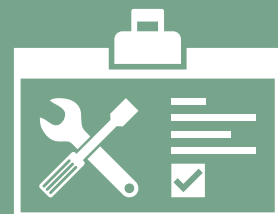


GOSSEN METRAWATT

CAMILLE BAUER

# MEASURING AND TEST TECHNOLOGY 2016 / 2017

MAIN CATALOG



## SAFETY THROUGH COMPETENCE



## EDITORIAL



**Marcel Hutka**  
Managing Director  
GMC-I Messtechnik GmbH

Thank you for your interest in our products and services covering all aspects of measuring and test technology.

Our product range is distinguished by values such as quality, reliability, safety and advanced technology, as well as dynamic design, extremely easy operation and a unique innovative spirit. After all, our longstanding measuring and test technology expertise is built into each of our products.

Again and again, users tell us that “measuring and test systems from GOSSEN METRAWATT are safe, reliable and economic”, and we’re very pleased to hear it because this is precisely what we strive to accomplish, and that’s what differentiates us from the competition. And we’re self-assured enough to go one step beyond this as well:

**GOSSEN METRAWATT stands for reliability and competence in measuring and test technology.**

We’re ready to meet the challenges of future market developments with attractive new products, as well as services, consultation, project engineering, training and on-site support.

Our customer-oriented sales network with highly qualified sales engineers is your guarantee for competent, personal advice directly from the manufacturer.

We’ve grown together with you over a period of many decades, and have always striven to align ourselves to your requirements. In the future as well, we’ll accompany you as a dependable partner, and inspire you with new products and innovations in the field of measuring and test technology.

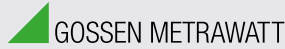
**You can count on us!**



# GOSEN METRAWATT – Company History

## WHO WE ARE

### GMC INSTRUMENTS



## More than 100 Years of Quality and Innovation

The GMC Instruments group and its brand names including GOSSEN METRAWATT, CAMILLE BAUER, DRANETZ, PROSyS, GOSEN, SEAWARD and RIGEL stand for innovation and quality in the capital goods market in the field of electronics.

GOSSEN METRAWATT in Nürnberg, Germany, is a leader in the field of measuring and test instruments and stands for electrical safety, energy management solutions and power supplies. CAMILLE BAUER in Switzerland is specialized in industrial measuring technology and process engineering and offers solutions in the fields of heavy current monitoring and position sensor technology. Products supplied by DRANETZ (USA) stand for power quality and mains analysis. PROSyS (GB) stands for high precision measuring clamp technology. GOSSEN (Germany) is highly successful in the photometry market. The newest members of the groups, namely SEAWARD (GB) and RIGEL (GB), offer products in the field of measuring and test technology.

Our international production facilities are located in Germany, Switzerland, England and the USA. We also demonstrate our presence in Italy, the Netherlands, the Czech Republic, Switzerland, Austria, France, Spain and China with our own on-site sales organizations.

GMC-I Messtechnik GmbH is responsible for expert consultation, sales and project engineering, as well as training and support. Competent after-sales support including service, calibration and repair is assured by GMC-I Service GmbH.

## WHERE WE'RE COMING FROM



## GUGGENHEIMER AG (METRAWATT AG)

In 1906, Siegfried Guggenheimer registered a company in Nürnberg for the production and marketing of electric measuring instruments, which he named after himself. The company was reorganized in 1933 to Metrawatt AG.



## PAUL GOSEN CO.K.G

In 1919, Paul Gossen Co. K.G. – factory for electrical measuring instruments – was founded by Paul Gossen in Baiersdorf, and the company's success story continued in Erlangen a year later.

## The two merged to form GOSSEN METRAWATT GmbH in 1992.



## 01 MULTIMETERS

Safe, reliable multimeters for every application

## 02 POWER QUALITY

Improved stability of electrical systems with GOSSEN METRAWATT's power disturbance analyzers

## 03 TEST INSTRUMENTS

Test instruments for testing the electrical safety of electrical equipment and installations

## 04 TEST INSTRUMENTS

Test instruments for testing the electrical safety of electrical equipment

## 05 LABORATORY POWER SUPPLIES

Controllable current and voltage sources, as well as electronic loads

## 06 SOFTWARE

Transferring, displaying, managing and documenting data – GOSSEN METRAWATT's software products

## 07 MEDICAL MEASURING INSTRUMENTS AND TESTERS

Overview – measuring and test instruments for medical technology

## 08 ENERGY MANAGEMENT / CONTROL TECHNOLOGY

Overview – energy management / control technology

## 09 SERVICES

Seminars – service – certification

## 10 APPENDIX

Regulations – safety standards – workshop equipment – type index

Other catalogs available from the GMC-Instruments group:

INDUSTRIAL TECHNOLOGY



MEDICAL TECHNOLOGY



PHOTO TECHNOLOGY



A multimeter is an electronic measuring instrument that combines several measurement functions into a single unit, and is used primarily to measure electrical quantities. To measure means to compare a known quantity with an unknown quantity. The standards of measure of the PTB in Brunswick (German Federal Institute of Physics and Metrology) are used as comparative quantities for our multimeters. This is confirmed by means of a DAkkS calibration certificate. Multimeters included in the METRAHIT series are rugged, reliable DMMs with housings made of impact resistant plastic, and are equipped with unique, patented automatic blocking sockets (ABS). They feature an ultramodern design and are equipped with state-of-the-art technology.

