

# TESTERS

**Protective measures in electrical systems are intended to prevent bodily injury due to accidents involving electrical current.**

Of course they also prevent property damage caused by electrical power as well. And thus every electrical system should be checked with our test instruments before initial start-up, and at regular intervals thereafter, in order to assure the effectiveness of installed protective measures.

For the most part, this involves testing in accordance with VDE 0100 (IEC 60364), VDE 0105 (EN 50110) and VDE 0113 (EN 60204) regulations.

The tests themselves are executed by the instruments strictly in accordance with stipulations set forth in particular by VDE 0413 (EN 61557).



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**ep INSTROM**



PROFITEST I Master



For testing the effectiveness of safety measures in electrical systems in accordance with DIN VDE 0100–600 / DIN VDE 0105–100

For use in all alternating and 3-phase electrical systems with voltages from 65 to 500 V and frequencies of 15.4 to 420 Hz

Advantages:

Low-resistance, insulation, earth resistance, standing-surface insulation, loop and line impedance measurements, as well as testing of residual current devices (RCDs)

- CAT IV
- DAkkS calibration certificate
- Bidirectional data exchange via USB
- AMC – automatic measurement cable compensation using 4-wire method
- 2-pole measurements with plug insert or interchangeable 2/3-pole adapter
- Help menu with wiring diagrams
- Connection of an RFID reader or barcode scanner
- Including ETC software (Electrical Testing Center)
- Bidirectional data exchange with DDS-CAD planning software
- Free firmware updates with the master updater.

**Advantage:** adaptation to changing standards and expanded functions

- Registration at myGMC (www.gossenmetrawatt.com)

Advantages (amongst others):

- ◆ Protection against theft after registering your serial number
- ◆ Free download of current firmware
- ◆ Information regarding amendments to standards

Applications:

- Loop measurement without tripping the RCD
- RCD test with continuously rising ramp
- Voltage drop measurement
- 1 mA varistor response test with insulation measuring voltage up to 1000 V
- Display of approved fuse types for electrical systems
- Energy meter start-up testing
- Calculation of cable lengths for common copper wire cross-section
- Leakage and equalizing current of up to 1A, as well as working current of up to 150A can be measured with the W Z12C current clamp sensor
- Phase sequence measurement (including highest line-to-line voltage)
- Testing of special RCCBs with PROFITEST MTECH/MXTRA: selective S, SRCDs, PRCDs (Schukomat, Sidos and others), types A, AC, B, B+, F, G/R
- Testing of RCD protection in IT systems
- Insulation measurement with rising voltage
- Current measurement with Metraflex (option)

Testers: PROFITEST I Master

Type	Article
PROFITEST MBASE	M520M
PROFITEST MTECH	M520O
PROFITEST MPRO	M520N
PROFITEST MXTRA	M520P

PROFITEST MXTRA – Functions

- Intelligent ramp, simultaneous measurement of breaking current  $I_{\Delta N}$  and breaking time  $t_a$
- Testing of IMDs and RCMs
- Creation of test sequences (ETC)
- Bluetooth interface
- Earth resistance measurements, amongst others:
  - ◆ Selective earth resistance (4-wire measuring method)
  - ◆ Earth loop resistance (2-clamp method)
  - ◆ Soil resistivity  $\rho$
- Leakage current measurement with PRO-AB
- Ascertainment of residual voltage per EN 60204

Scope of delivery:

- Earthing contact plug insert (PRO-Schuko)
- 2-pole measuring adapter and cable for expansion into a 3-pole adapter (PRO-A3-II)
- Alligator clips
- Set of rechargeable batteries and charger
- DAkkS calibration certificate
- ETC software
- USB cable

Incl. DAkkS Calibration Certificate

Incl. Software

An overview of the software's performance features is available on Page 89 of the catalog and on the Internet (see order information for web address). Please refer to the data sheet for further technical specifications.



