

## METREL test and measurement accessories:



### **EVSE adapter**

**A 1532**

### **Instruction manual**

*Version 1.2.3, Code no. 20 752 684*

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**Manufacturer:**

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Mark on your equipment certifies that it meets requirements of all subjected EU (European Union) regulations

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## 1 Preface


Congratulations for purchasing and using METREL A 1532 EVSE adapter accessory with METREL test and measuring instruments. The A 1532 is an extender for interfacing **E**lectric **V**ehicle **S**upply **E**quipment (EVSE) to test socket of installation tester for verification of electrical safety and functional testing. It is intended for testing Mode 3 EV supply equipment with type 2 connector.

A 1532 ESVE adapter is a special accessory intended to be used with METREL installation testers.

## 2 Safety and operational considerations

### 2.1 Warnings and notes

In order to maintain the highest level of operator safety while carrying out various tests and measurements METREL recommends keeping your **EVSE adapter** in good condition and undamaged. When using the adapter, consider the following general warnings:

- ❑  **Warning on the A 1532 means »Read the Instruction manual with special care for safe operation«. The symbol requires an action!**
- ❑ **If the A 1532 is used in a manner not specified in this Instruction manual or the Instruction manual of target test equipment, the protection provided by the A 1532 and test equipment may be impaired!**
- ❑ **Read this Instruction manual carefully, otherwise use of the A 1532 may be dangerous for the operator, for test equipment or for the tested object!**
- ❑ **Do not use the A 1532 if any damage is noticed!**
- ❑ **Mains test sockets and banana sockets are intended for test purposes only! Do not connect any other devices except METREL installation test equipment.**
- ❑ **Service intervention is allowed to be carried out only by a competent authorized person!**
- ❑ **All normal safety precautions have to be taken in order to avoid risk of electric shock when working on electrical installations!**
- ❑ **Intermittent operation, maximum duty cycle is 10 %! Maximum loading time is 10 ms!**

### 2.2 Markings on the adapter



»Read the Instruction manual with special care to safety operation«. The symbol requires an action!



Mark on your equipment certifies that it meets requirements of all subjected EU regulations.



This equipment should be recycled as electronic waste.



This equipment is protected by reinforced insulation.

## 2.3 Standards applied

The A 1532 adapter is manufactured and tested in accordance with the following regulations:.

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### *Safety (LVD)*

<b>EN 61010 - 1</b>	Safety requirements for electrical equipment for measurement, control and laboratory use – Part 1: General requirements
<b>EN 61010 - 2 - 030</b>	Safety requirements for electrical equipment for measurement, control and laboratory use – Part 2-030: Particular requirements for testing and measuring circuits
<b>EN 61010 - 031</b>	Safety requirements for hand-held probe assemblies for electrical measurement and test

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### *Functional*

<b>EN 61851 - 1</b>	Electric vehicle conductive charging system Part 1: General requirements
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### **Note about EN and IEC standards:**

Text of this manual contains references to European standards. All standards of EN 6xxxx (e.g. EN 61010) series are equivalent to IEC standards with the same number (e.g. IEC 61010) and differ only in amended parts required by European harmonization procedure.

### 3 Adapter description



Figure 3.1: A 1532 components

#### Legend:

- |   |   |
|---|---|
| 1 | Banana socket outputs for connection to 3-phase installation tester.<br><b>⚠ Banana socket outputs are intended for test purposes only!</b>                             |
| 2 | Voltage on EVSE output indicators.  |
| 3 | <b>Proximity Pilot (PP STATE)</b> resistance (current code) selector for simulation of EV cable presence and current rating detection.                                  |
| 4 | <b>Control Pilot (CP STATE)</b> resistance selector for simulation of electric vehicle status.  |
| 5 | Socket output for connection to single-phase installation tester.<br><b>⚠ Socket output is intended for test purposes only! Do not use it as power supply extender!</b> |
| 6 | Type 2 Male Plug connector for connection to EVSE.  |
| 7 | BNC output connector for checking <b>Control Pilot (CP)</b> signal.<br><b>⚠ BNC output connector is intended for connection to oscilloscope for test purposes only!</b> |

#### Warning:

- ❑ **Socket output and banana socket outputs are energized when one or more indicators (2) lit.**

## 4 A 1532 operation

### Testing procedure:

- ❑ Connect the A 1532 output to the installation tester (via mains test socket or via safety banana sockets)
- ❑ Set **PP STATE** (3) to position **N.C.** and **CP STATE** (4) to position **A**.
- ❑ Connect A 1532 plug (6) to the EVSE.
- ❑ **Run installation tests for non-energized installation circuits.**
- ❑ Simulate different charging conditions with **PP STATE** (3) and **CP STATE** (4). Verify the response of the EVSE.
- ❑ In **PP STATE** (3) position different to N.C. and **CP STATE** (4) position in **C** or **D**, the EVSE output is energized (indicated by one or more (2) Voltage on EVSE indicators).
- ❑ **Run installation tests for energized installation circuits.**
- ❑ Set **CP STATE** (4) to position **A** to de-energize EVSE, before disconnecting A 1532 plug (6) from EVSE.

### Note:

- ❑ Only phase L1 of 3-phase EVSE is accessible through test socket (5).