## CONTENTS

### MULTIMETERS

- 01 - 2 Overview
- 01 - 4 Digital Handheld Multimeters: A Series
- 01 - 5 Digital Handheld Multimeters: E Series
- 01 - 6 Digital Handheld Multimeters: S Series - Special Instruments
- 01 - 8 TRMS Digital Multimeter
- 01 - 9 Multimeters - Insulation Measuring Instruments
- 01 - 10 Multimeters - Cable Multimeters, Milliohmmeters
- 01 - 11 Other Multimeters - Milliohmmeters, Insulation Measuring Instruments
- 01 - 12 Other Measuring Instruments - Ex Multimeters
- 01 - 13 Other Measuring Instruments - Folding Digital-Analog Multimeters
- 01 - 14 Other Measuring Instruments - Digital-Analog Multimeters
- 01 - 15 Other Measuring Instruments - Analog Multimeters
- 01 - 16 Other Measuring Instruments - Process Calibrator
- 01 - 17 Other Measuring Instruments - Calibrator / Diagnostics Unit
- 01 - 18 Handheld Digital Multimeters - Overview

### MULTIMETER ACCESSORIES

- 01 - 22 Shunts / Measuring Adapters / Interface Adapters
- 01 - 24 Current Sensors
- 01 - 25 Current Clamp Sensors / Current Transformers
- 01 - 26 Probes, Temperature Sensors
- 01 - 27 Accessories - Overview
- 01 - 28 Probe, Cable Sets
- 01 - 29 Cable Sets / Fuses
- 01 - 30 Pouches, Hard Cases, Covers, Hangers for Multimeters



**A SERIES**

4½ Place TRMS Digital Multimeters for Professional Use with a Resolution of 12,000 Digits



**METRAHIT BASE**  
PAGE 01 - 4



**METRAHIT PRO**  
PAGE 01 - 4



**METRAHIT TECH**  
PAGE 01 - 4



**METRAHIT XTRA**  
PAGE 01 - 4

**E SERIES**

4⅔ Place High-End TRMS Digital Multimeter, System Compatible with IR Interface – Resolution: 60,000 Digits



**METRAHIT EBASE**  
PAGE 01 - 5



**METRAHIT ESPECIAL**  
PAGE 01 - 5



**METRAHIT ETECH**  
PAGE 01 - 5



**METRAHIT EXTRA**  
PAGE 01 - 5

**S SERIES**

Precision TRMS Multimeter, Temperature Measuring Instrument and Data Logger for Demanding, Universal Use in the Laboratory and for Service Applications



**METRAHIT OUTDOOR**  
PAGE 01 - 6



**METRAHIT 30M**  
PAGE 01 - 6



**METRAHIT ENERGY**  
PAGE 01 - 7



**METRAHIT ULTRA**  
PAGE 01 - 7

**HANDHELD DIGITAL MULTIMETERS**

Universal TRMS Digital Multimeters with Analog Scale for Use in All Areas of Electrical Engineering



**METRAHIT HIT 2+**  
PAGE 01 - 8



**METRAHIT WORLD**  
PAGE 01 - 8



**METRALINE DMM15/16**  
PAGE 01 - 8

**INSULATION MEASURING INSTRUMENTS AND CABLE MULTIMETERS**

Multimeters and Insulation Testers for Service Applications for Measuring and Testing Industrial Trucks, Household Appliances, Telephone Lines and other Applications



**METRAHIT ISO**  
PAGE 01 - 9



**METRAHIT ISO@AREO**  
PAGE 01 - 9



**METRAHIT COIL**  
PAGE 01 - 9



**METRAHIT T-COM/PLUS**  
PAGE 01 - 10

**MILLIOHM METERS INSULATION MEASURING INSTRUMENTS**

Insulation resistance tester, milliohm-meter, 4¾ place multimeter and data logger. In addition to a milliohm-meter, an insulation tester has been integrated for measurements up into the gigaohm range.



**METRAHIT 27M**  
PAGE 01 - 9



**METRAHIT 27I**  
PAGE 01 - 11



**METRAHIT H+E CAR**  
PAGE 01 - 11



**EX MULTIMETERS**

Explosion-Proof Digital Multimeters and Milliohmmeters  
Thanks to their intrinsically safe design and a rugged housing, they're suitable for use in the mining, chemical and petro-chemical industries.



**METRAHIT 27EX**  
PAGE 01 - 12



**METRALINE EXM25**  
PAGE 01 - 12

**FOLDING DIGITAL / ANALOG MULTIMETERS**

4 1/2 Place TRMS Digital Multimeter for Professional Use with a Resolution of 30,000 Digits



**METRAport 40S**  
PAGE 01 - 13



**METRAport 3A**  
PAGE 01 - 13

**HANDHELD DIGITAL / ANALOG MULTIMETERS**

Multimeters for Education and Vocational Training, as well as for Use in the Electrical Trades, Industry, Service and Installation



**METRAMax 12**  
PAGE 01 - 14



**METRAHIT 1A / 2A**  
PAGE 01 - 14



**METRAMax 2 / 3**  
PAGE 01 - 15



**METRAMax 6**  
PAGE 01 - 15

**PROCESS CALIBRATOR MULTIMETER / CALIBRATOR**

Multifunctional Process Calibrator and Precision TRMS Multimeter for mA, mV, V and Ohm Ranges including Data Logger for Demanding, Universal Use in the Lab, and for Service Calls



**METRACAL MC**  
PAGE 01 - 16



**METRAHIT CAL**  
PAGE 01 - 17

**DIAGNOSTICS UNIT**

Handy, Rugged Addressing and Diagnostics Tool for Initial Start-Up, Maintenance and Service



**METRAHIT 1ASi**  
PAGE 01 - 17

**MULTIMETER ACCESSORIES**

Adapters, Chargers, Power Packs, Current Sensors, Current Clamp Sensors, Current Transformers, Probes, Temperature Sensors, Cable Sets, Fuses, Pouches and Cases



**SM16**  
PAGE 01 - 22



**CP30**  
PAGE 01 - 24



**KS17-ONE**  
PAGE 01 - 28



**F841**  
PAGE 01 - 30



## METRAHIT A Series

### 4½ Place TRMS Digital Multimeter with a Resolution of 12,000 Digits



METRAHIT|BASE



METRAHIT|PRO



METRAHIT|TECH



METRAHIT|XTRA

#### STANDARD for all A series instruments:

- Resolution: 12,000 digits, 4½ place, TRMS AC, AC+DC function
- 3 connector jacks with patented automatic blocking sockets (ABS)
- Large, illuminated display with character height of 15 mm and quasi-analog display
- Voltage measurement with a basic accuracy of  $\pm 0.05\%$  ( $V_{DC}$ )
- Measuring category: 1000 V CAT III and 600 V CAT IV, IP 52 protection
- Automatic storage of measured values: DATA / MIN / MAX

#### METRAHIT BASE with 12 multimeter functions

Multimeter with high-impedance measuring inputs without direct measurement of current, e.g. for use in the field of energy technology at power utilities

