GOSSEN METRAWATT
GMC-INSTRUMENTS GROUP

PROFITEST | EMOBILITY

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

3-349-980-03
5/2.24

- Testing of mode 2 and 3, single and 3-phase 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
- Simulation of vehicle state per DIN EN IEC 61851-1/ VDE 0122-1
- With a compatible test instrument *:
  - Measurement of protective conductor and insulation resistance per DIN EN 50678 VDE 0701 / DIN EN 50699 VDE 0702
  - Tripping test with nominal residual current and measurement of time to trip
  - Testing of charging cables with guided test sequences (depending on test instrument) as well as evaluation and documentation of the individual test steps
- Measurement of protective conductor current with current clamp* as an accessory
- Testing of resistance coding for vehicle inlets and vehicle connectors per DIN EN IEC 61851-1/VDE 0122-1 with a standards-compliant resistance measuring instrument as an accessory

* see section "Applications" for compatible devices.

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Applications

PROFITEST EMOBILITY is an adapter for the standards-compliant testing of mode 2 und 3 single and 3-phase charging cables.

The adapter can be used with or without test instrument.

The following test instruments are compatible:

- PROFITEST MF XTRA (M534H)
- PROFITEST MF XTRA (LEMONGREEN) (M534Y)
- PROFITEST MF TECH (M534K; M534X)
- PROFITEST MXTRA (M520P; M522P)
- PROFITEST MXTRA IQ (M534M; M534D)
- PROFITEST MTECH+ (M520R; M522R)
- PROFITEST MTECH+ IQ (M534L; M534B)
- PROFITEST PRIME (M506A; M516A)
- PROFITEST PRIME AC (M506C; M516C)
- SECUTEST ST PRO (M707B)

With the METRACLIP 61[1] current clamp transformer as an accessory it is possible to measure protective conductor current.

With a standards-compliant resistance measuring instrument it is possible to test the resistance coding for vehicle inlets[2].

Tests without mains supply power to a charging cable (without additional test instrument)

- Interruption of individual conductors (undervoltage detection)
- Reversed wires
- PE to phase (Interference voltage in the protective conductor due to connection of the phase conductor to the protective conductor)

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

Additional tests in combination with a compatible test instrument

Single measurements:

- Protective conductor resistance measurement of the charging cable per DIN EN 0701-0702 (Function R_{PE} at the test instrument)
- Insulation resistance measurement of the charging cable per DIN EN 0701-0702 (Function R_{ISO} at the test instrument)
- RCD tripping test at the ICCB with nominal residual current (Function I_F ◢ at the test instrument)[1)]
- Measurement of time to trip of the RCD at the ICCB (Function $I_{\Delta N}$ at the test instrument)

Test sequences for convenient measurement and report generation:

- Testing of e-charging cables per DIN EN 50678 VDE 0701 and DIN EN 50699 VDE 0702 as well as manufacturer's specifications with a guided test sequence[2)] during which the test instrument runs through all test steps semi-automatically.
- Each test step is assessed and evaluated by the user (go/no-go) for subsequent documentation.

Additional tests in combination with accessories

- Measurement of protective conductor current with current clamp
  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 as an accessory.
- Testing of resistance coding for vehicle inlets and vehicle connectors per DIN EN IEC 61851-1/VDE 0122-1[2] with a standards-compliant resistance measuring instrument

1) not possible with SECUTEST ST PRO.
2) not possible with PROFITEST MXTRA and PROFITEST MTECH+.

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Applicable Regulations and Standards

DIN EN 60529	Degrees of protection provided by enclosures (IP code)
DIN EN 61010-1	Safety requirements for electrical equipment for measurement, control and laboratory use – Part 1: General requirements
DIN EN IEC 61557-2	Electrical safety in low voltage distribution systems up to 1000 V AC and 1500 V DC – Equipment for testing, measuring or monitoring of protective measures
DIN EN 61557-4	Electrical safety in low voltage distribution systems up to 1000 V AC and 1500 V DC– Equipment for testing, measuring or monitoring of protective measures– Part 4: Resistance of earth conductors, protective conductors and equipotential bonding conductors
DIN EN 61557-16	Electrical safety in low voltage distribution systems up to 1000 V AC and 1500 V DC – Equipment for testing, measuring or monitoring of protective measures – Part 16: Devices for testing the effectiveness of protective measures of electrical devices and/or electrical medical devices
DIN EN IEC 61851-1	Electric vehicle conductive charging systems Part 1: General requirements