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Overview – Characteristics / Features	PROFITEST			
	MBASE	MTTECH	MPRO	MXTRA
<b>RCD measurements</b>				
UB measurement without tripping the RCCB	■	■	■	■
Tripping time measurement	■	■	■	■
Tripping current measurement	■	■	■	■
Selective, SRCDS, PRCDs, types A, AC, G/R and F	■	■	■	■
AC/DC sensitive RCDs, type B, type B+	—	■	—	■
Testing of insulation monitoring devices (IMDs)	—	—	—	■
Testing of residual current monitoring devices (RCMs)	—	—	—	■
Testing for N-PE reversal	■	■	■	■
<b>Loop impedance <math>Z_{L-PE} / Z_{L-N}</math></b>				
Fuse table for systems without RCDs	■	■	■	■
Without tripping the RCD, fuse table	—	■	—	■
With 15 mA test current* without tripping the RCD	■	■	■	■
<b>Earth resistance <math>R_E</math></b>				
I-U measuring method, mains operation (2/3-wire measuring method via measuring adapter: 2-wire/2-wire + probe)	■	■	■	■
Earth resistance $R_E$ (battery operation) 3 or 4-wire measuring method via PRO-RE adapter	—	—	■	■
Soil resistivity $\rho_E$ (battery operation) 4-wire measuring method via PRO-RE adapter	—	—	■	■
Selective earth resistance $R_E$ (mains operation) with 2-pole adapter, probe, earth electrode and current clamp sensor (3-wire measuring method)	■	■	■	■
Selective earth resistance $R_E$ (battery operation) with probe, earth electrode and current clamp sensor (4-wire measuring method via PRO-RE adapter and current clamp sensor)	—	—	■	■
Earth loop resistance $R_{L,LOOP}$ (battery operation) with 2 clamps (current clamp sensor direct and current clamp transformer via PRO-RE/2 adapter)	—	—	■	■
<b>Measurement of equipotential bonding <math>R_{LO}</math></b>				
Automatic polarity reversal	■	■	■	■
<b>Insulation resistance <math>R_{ISO}</math></b>				
Variable or rising test voltage (ramp)	■	■	■	■
<b>Voltage measurement</b>				
$U_{L-N} / U_{L-PE} / U_{N-PE} / f$	■	■	■	■
<b>Special measurements</b>				
Leakage current (clamp measurement) $I_L, I_{AMP}$	■	■	■	■
Meter start-up	■	■	■	■
Phase sequence	■	■	■	■
Voltage drop	■	■	■	■
Standing-surface insulation $Z_{ST}$	■	■	■	■
Earth leakage resistance $R_{E(ISO)}$	■	■	■	■
Leakage current with PRO-AB adapter	—	—	—	■
Residual voltage test	—	—	—	■
Intelligent ramp	—	—	—	■
<b>Features</b>				
Selectable user interface language	■	■	■	■
Memory (database for up to 50,000 objects)	■	■	■	■
Automatic test sequence function	■	■	■	■
RS 232 port for RFID/scanner	■	■	■	■
USB port for data transmission	■	■	■	■
Bluetooth® interface	—	—	—	■
ETC user software for PC	■	■	■	■
Measuring category: CAT III 600 V / CAT IV 300 V	■	■	■	■
DAkkS calibration	■	■	■	■

\* The so-called live measurement is only advisable if there is no bias current within the system. Only suitable for motor protection switches with small nominal current.

### Working Efficiently

The PROFITEST MASTER product range allows for data entry via the RS 232 port with the help of a barcode or RFID reader. This unique function assures maximum operating convenience for creating and expanding tree structures (customers, buildings, distributors etc.), searching for designations or IDs, navigating through various modes, creating test texts, inspection and trial tests, creating defects lists and much more. Data processing, measurement and visual inspection can be executed immediately without reconfiguring plugs or switches – the basis for meaningful documentation.



### Automated Test Sequences

Automated test sequences can be generated from manually created individual measurements with the help of the test sequence function. A test sequence consists of individual steps, measurements, visual inspections etc., which are executed one after the other. Measurement results obtained in this way are saved correctly to the freely selectable tree structure and can be subsequently documented by means of appropriate software. Test sequences are created with the help of ETC software and are transferred to the respective test instrument (PROFITEST MXTRA und MPRO).



Testing Packages	Article	BASE Starter Package	TECH Starter Package	Master Package TECH	E-CHECK Set	Starter Package XTRA	Master Package XTRA	MEDpackage XTRA	Profi-Package XTRA
		M500M	M500N	M500P	M500U	M500V	M500W	M500X	M500Y
<b>Accessories</b>									
PROFITEST MBASE	M520M	■	—	—	—	—	—	—	—
PROFITEST MTECH	M520O	—	■	■	■	—	—	—	—
PROFITEST MXTRA	M520P	—	—	—	—	■	■	■	■
Earth spike SP350	GTZ3304000R0001	—	—	■	—	—	—	—	—
TR50 drum	GTY1040014E34	—	—	■	—	—	—	—	—
VARIO plug adapter set	Z500A	■	■	■	■	■	■	■	■
PRO-RLO II adapter	Z501P	—	—	■	—	—	■	■	—
PRO-AB leakage current measuring adapter	Z502S	—	—	—	—	—	—	■	—
E-Clip 2 generator clamp for earthing measurements	Z591B	—	—	—	—	—	—	—	■
Z3512A clamp for earthing measurements	Z225A	—	—	—	—	—	—	—	■
PRO-RE 2 measuring adapter for 2-clamp measuring method	Z502T	—	—	—	—	—	—	—	■
F2000 universal carrying pouch	Z700D	■	■	—	—	■	—	—	—
Professional case	Z502W	—	—	■	—	—	■	■	■
E-CHECK case	Z502M	—	—	—	■	—	—	—	—
Rechargeable battery pack	Z502H	■	■	■	■	■	■	■	■
Charger	Z502P	■	■	■	■	—	—	—	—
Charger	Z502R	—	—	—	—	■	■	■	■