- V (AC, DC, AC+DC), A (AC, DC, AC+DC, with clamp), Ohm, °C, continuity, diode, Hz (V, A)
- Clip factor: 1:1 / 10 / 100 / 1000 for current sensors

#### METRAHIT PRO with 16 multimeter functions, same as METRAHIT BASE + direct measurement of current

Multimeter with low-pass filter and reduced voltage input impedance, e.g. for measurements at frequency converters

- Alternating voltage measurement with reduced input impedance (1 MOhm)
- 1 kHz / -3 dB low-pass filter can be activated

#### METRAHIT TECH with 20 multimeter functions, same as METRAHIT PRO + capacitance

Multimeter with optimized current ranges, e.g. for measurements at measuring transducers in the process industry

- Clip factor adjustable for current sensors (V) and transformers (A)
- Current ranges optimized for 4 to 20 mA measuring transducer output

#### METRAHIT XTRA with 23 multimeter functions, same as METRAHIT TECH (without clip factor) + Pt100/1000 + duty cycle

System multimeter with data logger, IR-PC interface and power pack socket

- IR interface and integrated measurement data memory for 15,400 measured values
- Power pack connector socket
- Including rubber holster

#### INCLUDED WITH THE A SERIES:

- KS17-2 measurement cable set
- Two 1.5V AA batteries
- DAKkS calibration certificate
- Set **METRAHIT PRO (M242D)**: in HC20 case with WZ12A AC current clamp

Type	Article
METRAHIT BASE	M241A
METRAHIT PRO	M242A
METRAHIT TECH	M243A
METRAHIT XTRA	M240A

Function	BASE	PRO	TECH	XTRA
Clip function	■	–	■	–
Frequency measurement	100 kHz	100 kHz	100 kHz	1 MHz
Duty cycle	–	–	–	■
Temperature °C/°F	TC (K)	TC (K)	TC (K)	TC (K)/RTD
Power pack connector socket	–	–	–	■
IR interface	–	–	–	■
Data logger	–	–	–	■
L <sub>O</sub> voltage with low-pass filter	–	■	■	■
Rubber holster	Optional	Optional	Optional	■
HC 20 case	–	–	–	–
TRMS bandwidth ( $V_{AC}$ )	1 kHz	10 kHz	10 kHz	20 kHz
TRMS current measurement	–	0.1 mA ... 10 (16) A	1 $\mu$ A ... 10 (16) A	10 nA ... 10 (16) A
Capacitance measurement	–	–	■	■
Resolution	12,000	12,000	12,000	12,000



**METRAHIT | “E Series”****4<sup>6</sup>/<sub>7</sub> Place Digital Multimeter, System Compatible with IR Interface – Resolution: 60,000 Digits****METRAHIT | EBASE****METRAHIT | ESPECIAL****METRAHIT | ETECH****METRAHIT | EXTRA****STANDARD for E series:**

- Resolution: 60,000 digits, 4<sup>6</sup>/<sub>7</sub> place, basic accuracy of  $\pm 0.05\%$  ( $V_{DC}$ )
- 3 connector jacks with patented automatic blocking sockets (ABS), fuse (not with ESPECIAL)
- DAkkS calibration certificate included in scope of delivery
- Large, illuminated display with 15 mm character height
- TRMS AC, AC+DC function
- Measuring category: 1000 V CAT III and 600 V CAT IV (except for ESPECIAL), IP 52 protection
- IR interface for system integration

**METRAHIT EBASE with 15 multimeter functions**

Same applications as BASE but with higher resolution and IR interface

- V (AC, DC, AC+DC), A (AC, DC, AC+DC, with clamp), Ohm, °C, dB, continuity, diode, Hz (V, A)
- Current measurement via current clamp sensors with adjustable transformation ratio (clip) of 1 mV:1 mA to 1 mV:1 A

**METRAHIT ESPECIAL with 21 multimeter functions, same as METRAHIT EBASE + direct measurement of current**

Special multimeter for connection to current transformers without fuses, in order to eliminate danger resulting from interruption of the transformer circuits (and thus measuring category 600 V CAT II)

- Clip factor adjustable for current sensors (V) and transformers (A)
- Alternating voltage measurement with reduced input impedance (low impedance, 1 MOhm)
- 1 kHz / -3 dB low-pass filter can be activated

**METRAHIT ETECH with 23 multimeter functions, same as METRAHIT ESPECIAL + capacitance**

- Same applications as Tech but with higher resolution and system compatible thanks to IR interface
- Clip factor adjustable for current sensors (V) and transformers (A)
- Current ranges optimized for 4 to 20 mA measuring transducer output

**METRAHIT EXTRA with 26 multimeter functions, same as METRAHIT ETECH + Pt100/1000 + duty cycle**Same as XTRA with larger data memory, higher resolution and  $V_{AC}$  bandwidth up to 100 kHz

- IR interface and integrated measurement data memory for 61,600 measured values
- Power pack connector socket

**INCLUDED WITH E SERIES:**

- KS17-2 measurement cable set
- Two 1.5 V AA batteries
- DAkkS calibration certificate, rubber holster
- HC20 hard case

Type	Article
METRAHIT EBASE	M251A
METRAHIT ESPECIAL	M252A
METRAHIT ETECH	M253A
METRAHIT EXTRA	M250A

Function	EBASE	ESPECIAL	ETECH	EXTRA
Clip function	■	■	■	■
Frequency measurement	300 kHz	300 kHz	300 kHz	1 MHz
Duty cycle	–	–	–	■
Temperature °C/°F	TC (K)	TC (K)	TC (K)/RTD	TC (K)/RTD
Power pack connector socket	–	–	–	■
IR interface	■	■	■	■
Data logger	–	–	–	■
$L_0$ voltage with low-pass filter	–	■	■	■
Rubber holster	■	■	■	■
HC 20 case	■	■	■	■
TRMS bandwidth ( $V_{AC}$ )	1 kHz	20 kHz	20 kHz	100 kHz
TRMS current measurement	–	0.1 mA ... 10 (16) A	1 $\mu$ A ... 10 (16) A	10 nA ... 10 (16) A
Capacitance measurement	–	–	■	■
Resolution	60,000	60,000	60,000	60,000



## METRAHIT | OUTDOOR

### OUTDOOR Multimeter



The **OUTDOOR** multimeter has been specially designed and manufactured to meet the challenges faced by engineers and technicians in adverse environments.