Characteristic Values

Measurement with METRACLIP 61 current clamp as an accessory:

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

Measurements with a compatible test instrument:

Protective conductor measurement	see technical data on R_{LO} function of the test instrument
Insulation Measurement	see technical data on R_{ISO} function of the test instrument

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 × F0,8A/250V, 5 × 20 mm Supply network 3-phase (N2): F1, F2 and F3: 3 × F0,8A/500V, 6.3 × 32 mm

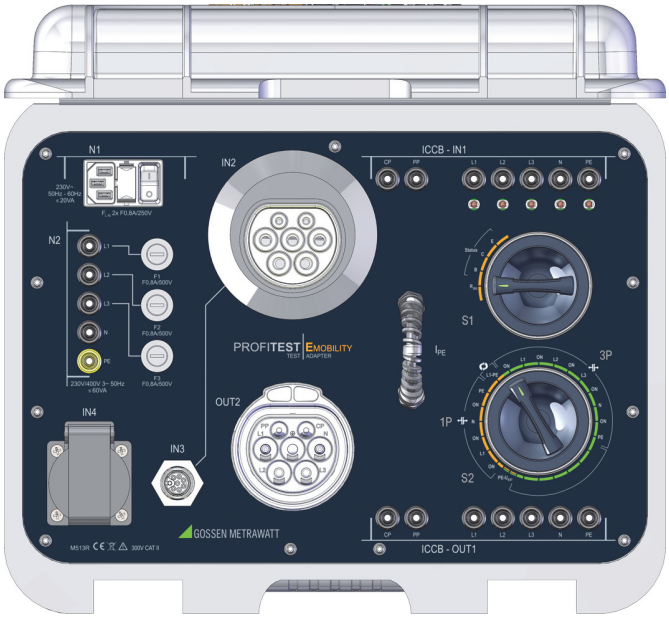
Ambient Conditions

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

Mechanical Design

Protection	Housing: IP40 (protection against ingress of solid foreign objects: ≥ 1.0 mm diameter, protection against ingress of water: not protected) Terminals IP20 (protection against ingress of solid foreign objects: ≥ 12.50 mm diameter, protection against ingress of water: not protected) per DIN EN 60529 / IEC 60529
Dimensions	Housing W × H × D: approx. 401 × 307 × 173 mm (without connector cable, with surface mount sockets)
Weight	approx. 6.4 kg (with connector cable)

Connection and Control Panel View



Test outlets

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

Scope of Delivery

1 Test adapter PROFITEST EMOBILITY (M513R) in case
1 Mains power cable
1 Set of operating instructions

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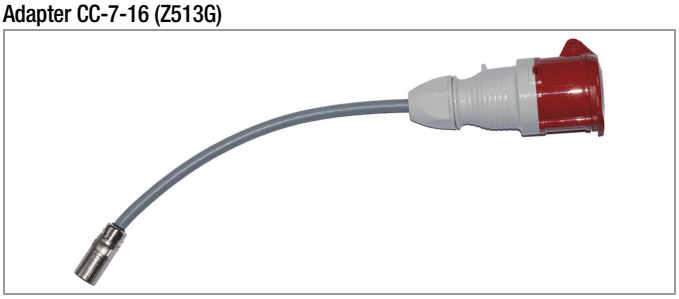
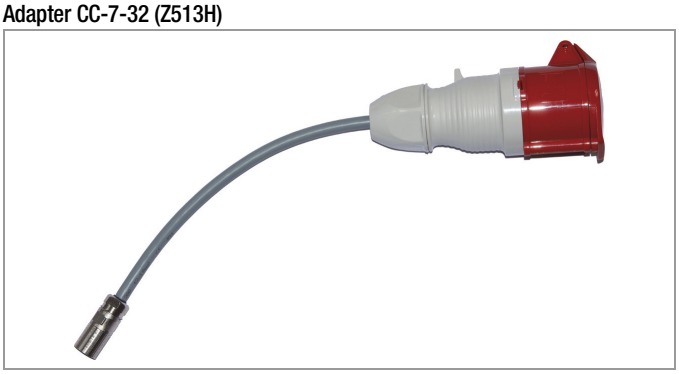
Accessories

Adapter CC-7-16 (Z513G)