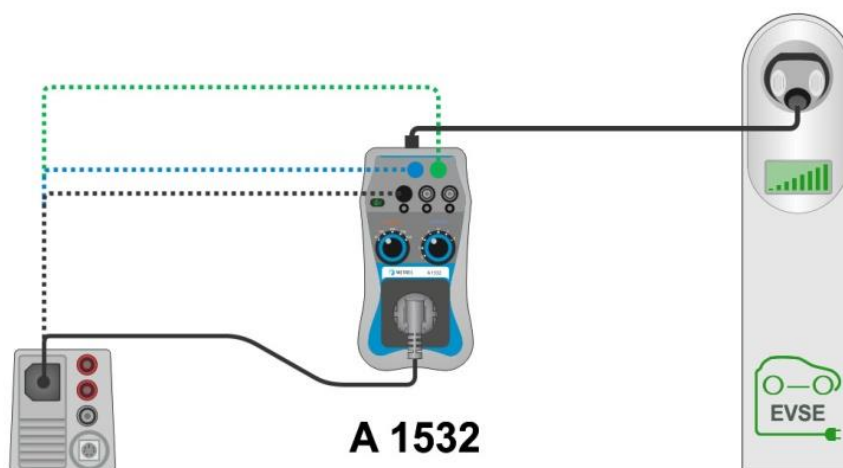


Figure 4.2: A 1532 connection

### PP STATE options

Position	Simulates
N.C.	Error condition or disconnection of plug
13 A	Coding for maximum current of the EV cable. EVSE is connected and can operate in any of these coding position.
20 A	
32 A	
64 A	



**CP STATE options**

Position	Simulates	Comment
<b>A</b>	EV disconnected	EVSE in idle state, EV not ready to receive energy, EVSE does not supply energy
<b>B</b>	EV connected	EV detected, EV not ready to receive energy, EVSE does not supply energy
<b>C</b>	EV charged without ventilation	EV ready to receive energy, EVSE is supplying energy if ventilation is not required.
<b>D</b>	EV charged with ventilation	EV ready to receive energy and requires ventilation, EVSE is supplying energy only if ventilation exists.
<b>E</b>	Pilot fail	EVSE doesn't supply energy (no power). The EV supply equipment unlocks the socket outlet at maximum of 30 s.

Recommended sequences:

- A-B-C** for non-ventilated charging
- A-B-D** for charging with ventilation required
- E** is required for simulating Pilot failure.

**Note:**

- With A1532 alone only proximity pilot and control pilot functions of EVSE can be checked.

**Checking CP signal**

- Connect Oscilloscope to **BNC connector** (7) using 10:1 probe with 10 M $\Omega$  input resistance.
- Set **PP STATE** (3) position to proper EVSE current output selection.
- Set **CP STATE** (4) to position **A**.
- Set tested EVSE to operate.
- Set **CP STATE** (4) to position **B** and/or **C** and modify **PP STATE** (3) position to all applicable currents.
- Check waveforms and amplitudes of measured CP signal.

**Notes:**

- If the input resistance is 1 M $\Omega$  instead of recommended 10 M $\Omega$ , the measured signal amplitude is approx. 17 % lower than actual value.
- Oscilloscope probe shall be compensated to get proper frequency response.
- Portable / handheld battery powered oscilloscope is recommended for observing CP signal.

**Warning:**

- If 50 Hz / 60 Hz noise is visible in the signal, it is possible to suppress it by connecting the PE socket to oscilloscope ground. However in this case it must be assured before that there is no hazardous voltage on the PE conductor of the EVSE and use of safe accessories is recommended.

## **5 Maintenance**

Unauthorized person is not allowed to open the A 1532 EVSE adapter. There are no user replaceable components inside the adapter.

### **5.1 Cleaning**

No special maintenance is required for the housing. To clean the surface of the adapter use a soft cloth slightly moistened with soapy water or alcohol. Then leave the A 1532 to dry totally before use.

#### **Warnings:**

- Do not use liquids based on petrol or hydrocarbons!
- Do not spill cleaning liquid over the adapter!

### **5.2 Service**

For repairs under warranty, or at any other time, please contact your distributor.

## 6 Technical specifications

### 6.1 General data

Input voltage: ..... up to 250 V (1-phase), up to 430 V (3-phase)

Frequency: ..... 50 Hz, 60 Hz

Maximum test current: ..... 267 A (10 ms) intermittent operation

PP simulation: open, 13 A, 20 A, 32 A, 63 A

CP simulation: states A,B,C,D,E (CP short to PE via diode)

BNC connector

Resistance BNC case to PE ..... 100 k $\Omega$

Resistance BNC contact to CP ..... 100 k $\Omega$

Amplitude error (10 M $\Omega$  probe) ..... -2 %

Protection classification ..... double insulation

Pollution degree ..... 2

Protection degree ..... IP 40

Measuring category ..... 300 V CAT II

Altitude ..... up to 3000 meters above sea level

Dimensions (w × h × l) ..... 10 cm × 7 cm × 25 cm

Test lead(s) length ..... 0.5 m

Weight ..... 0.90 kg

Operation conditions

Working temperature range ..... 0 °C ... 40 °C

Maximum relative humidity ..... 95 %RH (0 °C ... 40 °C), non-condensing

Storage conditions

Temperature range ..... -10 °C ... +70 °C

Maximum relative humidity ..... 90 %RH (-10 °C ... +40 °C)

80 %RH (40 °C ... 60 °C)