It's extremely rugged, impact-resistant, water-proof and dust-proof, and it's resistant to extreme temperatures.

Technology and scope of functions are the same as for the **METRAHIT XTRA**.

#### FEATURES:

- Special rugged design with shock and impact resistant housing
- Additional rubber holster
- Special "sand" color
- IP 65: dust-proof / water jets
- Patented, sealed blocking sockets
- Plus additional functions as included with the **METRAHIT XTRA**

#### INCLUDED WITH METRAHIT OUTDOOR:

- KS17-2 measurement cable set
- Rubber holster
- Two 1.5V AA batteries
- DAkkS calibration certificate

Type	Article
METRAHIT OUTDOOR	M2400

## METRAHIT | 30M

### Precision TRMS Multimeter with Data Logger



6½ place precision TRMS multimeter, temperature measuring instrument and data logger for demanding, universal applications in the lab, and for service calls

#### FEATURES:

- Display: 1,200,000 digits
- Accuracy:  $\pm(35 \text{ ppm of the measured value} + 70 \text{ ppm})$
- Resistance and temperature measurement with 4-wire Kelvin connection
- Min-Max measured value storage
- Automatic range selection and battery cutoff
- Integrated 128 kB measurement data memory, sampling interval: 0.1 s to 10 min.
- Power pack (optional)
- 600 V CAT II per IEC 61010-1

#### INCLUDED WITH THE METRAHIT 30M:

- KS17-2 measurement cable set
- Rubber holster
- Two 1.5V AA batteries
- DAkkS calibration certificate

Type	Article
METRAHIT 30M	M230B



## METRAHIT | ENERGY

### Power Multimeter and Power Quality Analyzer



**Multimeter with power and energy measurement, e.g. for ascertaining energy consumption during operation and in standby mode for consumer electronics, communications and IT devices, as well as household appliances such as refrigerators etc., plus a single-phase power analyzer (power quality tool) for testing power quality.**

#### FEATURES:

- Resolution: 60,000 digits,  $4\frac{6}{7}$  place, basic accuracy of  $\pm 0.05\%$  (Vdc)
- $V_{AC}$ , AC+DC TRMS (100 kHz),  $V_{DC}$ ,  $A_{AC}$ , AC+DC TRMS,  $A_{DC}$ , dB, Hz (V), Hz (A),  $\Omega$ ,  $\mu F$ , diode,  $^{\circ}C / ^{\circ}F$  (TC/RTD)
- Current: direct from 10 nA to 10 (16) A, as well as via current clamp transformers and sensors with clip factor
- Power measurement (W, VAR, VA, PF): active, reactive and apparent power with extreme values
- Energy measurement: active, reactive and apparent energy, mean power value with adjustable observation period and maximum value

- Power quality analysis: detection of over and undervoltage ( $> 0.5$  s), dips/swells ( $> 10$  ms), voltage peaks ( $> 0.5$  s) and transients ( $> 5$   $\mu s$ ), and recording of these values with time stamp and details in 0, 50 and 60 Hz systems
- Harmonic analysis: RMS values and distortion components up to the 15<sup>th</sup> harmonic
- Crest factor (CF), conductivity (nS), low impedance (RSL), duty cycle (%), cable length (km)
- 1 kHz / -3 dB low-pass filter can be activated for voltage measurements at the frequency converter output
- Data storage for up to 300,000 measured values in the integrated memory module
- IR interface – remote controllable without activating the rotary switch

#### INCLUDED WITH METRAHIT ENERGY:

- KS29 measurement cable set
- Rubber holster
- Two 1.5V AA batteries
- DAKkS calibration certificate

Type	Article
METRAHIT ENERGY	M249A

## METRAHIT | ULTRA

### Precision Multimeter – Optionally with Bluetooth® and App



**Handheld digital multimeter with TRMS measurement and, amongst other measuring functions:  $V_{AC}$  TRMS,  $V_{AC+DC}$  TRMS,  $V_{DC}$ ,  $A_{AC}$  TRMS,  $A_{AC+DC}$  TRMS,  $A_{DC}$  dB, Hz(V), Hz(A),  $V \rightarrow$ ,  $^{\circ}C / ^{\circ}F$  (TC/RTD)**

#### FEATURES:

- Resolution of 31,000 digits, triple display, display illumination can be activated under difficult lighting conditions – basic accuracy of 0.02%
- Measurement data memory for up to 300,000 measured values
- Instrument can be remote controlled via Bluetooth® interface (device variant **M248B** only)
- TRMS bandwidth of 100 kHz
- 1 kHz / -3 dB low-pass filter can be activated
- Auto-ranging – automatic adjustment of the measuring range for optimized resolution
- Patented, automatic storage of measured values after settling in
- IR interface – remote controllable without activating the rotary switch
- Optionally with integrated Bluetooth® interface

#### INCLUDED WITH THE METRAHIT ULTRA:

- KS17-2 cable set
- Rubber holster
- Condensed operating instructions (German/English)
- CD-ROM with operating instructions in English and German, as well as other available languages
- Two 1.5V AA batteries
- DAKkS calibration certificate

#### FREEWARE

App for smartphones or tablets with Android™ for the Bluetooth® variant

Type	Article
METRAHIT ULTRA	M248A
METRAHIT ULTRA BT	M248B



## METRAHIT | 2+

### TRMS Digital Multimeter



**3<sup>6</sup>/<sub>7</sub> place TRMS digital multimeter with analog scale for use in all areas of electrical engineering**

#### FEATURES:

- V (AC, DC), A (AC, DC), Ohm, °C, continuity, diode, Hz
- Direct measurement of current: 10  $\mu$ A to 10 (16) A
- Resolution: 60,000 digits, basic accuracy of  $\pm 0.5\%$  ( $V_{DC}$ )
- 4 connector jacks with patented automatic blocking sockets (ABS), fuse
- Automatic or manual measuring range selection, automatic storage of measured values: DATA/MIN/MAX
- Measuring category: 600 V CAT III

