bag	•	•	•

Ordering information

FEV300 Test Adapter Kits

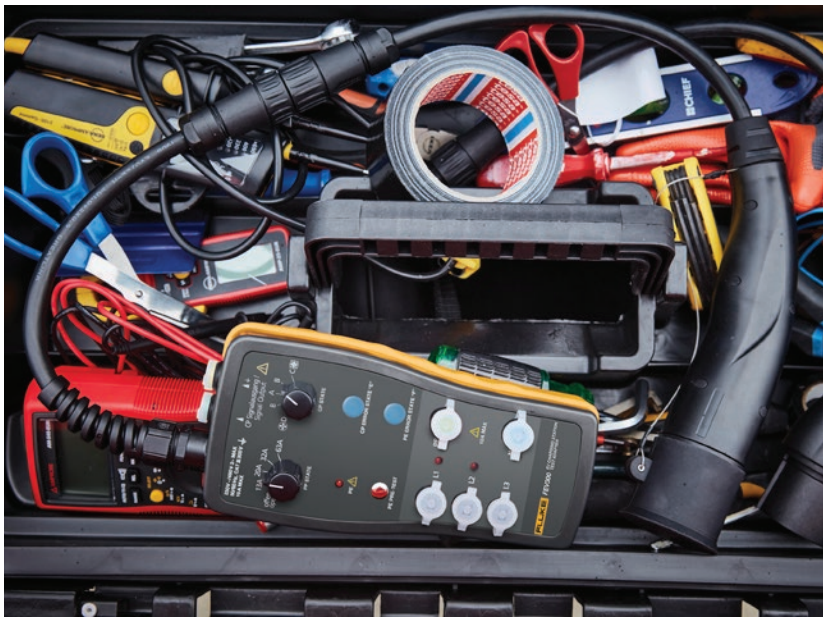
Suggested test equipment:

Fluke 1664 FC Installation Multifunction Testers

Fluke 87V Industrial Multimeter

Fluke 376 FC True-RMS Clamp Meter with iFlex

Fluke 120B Series Industrial ScopeMeter handheld Oscilloscopes



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