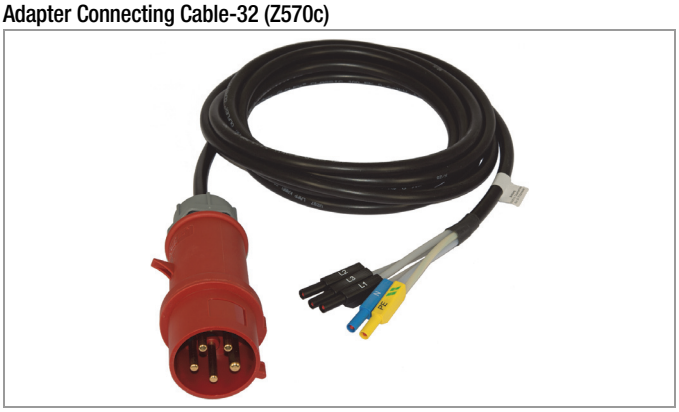


Adapter CC-7-32 (Z513H)

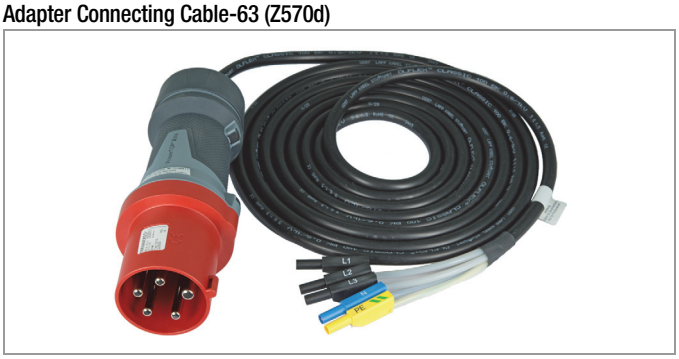


Adapter Connecting Cable-16 (Z570B)

Adapter Connecting Cable-32 (Z570c)



Adapter Connecting Cable-63 (Z570d)



Adapter PRO-TYPII-TYPI (Z525C)

Typ II Inlet | Typ I Inlet

METRACLIP 61 (M311D)

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

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Order Information

test instrument

Designation	Description / Scope of Delivery	Article Number
PROFITEST EMOBILITY	Test adapter for standards-compliant testing of single and 3-phase, mode 2 and 3 charging cables with simulation of faults	M513R

Accessory – Adapters

Designation	Description / Scope of Delivery	Article Number
CC-7-16	CEE 16 A socket to 7-pole plug, 500 mm, 300 V CAT II	Z513G
CC-7-32	CEE 32 A socket to 7-pole plug, 500 mm, 300 V CAT II	Z513H
Connecting Cable-16	Adapter cable with CEE plug, 5-pole 16 A, and 4 mm safety sockets (L1, L2, L3, N, PE), CAT III 300 V	Z570B
Connecting Cable-32	Adapter cable with CEE plug, 5-pole 32 A, and 4 mm safety sockets (L1, L2, L3, N, PE), CAT III 300 V	Z570C
Connecting Cable-63	Adapter cable with CEE plug, 5-pole 63 A and 4 mm multilam safety plug (L1, L2, L3, N, PE), CAT III 300 V for PROFITEST E-Mobility and Remote Adapter	Z570D
PRO-TYPII-TYPI	Adapter: PRO TYPE II to TYPE I	Z525C

Accessories – Clamp Meter

Designation	Description / Scope of Delivery	Article Number
METRACLIP 61	Digital clamp meter (leakage-current clamp) 1 mA … 300 A AC, including 2 button-cell batteries (installed), operating instructions and pouch	M311D

Accessories – Compatible Measuring/Test Instruments

On page 1 you find a list of the measuring/test instruments which are compatible with PROFITEST EMOBILITY.

Our goal is to ensure long-term compatibility of our instruments. Therefore, the list includes a few measuring/test instruments which are still compatible with PROFITEST EMOBILITY but which have been replaced by more recent versions in the meantime.

More detailed information as well as order information on the up-to-date measuring/test instruments can be found in the data sheets:

- PROFITEST MF series
- PROFITEST MASTER series
- PROFITEST MASTER IQ series
- PROFITEST PRIME, PROFITEST PRIME AC
- SECUTEST ST BASE (10) / PRO and SECULIFE ST BASE (25)

You can find the data sheets on our website.

For further information please refer to:

- our Measuring Instruments and Testers catalog
- our website www.gossenmetrawatt.com

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