SP350 Earth Spike



E-Clip 2 Clamp Generator

PRO-RE 2 Measuring Adapter

F2000 Universal Carrying Pouch

Professional Case

Z3512A Clamp Meter

## PROFITEST I S1 Article: GTM5101000R0001

### Simulation Model for Testing the Effectiveness of Safety Measures in Low-Voltage Systems per DIN VDE 0100

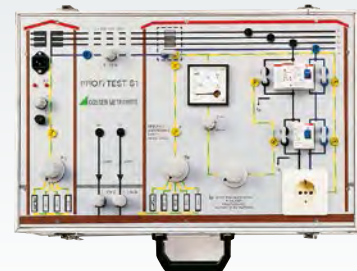
This model can be used to simulate TT and TN systems with overcurrent protective devices, as well as with RCDs (systems with overcurrent protective devices can be equipped with normal and selective RCCBs).

In combination with the appropriate measuring and test instruments, all measurements and tests can be executed which are stipulated for safety testing of electrical systems of up to 500 V with various system types and protective measures.

- Insulation resistance measurements
- Low-resistance measurements at equipotential bonding conductors
- Measurements for testing RCDs
- Loop impedance measurements
- Earthing resistance measurements
- Line voltage measurements

#### Optional accessories:

- S1A-4/10 contact protected jumper (package of 10): GTZ3216000R0001
- Can be used with: PROFITEST MASTER, PROFITEST 0100S-II+, PROFITEST 2, PROFITEST ONE, C devices





Incl. Factory Calibration Certificate

## PROFITEST C

Article: M521A



### Test Instrument for DIN VDE 0100 / IEC 60364-6

Protective measures test instrument for loop resistance measurement, calculation of short-circuit current and display of suitable fuse ratings. In addition to complete testing for the effectiveness of RCCBs, the instrument is also capable of phase sequence analysis, as well as the measurement of voltage and frequency.

- Rugged 2-component housing with integral impact guard – perfect for use by on-site installation teams and an ideal supplement to the PROFITEST 204 in accordance with the new EN 60204 standard.
- Large, illuminated, anti-glare graphic display allows for clear, intuitive, menu-driven operation
- Quick, easy operation with the help of just 5 keys
- Integrated measured value memory can be read out via the IrDa interface which is included as a standard feature.
- The instrument can always be kept current thanks to the update option.
- Storage of measured values with accurate assignment to their respective electrical circuits, distributors and buildings with the alphanumeric keypad
- Go / No-Go indication via LEDs, and instructions in the display
- Integrated phase tester
- Stand, holders for test probes and cables, and a recharging socket for NiCd/NiMH batteries

Please refer to the data sheet for further technical specifications.

## YOUR 2<sup>ND</sup> INSTRUMENT

### PROFITEST I 2

#### Inexpensive, Universal Protective Measure Test Instrument for DIN VDE 0100 – 600 / IEC 60364-6

The PROFITEST 2 provides users with a test instrument for testing the effectiveness of protective measures in electrical systems per DIN VDE 0100 – 600.

- Easy operation
- Fast test sequences
- AMC – automatic measurement cable compensation using 4-wire method
- Low-resistance measurement
- Insulation measurement
- $Z_{LOOP} + I_k$  + fuse type

- Complete RCD testing (RCD types A and AC)
- Earth measurement
- Phase sequence indicator
- Testing via earthing contact plug or 2-pole adapter

#### Scope of delivery:

- Earthing contact plug insert (PRO-Schuko)
- Cable for expansion into a 3-pole adapter
- 2 alligator clips / 2-pole measuring adapter
- Shoulder strap



Incl. Factory Calibration Certificate

Please refer to the data sheet for further technical specifications.

Type	Languages	Article
PROFITEST 2a	D, GB, F, I, E, NL	M520W