#### INCLUDED WITH THE METRAHIT 2+:

- KS17-ONE measurement cable set
- Two 1.5V AA batteries
- Rubber holster
- DAKKS calibration certificate

Type	Article
METRAHIT 2+	M205A

## METRAHIT | WORLD

### Universal TRMS Digital Multimeter with IR Interface



**3<sup>6</sup>/<sub>7</sub> place universal TRMS digital multimeter with analog scale for use in all areas of electrical engineering, especially at the international level**

#### FEATURES:

- V (AC, DC), A (AC, DC) to 10 (16) A, Ohm, °C, continuity, diode, Hz,  $\mu$ F, speed, duty cycle
- Resolution: 60,000 digits, basic accuracy of  $\pm 0.5\%$  ( $V_{DC}$ )
- 4 connector jacks with patented automatic blocking sockets (ABS), fuse

- Automatic or manual measuring range selection, automatic storage of measured values: DATA/MIN/MAX
- IR Interface
- Measuring category: 1000 V CAT III, 600 V CAT IV

#### INCLUDED WITH THE METRAHIT WORLD:

- KS17-2 measurement cable set
- Two 1.5V AA batteries
- Rubber holster and DAKKS calibration certificate

Type	Article
METRAHIT WORLD	M206A

## METRALINE | DMM 15 METRALINE | DMM 16

### TRMS Digital Multimeter Universal TRMS Digital-Multimeter



**Scope of functions for DMM15 same as METRAHIT 2+ but without display illumination**

**Scope of functions for DMM16 same as METRAHIT WORLD but without IR interface**

#### INCLUDED WITH THE METRALINE DMM15:

- One KS17-ONE measurement cable set
- Two 1.5 V AA batteries

#### INCLUDED WITH THE METRALINE DMM16:

- One KS17-2 measurement cable set
- Two 1.5 V AA batteries

Type	Article
METRALINE DMM15	M195A
METRALINE DMM16	M196A



## METRAHIT | ISO

### 4½ Place Multimeter and Insulation Tester



**4½ place multimeter and insulation tester for service applications for measuring and testing industrial trucks, household appliances and other applications – resolution: 30,000 digits – 26 multimeter functions**

#### FEATURES:

- $V_{AC}$ , AC+DC TRMS (10 kHz),  $V_{DC}$ ,  $A_{AC}$ , AC+DC TRMS,  $A_{DC}$ , dB, Hz,  $\Omega$ ,  $\mu F$ , diode, °C / °F (TC/RTD)
- Direct measurement of current: 100 nA to 10 A, as well as via current clamp sensors with clip factor
- Selectable low-pass filter, 1 kHz/–3 dB in the  $V_{AC}$  range
- Insulation resistance measurement with adjustable test voltage (50, 100, 250, 500, 1000 V) and detection of interference voltage – up to 3 G $\Omega$

- Data logger for up to 15,400 measured values
- IR interface – remote controllable without activating the rotary switch

#### INCLUDED WITH THE METRAHIT ISO:

- KS17-2 measurement cable set
- Two 1.5 V AA batteries
- DAKkS calibration certificate

Type	Article
METRAHIT ISO	M246B

## METRAHIT | ISO@AERO / MASTER TEST KIT

### Special Version for Avionics Services



Special version for avionics services with special low-voltage insulation measurement and data hold function.  $\Omega$  ISO test voltages: 10, 50, 100, 250, 500 V

Avionics service case with special test and measuring accessories for aviation technology consisting of measurement cables, terminals, adapters and sockets for MIL plug connectors in a waterproof, pressure-tight hard case.

#### SCOPE OF DELIVERY FOR ISO@AERO (M246M) SAME AS FOR METRAHIT ISO:

- Plus power pack with broad range input: 90 to 250 V, 50/60 Hz

#### INCLUDED WITH AERO MASTER TEST KIT I (Z246A):

- Avionics service case with 68-piece set of special test and measuring accessories for aviation technology

#### INCLUDED WITH AERO MASTER TEST KIT II (M246N):

- Avionics service case plus METRAHIT ISO@AERO

Type	Article
METRAHIT ISO@AERO	M246M
Aero MasterTest Kit I	Z246A
Aero MasterTest Kit II	M246N

## METRAHIT | COIL

### 4½ Place Motor Winding and Insulation Tester



METRAHIT COIL



Coil Test Adapter

**4½ place multimeter, insulation and motor coil tester for service applications for measuring and testing electric machines such as industrial trucks and other applications with asynchronous motors – resolution: 30,000 digits – 28 multimeter functions**

- Detection of winding short-circuits with 1000 V test voltage for electric machines
- Automatic bar graph display of motor coil scatter as a percentage
- Insulation resistance measurement up to 3 G $\Omega$  with selectable test voltages of 50, 100, 250, 500 or 1000 V and detection of interference voltage
- $V_{AC}$ , AC+DC TRMS (10 kHz),  $V_{AC}$  @ 1M $\Omega$ , 1 kHz low-pass @  $V_{AC}$ ,  $V_{DC}$ ,  $A_{AC}$ , AC+DC TRMS,  $A_{DC}$ , dB, Hz, duty cycle (%),  $\Omega$ ,  $\mu F$ , diode, °C / °F (TC/RTD)

- Duty cycle as percentage up to 30 V ( $U_{max}$ : 1 kV – not specified)
- Direct measurement of current: 100 nA ... 10 A, as well as via current clamp sensors with clip factor
- Data logger for up to 15,400 measured values
- IR Interface

#### INCLUDED WITH THE METRAHIT COIL:

- KS17-2 measurement cable set and two 1.5 V AA batteries
- Coil test adapter
- DAKkS calibration certificate

Type	Article
METRAHIT COIL	M246C



## METRAHIT | T-COM METRAHIT | T-COM PLUS

### 3¼ Place Cable Multimeter



3¼ place cable multimeter for symmetrical copper cable in telecommunications networks. System instruments with data storage and IR interface, 22 or 25 multimeter functions

