EV110

A compact, easy to use and highly cost-effective EVSE test and diagnostic tool, in accordance with SAE J1772

With the world’s electric vehicle sector growing rapidly in response to the need for low carbon transportation solutions, there is an increased need to ensure the charging infrastructure is operating efficiently and safely.

The EV110 is an all-in-one test and diagnostic tool, designed to ensure that all types of AC electric vehicle supply equipment (EVSE) are operating correctly and safely, in accordance with SAE J1772, both at the time of installation and as part of an ongoing periodic maintenance regime.

The simple user interface makes it fast and effortless to perform a comprehensive set of measurements at the press of a button, including output voltage, maximum available charging current, insulation resistance, ground loop impedance and GFCI trip current.

The EV110 is also able to simulate a number of vehicle faults, and automatically store the EVSE fault response including the disconnection time and the amplitude, frequency and duty cycle of the PWM communication between the EVSE and simulated EV.

Whilst a basic set of measurements is clearly shown on the EV110 display, a much more comprehensive set of diagnostic data is stored in the EV110’s internal memory.

For fast and instant fault diagnosis, the technician in the field can use contactless NFC (Near Field Communication) connectivity to easily transfer all test results and measured data from the EV110 to an Android app running on a portable device such as a tablet or smart phone. The technical data can then be emailed directly back to the office for immediate analysis by an engineer, or professional PDF certificates can be produced for administration and record management purposes*.

EVSE maintenance checks and fault finding is faster, simpler and more cost-effective than ever before with the EV110 from Seaward.

Key Features
- Comprehensive simulation, test and diagnostic functionality in a single hand held unit
- Easy-to-use tester with simple on-screen test results
- Android app enables instant data transfer from the tester via NFC technology
- Test mains supply and grounding
- Test operation of GFCI
- Test insulation of charging cables
- Capture full PWM information
- Simulate vehicle faults and measure the EVSE response
- Test venting system where fitted

Electrical/Analysis Test Functions
- Supply voltage
- Maximum available charging current
- Insulation resistance
- Ground loop impedance
- GFCI trip current
- PWM voltage
- PWM frequency
- PWM duty cycle
- EVSE state transition time

End User Types
- Charge point installers
- Charge point maintenance technicians
- EVSE manufacturers

EVSEMobile App
Use NFC to transfer more detailed data to the free Android app for further fault analysis.

Simply touch an NFC-enabled Android device running EVSEMobile to your EV110 and a detailed set of test and measurement data is shown on your device, ready to send back to the office*.

Scan QR code to find out more

*Data export from EVSEMobile is a premium feature and requires subscription

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Fast and comprehensive EVSE testing
The EV110 can simulate all of the commonly used charging cable ratings to quickly and easily verify the correct response from the EVSE.

No other test instruments or vehicle simulators are required. Everything you need to perform testing is included.

Wirelessly send data back to base for immediate analysis
Remote diagnosis of problems is made easy with the ability to wirelessly transfer a comprehensive range of electrical tests and full PWM analysis back to the office from the field using the EVSEMobile app. A diagnostic engineer, back at the office, can diagnose problems and instruct the technician in the field, without having to leave the desk*.

Fuss-free and all-in-one testing solution
The EV110 is the only test instrument that can confirm correct mains supply and grounding on single or three phase systems without the need for additional equipment or to disassemble the charge point to access internal conductors.

It will also measure the trip current of the EVSE GFCI.
Reduce the risk of electric shock to EVSE users
EVSE charging cables are vulnerable to damage and this may present a risk of injury to the EVSE user. The EV110 tests the insulation of charging cables, providing peace of mind to EVSE installers, owners and manufacturers that risk of electric shock is reduced.

Full analysis of EVSE fault response
The EV110 checks that the EVSE responds correctly to faults within an EV and safely terminates the charging process in accordance with SAE J1772. The time taken for the EVSE to respond to the various fault conditions is recorded within the EV110's on-board memory and can be downloaded into the Android App and sent back to base with the touch of a button.

Capture full PWM information
The EV110 performs a full analysis of the PWM signal (the method of communication between the EVSE and EV) and records the voltage levels, frequency and duty cycle.

PWM data is used to display the maximum available charging current. Full PWM data can be transferred to the Android app to provide a useful diagnostic tool in cases where the EVSE is not operating correctly.

Check EVSE ventilation systems
Some EVs are fitted with batteries that require ventilation during charging. The EV110 simulates this type of vehicle and is able to quickly verify that the ventilation systems controlled by the EVSE are operating correctly, and that an EVSE which is not equipped with a ventilation system will not attempt to deliver charge if the EV requires ventilation.
### Technical Specifications (EV110)

**Supply voltage measurement**
- **Display range:** 0.0V – 300V AC
- **Measurement range:** 0.0V – 300V AC
- **Resolution:** 1V maximum
- **Frequency range:** 45Hz to 65Hz

**Insulation resistance**
- **Display range:** 0.01MΩ to 19.9MΩ
- **Resolution:** 0.01MΩ maximum
- **Open circuit test voltage:** 500V @ 1mA nominal
- **Short circuit test current:** <2mA
- **Protection:** Warning if ≥ 30V AC or DC present

**Ground loop impedance**
- **Supply voltage:** 95V – 253V 45Hz to 65Hz
- **Nominal Test current:** <15mA (will not trip 20mA GFCI)
- **Display range:** 1Ω – 1.99kΩ
- **Resolution:** 1Ω maximum

**GFCI test**
- **Supply voltage:** 95V – 253V 45Hz to 65Hz
- **Trip current ranges:** 5mA - 30mA sinusoidal

**Control pilot PWM measurements**
- **Voltage range:** ±14v DC
- **Voltage resolution:** 0.1V
- **Frequency range:** 940 Hz to 1040 Hz
- **Frequency resolution:** 1Hz
- **Duty cycle range:** 2% to 98%
- **Resolution:** 1%
- **Response time range:** 1ms to 10s
- **Resolution:** 1ms

**Simulation of cable coding**
- **EN 61851 13A capability:** 1.5 kohms +/- 1%
- **EN 61851 20A capability:** 680 ohms +/- 1%
- **EN 61851 32A capability:** 220 ohms +/- 1%
- **EN 61851 63A 3Ph capability:** 100 ohms +/- 1%
- **EN 61851 70A 1Ph capability:** 100 ohms +/- 1%

**Fault simulation**
- Open circuit diode
- Short circuit diode
- Short to ground
- Coupler disconnection

### General Specifications

**Case dimensions and weight**
- **Weight:** 2lbs
- **Dimensions:** 10.2” x 3.9” x 2.1”
- **Power Source:** 6 x AA Cells

**App compatibility**
- Compatible with Android version 4.2 Jelly Bean
- iOS devices not supported

**Connectivity**
- NFC (Near Field Communication)
- iOS devices not supported

**EV110 test kit, complete with Type 1 test adaptor** (part no. 405A912)
- EV110 tester
- Type 1 test adaptor
- Carry case
- Quick start guide
- EVSEMobile app (downloadable from Android app store)

**Optional accessories**
- Type 1 test adaptor: 405A950
- Type 2 test adaptor: 405A951
- Type 3 (SCAME) test adaptor: 405A952
- Android test data download device (NFC equipped): Enquire

**Services**
- Register your product for 2 year warranty (subject to terms and conditions, available at www.seaward-groupusa.com)
- Go to www.seaward-groupusa.com/service-centre for more information about our services and calibration