GOSSEN METRAWATT

PROFITEST | EMOBILITY

Adapter for Standards-Compliant Testing of Single and 3-Phase, Mode 2 and 3 Charging Cables by Simulating Faults

3-349-980-03
4/1.19

- **Testing of charging cables per DIN VDE 0701-0702 and manufacturer specifications using a guided test sequence with a recommended test instrument**
- **Testing of mode 2, mode 3 and TESLA charging cables**
- **Testing of connector cables with country-specific plug (type 1 plug etc.)**
- **Function test, i.e. tripping test by means of simulating the following faults:** interruption, reversed wires and PE to phase
- **Measurement of protective conductor current with current clamp transformer as accessory**
- **Measurement of protective conductor and insulation resistance per DIN VDE 0701-0702 with a recommended test instrument**
- **Tripping test with nominal residual current and measurement of time to trip with a recommended test instrument**
- **Evaluation and documentation of the individual test steps with a recommended test instrument**
- **Simulation of vehicle state per EN 61851-1/VDE 0122-1**
- **Testing of resistance coding for vehicle inlets and vehicle connectors per EN 61851-1/VDE 0122-1**



CE

Applications

We recommend the following test instruments for testing charging cables with the **PROFITEST EMOBILITY** test adapter:

- **PROFITEST MTECH+***
- **PROFITEST MXTRA***
- **PROFITEST PRIME***
- **SECUTEST PRO***

* Special test sequences for use with the test adapter are currently being prepared for the test instrument.

The following faults can be simulated with the test adapter with mains supply to a charging cable (also possible without additional test instrument):

- Wire reversals
- Failure of individual conductors (undervoltage detection)
- Interference voltage in the protective conductor due to connection of the phase conductor to the protective conductor (**PE-U_{EXT}** switch setting)

The evaluation of the **charging cable**'s reaction to each respective fault is strictly visual:

- ICCB active or inactive (indicator lamp on the ICCB)
- Fault indication by means of LEDs on the test adapter

The following additional tests are possible after connecting a recommended test instrument to the test adapter:

Single Measurements

- Measurement of the charging cable's protective conductor resistance using the test instrument's R_{PE} function
- Measurement of the charging cable's insulation resistance using the test instrument's R_{ISO} function
- Tripping test for the RCD in the ICCB with nominal residual current using the test instrument's I_F ◢ function
- Measurement of time to trip for the RCD in the ICCB using the test instrument's $I_{\Delta N}$ function
- Measurement of resistance coding

Test Sequences for Convenient Measurement and Report Generation

- Two preset test sequences are included in the respective test instruments:
  – Mode 2 charging cable
  – Mode 3 charging cable
- The test instrument runs through all test steps semi-automatically.
- Each test step is evaluated and assessed by the user (go/no-go) for later documentation.

Measuring Protective Conductor Current

Protective conductor current or bias current may result in premature tripping of PRCDs.

For this reason, the protective conductor is led out of the front panel as a loop between the surface mount sockets. This makes it possible to measure possible protective conductor current with the help of the **METRACLIP 61** current clamp transformer as an accessory.

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Applicable Regulations and Standards

IEC 61010-1/ DIN EN 61010-1/ VDE 0411-1	Safety requirements for electrical equipment for measurement, control and laboratory use – General requirements
EN 60529 VDE 0470, part 1	Test instruments and test procedures Degrees of protection provided by enclosures (IP code)
IEC 61851-1 DIN EN 61851-1	Electric vehicle conductive charging system – Part 1: General requirements

Characteristic Values

Measurement with **METRACLIP 61** as Accessory

Protective conductor current measurement
Measuring range: 0 ... 30 mA AC

Measurements with **PROFITEST MXTRA** as accessory:

Protective conductor measurement	Measuring range: 0.1 Ω ... 6 Ω, see technical data on R_{LO} function of the **PROFITEST MXTRA**
Insulation measurement	Measuring range: 50 kΩ ... 500 MΩ, see technical data on R_{ISO} function of the **PROFITEST MXTRA**

Connections

Test outlets

Earth contact	IN4: 1P+N+PE, 0.8 A, 230 V
3P+N+PE	IN2/OUT2: 0.8 A, 400 V

Power Supply

Nominal line voltage	230/400 V 50 Hz
Mains connection	Single-phase via recessed power receptacle: 230 V 1P+N+PE 16 A or 3-phase via ISO adapter: 230/400 V 3P+N+PE 16 A
Throughput rating	Earth contact: 20 VA CEE: 60 VA
Power consumption	Earth contact: < 3 VA CEE: < 6 VA

Electrical Safety

Measuring category	300 V CAT II
Pollution degree	2
Fuse links	Supply network: **Single-phase (N1):** F_{LN}: 2 ea. F0-8A/250V, 5 x 20 mm **3-phase (N2):** F1, F2 and F3: 3 ea. F0.8A/500V, 6.3 x 32 mm

Ambient Conditions

Operating temperature	-5 ... + 50°C
Storage temperature	-20 ... + 60°C
Relative humidity	Max. 75%, no condensation allowed