#### FEATURES:

- $V_{AC}$ , AC+DC TRMS (10 kHz),  $V_{DC}$ ,  $A_{AC}$ , AC+DC TRMS,  $A_{DC}$ , Hz,  $\Omega$ ,  $\mu F$ , diode/continuity, °C / °F (Pt100/Pt1000), 200 Hz filter @  $V_{AC}$
- Insulation resistance measurement with 100 V test voltage
- Detection of interference voltage, error detection and reversible polarity
- Cable symmetry testing by means of rapid terminal switching: a – b – E
- Measurement of cable length with adjustable cable parameters
- Low-resistance measurement (cable loops) RSL with 2 mA test current

#### Additional features of the METRAHIT T-COM plus (M246S):

- Insulation resistance measurement with 10 and 100 V test voltages
- Interference-resistant capacitance measurement
- Suppression of handshake signals with optional SM100 signature measuring adapter

#### INCLUDED WITH THE METRAHIT T-COM (M246A) AND T-COM PLUS (M246S):

- KS21-T measurement cable set
- Two 1.5 V AA batteries
- DAKkS calibration certificate

Type	Article
METRAHIT T-COM	M246A
METRAHIT T-COM PLUS	M246S

## METRAHIT | 27M

### 4¼ Place Milliohmmeter and Multimeter with Data Logger



Milliohmmeter, 4¼ place multimeter and data logger, temperature measuring instrument for on-site service or laboratory tasks:

Low impedance and milliohm measurements, e.g. contact resistance at welding seams and rivets, wick test on aircraft outer skins, equipotential bonding, contacts etc.

#### FEATURES:

- Resolution: 30,000 digits
- 4-wire measurement (Kelvin connection) in the following measuring ranges: 3.000 / 30.000 / 300.00 m $\Omega$  @ 1 A (pulsed), 30.00 / 300.00 m $\Omega$  @ 200 mA, 3.0000 / 30.000  $\Omega$  @ 20 mA
- IR Interface
- Multimeter functions: 3.0000 ... 600.0  $V_{AC}$ , DC, 300.00 Hz ... 3.0000 kHz, 300.0  $\Omega$  ... 30.000 M $\Omega$ , 30.00 ... 3000 M $\Omega$ , diode (3 V) / continuity, -200.0 ... +600.0 °C (F) (RTD)
- DATA hold memory for up to 1200 measured values
- Measuring category: 600 V CAT II, IP 54 protection

#### INCLUDED WITH THE METRAHIT 27M:

- KS17-S measurement cable set
- Rubber holster with carrying strap
- 3 rechargeable NiMH batteries
- DAKkS calibration certificate

Type	Article
METRALINE 27M	M227A



## METRAHIT | 27I / 27AS

### 4¾ Place Multimeter and Data Logger, Insulation Resistance Tester



Insulation Resistance Tester, Milliohmmeter, 4¾ Place Multimeter and Data Logger. In addition to a milliohmmeter, an insulation tester has been integrated for measurements up into the gigaohm range. Where service and repairs in the field of aviation technology are involved, the instrument can be used in a broad range of applications.

#### FEATURES:

- Insulation resistance measurement from 30.00 MΩ to 3.000 GΩ with selectable test voltage of 50, 100, 250 or 500 V
- Milliohmmeter (Kelvin connection) in the following measuring ranges: 3.000 / 30.000 / 300.00 mΩ @ 1 A (pulsed), 30.00 / 300.00 mΩ @ 200 mA, 3.0000 / 30.000 Ω @ 20 mA
- Voltage measurement from 3 V to 600 V<sub>DC</sub> and 3 V to 600 V<sub>AC</sub> with a resolution of 30,000 digits
- Continuity and diode testing
- Overload protection
- LCD panel with background illumination
- IR Interface
- Measuring category: 600 V CAT II, IP 54 protection

#### INCLUDED WITH THE METRAHIT ISO:

- KS17-S measurement cable set
- 3 rechargeable NiMH batteries (AA)
- NA HIT 27 charger
- KC4 set of Kelvin clips (2 pieces)
- DAKS calibration certificate

#### ADDITIONALLY INCLUDED IN THE AVIONIC SET (M227C):

- KC27 set of Kelvin probes (2 pieces)
- HC30 hard case (dark orange)
- USB-Pack (USB cable, CD-ROM with drivers, METRAwin 10 / METRAHIT software)

#### ADDITIONALLY INCLUDED IN THE METRAHIT 27 I SET (M227S):

- HC30 hard case
- KS17-2 measurement cable set

Type	Article
METRAHIT 27I	M227B
METRAHIT 27AS	M227C
METRAHIT 27I Set	M227S

## METRAHIT | H+E CAR

### Measuring Instrument for Hybrid and Electric Vehicles



The METRAHIT H+E CAR is a measuring instrument for testing the electrical safety of hybrid and electric vehicles.

#### FEATURES:

- Protection against direct contact during charging and discharging
- Protection against indirect contact during discharging (battery in the vehicle) and charging of the drive battery
- Insulation and absence of voltage (insulation resistance between all electrical components of the high-voltage system and the chassis)
- Battery insulation (insulation resistance between the high-voltage battery poles and the metallic chassis)
- Voltage at capacitors
- Same technical characteristic as the METRAHIT 27I

#### INCLUDED WITH THE METRAHIT H+E CAR (M227T):

- Rubber holster, orange
- 3 rechargeable NiMH batteries (AA)
- NA HIT 27 charger
- Operating instructions in D/GB/F

#### INCLUDED WITH THE METRAHIT H+E CAR HC30 (M227O):

- METRAHIT 27I (M227T)
- HC30 hard case, dark orange

#### ADDITIONALLY INCLUDED WITH THE METRAHIT H+E CAR SET (M227U)

- Hybrid test case kit, orange, with test probes, measurement cables and Kelvin clips

#### OPTIONS:

- Hybrid test case kit (Z227U)
- ADK Automotive diagnostics case (Z227T)



Z227T



Z227U

Type	Article
METRAHIT H+E CAR	M227T
METRAHIT H+E CAR Set	M227U
KS-H&E	Z227U
KS-ADK	Z227T
METRAHIT H+E CAR HC30	M227O



## METRAHIT | 27EX

### 4¾ Place Milliohmmeter for Potentially Explosive Atmospheres



4¾ place milliohmmeter for potentially explosive atmospheres – for measuring low-value contact resistance in explosive atmospheres, e.g. at contacts inside aircraft fuel tanks (bonding test), as well as for general low-value resistance measurements inside and outside of potentially explosive atmospheres, for example on aircraft outer skins (lightning protection and wick test)

#### FEATURES:

- Measuring ranges: 30 mΩ, 300 mΩ, 3 Ω, 30 Ω
- Resolution: 10 μΩ
- DATA hold memory: 1200 measured values
- Product type test certificate: INERIS 05ATEX0040
- Ex designation: Ex II 2 G EEx ia IIA T4
- IR Interface
- Measuring category: 50 V CAT I
- IP 54 protection

#### INCLUDED WITH THE METRAHIT 27EX:

- 4+4 batteries, Ex approved
- KC27 Kelvin probe (1 piece)
- KC4 Kelvin clip (1 piece)
- HC30 hard case
- DAKS calibration certificate
- Ex certificate INERIS 05ATEX0040/02

#### SPECIAL VARIANT FOR AIRBUS (M227G):

- With AIRBUS logo, ID no. 97F92003500000 Airbus Aircraft Maintenance Manual (AMM)

Type	Article
METRAHIT 27EX	M227F
METRAHIT 27EX AIRBUS	M227G

## METRALINE EXM 25

### Digital Multimeter for Potentially Explosive Atmospheres



#### FEATURES:

- Voltage: 0.01 ... 1160 V AC (TRMS to 500 Hz), 0.001 ... 1610 V DC
- Resistance: 0.1 Ω ... 20 MΩ
- Current: 1 mA to 2 A
- Frequency: 0.1 Hz to 10 kHz
- Approved in accordance with ATEX directive 94/9 EC for intrinsically safe and non-intrinsically safe circuits with up to 1000 V
- Maximum safety thanks to encapsulated protective resistors in DATA hold test probes, 1000 V CAT IV
- Intrinsically safe battery packs, rechargeable NiMH battery or Li battery
- Ex II 2G Ex ib IIC T4/T6 (petrochemicals)
- Ex I M2 Ex ib I (coal mining)

#### INCLUDED WITH THE METRALINE EXM25A:

- 1 set of DATA hold test probes, CAT IV 1 kV
- 1 set of standard test probes for Ω/A
- 1 EXM-AK9 rechargeable NiMH battery
- 1 EXM-AK9 NG4 mains power pack
- 1 set of operating instructions

#### INCLUDED WITH THE METRALINE EXM25B:

- 1 set of DATA hold test probes, CAT IV 1 kV
- 1 set of standard test probes for Ω/A
- 1 EXM-LB3 lithium battery
- 1 set of operating instructions

Type	Article
METRALINE EXM25A	M210A
METRALINE EXM25B	M210B
EXM-LED leather pouch	Z209L
EXM-AK9 rechargeable NiMH battery	Z209A
EXM-LB3 lithium battery	Z209B
NG4	Z209P





## METRAport | 40S

### 4¾ Place Folding TRMS Digital Multimeter



4¾ place folding digital multimeter for universal use in general electrical and electronics applications, as well as for automotive service

**FEATURES:**

- Ideal reading angle adjustment is made possible by the tilt stand, and when suspended from the neck strap both hands are free for performing measurements.
- The instrument is switched off automatically when folded closed, and the display and the control panel are protected against damage.
- User-friendly thanks to resettable auto-fuses for the current measuring ranges
- V (AC, DC), A (AC, DC) up to 10 A, Ohm, continuity, diode, Hz (V, A),  $\mu$ F, °C (TC/RTD), speed, duty cycle
- Direct measurement of current and with current clamp sensors, adjustable clip factor
- Resolution: 30,000 digits, basic accuracy of  $\pm 0.2\%$  (V<sub>oc</sub>), 10 kHz TRMS
- Automatic or manual measuring range selection, Automatic storage of measured values: DATA / MIN / MAX

- Measuring category: 300 V CAT II
- USB port
- DAKkS calibration certificate

**INCLUDED WITH THE METRAPORT 40S:**

- KS17-2 measurement cable set
- Two 1.5V AA batteries
- Carrying strap
- DAKkS calibration certificate

Type	Article
METRAport 40S	M234D

## METRAport | 3A

### Folding Analog Multimeter



Folding analog multimeter for demanding applications with analog display and 46 measuring ranges for universal use in process engineering, electronics and electrical applications, testing, R&D, service and training in accordance with EN 61010-1/DIN VDE 0411, part 1

**FEATURES:**

- For measurement of voltage, current, resistance and level
- With reflective scale
- High input resistance of 10 M $\Omega$  for no-load voltage measurement
- Automatic battery cutoff when instrument is folded closed
- Overload protection in all ranges: 250 V~ (except for 10 A range)
- 9 voltage measuring ranges from 100 mV to 600 V
- 9 level measuring ranges
- 7 current measuring ranges from 10 mA to 10 A
- 5 resistance measuring ranges from 1  $\Omega$  to 20 M $\Omega$

- Scale can be tilted with folding lid which also provides protection during transport
- Measuring category: 300 V CAT III, 600 V CAT II
- Accuracy per IEC/EN 60051, class 2.5 (AC) 1.5 (DC,  $\Omega$ )

**INCLUDED WITH THE METRAPORT 3A:**

- KS17-2 measurement cable set
- 9V flat cell battery per IEC 6LR61
- Carrying strap

Type	Article
METRAport 3A	M113A



## METRAmax | 12

### Handheld Digital-Analog Multimeter



METRAmax 12



METRAmax 12 Set 1

**Inexpensive handheld digital-analog multimeter for use in the fields of general electronics and electrical engineering**

#### FEATURES:

- Switchable input resistance: 10 M $\Omega$  / 400 k $\Omega$
- V (AC, DC), A (AC, DC) to 10 A, Ohm, continuity, diode, Hz,  $\mu$ F
- Resolution: 4000 digits  
Basic accuracy:  $\pm 0.5\%$  ( $V_{DC}$ )
- Automatic or manual measuring range selection, automatic storage of measured values: DATA / MIN / MAX

#### INCLUDED WITH THE METRAmax 12:

- KS17-2 measurement cable set
- Two 1.5V AA batteries
- Protective case with tilt stand