Mechanical Design

Test adapter protection	IP 40 per DIN VDE 0470, part 1, connections: IP 20
Dimensions (W x H x D)	Housing: Approx. 401 x 307 x 173 mm (without connector cable, with surface mount sockets)
Weight	Approx. 6.4 kg (with connector cable)

Connection and Control Panel View



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Scope of Delivery

1 Test adapter in case
1 Mains power cable
1 Set of operating instructions

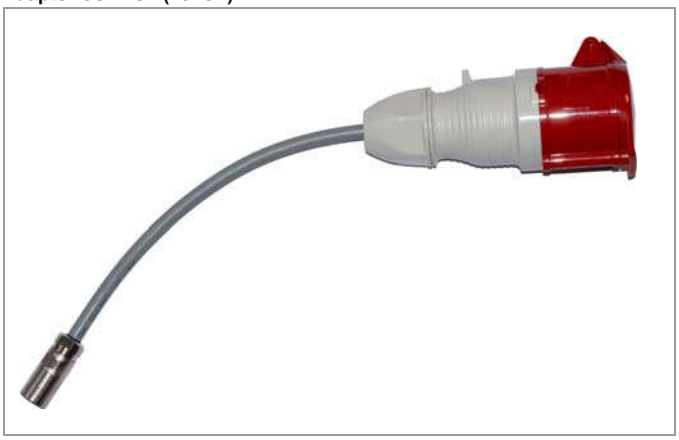


Accessories

Adapter CC-7-16 (Z513G)



Adapter CC-7-32 (Z513H)



Adapter Connecting-Cable-16 (Z570B)



Adapter Connecting-Cable-32 (Z570C)



Adapter Connecting-Cable-63 (Z570D)



Adapter PRO-TYPII-TYPI (Z525C)



Type II Inlet | Type I Inlet

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Adapter for Standards-Compliant Testing of Single and 3-Phase, Mode 2 and 3 Charging Cables

METRACLIP 61 (M311D)



Digital clamp meter
(leakage current clamp) 1 mA ... 300 A AC

Order Information

Description	Type	Article Number
Test adapter for standards-compliant testing of single and 3-phase, mode 2 and 3 charging cables with simulation of faults	PROFITEST EMOBILITY	M513R
Accessories Adapters		
Connecting-Cable-7-16, CEE 16 A socket on 7-pin connector, 500 mm, 300 V CAT II	CC-7-16	Z513G
Connecting-Cable-7-32, CEE 32 A socket on 7-pin connector, 500 mm, 300 V CAT II	CC-7-32	Z513H
Adapter cable with CEE plug 5-pin 16 A and 4 mm safety plug (L1, L2, L3, N, PE), CAT III 300 V	Connecting-Cable-16	Z570B
Adapter cable with CEE plug 5-pin 32 A and 4 mm safety plug (L1, L2, L3, N, PE), CAT III 300 V	Connecting-Cable-32	Z570C
Adapter cable with CEE plug 5-pin 63 A and 4 mm safety multilam plug (L1, L2, L3, N, PE), CAT III 300 V for PROFITEST E-Mobility and remote adapter	Connecting-Cable-63	Z570D
Test adapter PRO TYP II to TYP I	PRO-TYPII-TYPI	Z525C

Description	Type	Article Number
Accessories Test and Measurement Devices		
Digital clamp meter (leakage-current clamp), 1 mA ... 300 A AC, including 2 installed button-cell batteries, operating instructions and pouch	METRACLIP 61	M311D
Universal protective measures test instrument per EN 61557, sections 1, 2, 3, 4, 5, 6, 7 and 10 with integrated memory and insulation measurement up to 1000 V as well as additional tripping test for AC/DC sensitive RCDs and loop impedance measurement without tripping the RCD, e-mobility test, Bluetooth interface, with **DAkkS calibration certificate**	PROFITEST MTECH+	M520R
Universal protective measures test instrument per EN 61557, sections 1, 2, 3, 4, 5, 6, 7 and 10 with integrated memory and insulation measurement up to 1000 V as well as additional tripping test for AC/DC sensitive RCDs, loop impedance measurement without tripping the RCD, selective earth measurement with current clamps as optional accessories, testing of IMDs and RCMs, e-mobility test, Bluetooth interface, with **DAkkS calibration certificate**	PROFITEST MXTRA	M520P
Test instrument per DIN EN 61557/ VDE 0413 for testing the effectiveness of protective measures in electrical installations per DIN IEC 60364/DIN VDE 0100-600, machines per DIN EN 60204/ VDE 0113-1, PV systems per DIN EN 62446/VDE 0126-23 and electric charging stations per VDE 0122-1, voltage measurement: 1000 V AC/DC, Z_{L-PE} 690 V AC/ 800 V DC, R_{LO} 200 mA/25 A, R_{INS} up to 1000 V, testing of RCD types A, AC, F, EV, B, B+, and MI, as well as PRCDs, IMDs, and RCMs, leakage current, touch current, integrated memory, freely programmable test sequences, sensor input, USB, Bluetooth interface	PROFITEST PRIME	M506A
Test instrument for measuring the electrical safety of devices (see data sheet 3-349-753-03	SECUTEST PRO	M7050...

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