#### METRAmax 12 Set 1 (M212D):

- With HC20 case and WZ12A current clamp

Type	Article
METRAmax 12	M212A
METRAmax 12 Set 1	M212D

## METRAHIT | 1A / 2A

### Analog Multimeter



METRAHIT 1A



METRAHIT 2A

**Compact, basic analog multimeter for training and hobby, and for electrical applications**

#### FEATURES:

- Dimensions (WxHxD): 92 x 126 x 45 mm
- Weight: approx. 0.25 kg without battery
- Battery: 1.5V IEC LR 6 (AA)
- Manufacturers guarantee: 1 year material and workmanship
- Measuring category: 500 V CAT II
- Accuracy per IEC/EN 60051, class 2.5 (AC, DC)
- Voltage measurement: 0 ... 0.15 / 0 ... 0.5 V = 0 ... 1.5 / 5 / 15 / 50 / 150 / 500 V = / ~
- Current measurement: 0 ... 50 mA =; 1A: 0 ... 0.5 / 5 / 50 / 500 mA / 5 A = / ~ 1A: 0 ... 1.5 / 15 / 150 mA / 1.5 / 15 A = / ~
- Resistance measurement: 1  $\Omega$  ... 1 M $\Omega$
- Level: -15 ... +56 dB

#### INCLUDED WITH THE METRAHIT 1A / 2A:

- 9V flat cell battery per IEC 6LR61

Type	Article
METRAHIT 1A	M100A
METRAHIT 2A	M101A



## METRAmax 2

### Analog Multimeter



The analog multimeter was developed in cooperation with a renowned German training systems manufacturer and fulfills requirements for instruction and vocational education. It's suitable for balancing, and for inspection work as well.

**FEATURES:**

- Voltage measurement: 100 mV ... 300 V
- Current measurement: 100 mA ... 3 A
- Zero point can be set to left or center
- Outstanding overload capacity
- Automatic battery cutoff
- Dimensions (WxHxD): 100 x 140 x 35 mm
- Weight: approx. 0.3 kg with battery

- Measuring category: 300 V CAT II
- Accuracy per IEC/EN 60051, class 3 (AC) 3 (DC)

**INCLUDED WITH THE METRAmax 2:**

- One 9 V flat cell battery, IEC 6 LR 61 (6 F 22)

Type	Article
METRAmax 2	M102A

## METRAmax 3

### Analog Multimeter



Analog multimeter for training applications, and for use in the electrical trades. Overload protection with integrated auto-fuse and high performance PTC thermistors.

**FEATURES:**

- Voltage measurement: 30 V ... 600 V
- Current measurement: 300 mA ... 15 A
- Protective conductor
- Dimensions (WxHxD): 100 x 140 x 35 mm
- Weight: approx. 0.3 kg with battery
- Measuring category: 600 V CAT II, 300 V CAT III

- Accuracy per IEC/EN 60051, class 2.5 (AC, DC)
- Resistance measurement: 1  $\Omega$  ... 500 k $\Omega$
- 230 V automatic circuit breaker

**INCLUDED WITH THE METRAmax 3:**

- One 1.5 V AA battery

Type	Article
METRAmax 3	M103A

## METRAmax 6

### Analog Resistance and Capacitance Measuring Instrument



Resistance measuring instrument with analog display for use in the plant, on service calls and for installation work

**FEATURES:**

- Measuring method: current measurement
- Rugged, moving-coil mechanism with spring loaded bearings
- Integrated buzzer for continuity testing
- Allows for use under adverse operating conditions
- Dimensions: 100 x 140 x 35 mm  
Weight: approx. 3 kg without battery
- Accuracy per IEC/EN 60051, class 1.5
- Resistance measurement: 0.05  $\Omega$  ... 1 M $\Omega$
- Capacitance measurement (rough): 0 ... 30,000  $\mu$ F

**INCLUDED WITH THE METRAmax 6:**

- One 1.5 V AA battery

Type	Article
METRAmax 6	GTM3060000R0001



## METRACAL MC

### Multifunctional Process Calibrator and Multimeter



Display illumination and multiple display, e.g. functions and output value or measurement and simulation values etc.



Separate battery and fuse compartments



Connection for external power pack and continuous, battery-free power supply

#### Calibration and measurement: efficient and time-saving thanks to simulation

The extremely cost-effective **METRACAL MC** multi-functional process calibrator is distinguished by its durability, easy handling, outstanding functionality, accuracy and PC systems compatibility.

The **METRACAL MC** streamlines measuring, calibration and inspection work for chemical processes, in the lab and in R&D, for the production of electronic measuring transducers and when balancing and calibrating metrology components.

The integrated multimeter and calibrator make it possible for measuring technicians to simulate sensor conditions at the inputs of transducers, transmitters and buffer amplifiers, and at the same time to accurately measure the electrically isolated signal output, and to save results to memory on-site.

The instrument is equipped with a bidirectional infrared interface for subsequent documentation of test results at a PC, and for the transmission of stored measured values.

The measuring, simulation and calibrating functions are very comprehensive and include current (mA), voltage (mV, V), resistance (0 to 2000  $\Omega$ ), pulse amplitude and frequency (Hz), as well as temperature measurement and simulation of resistance temperature detectors (Pt100, Pt1000, Ni100, Ni1000) and thermocouples (J, K, T, L, R, B, S, E, U, N), which can be displayed as desired in  $^{\circ}\text{C}$  or  $^{\circ}\text{F}$ .

The calibration and measuring functions can be scaled as electrical quantities, or as percentage values of an adjustable measuring span.

#### FEATURES:

- Universal calibrator, simulator and multimeter for mA/mV ... V/ $^{\circ}\text{C}$  (Pt100/1000, Ni100/1000, type J, L, T, U, K, E, S, R, B and N thermocouples / 30 ... 2000  $\Omega$ )
- Precision multimeter (V, A,  $\Omega$ , F, Hz,  $^{\circ}\text{C}/^{\circ}\text{F}$ ), display: 30,000 (60,000) digits and triple display, basic accuracy of  $\pm 0.05\%$  ( $V_{DC}$ )
- Automatic or manual measuring range selection, automatic storage of measured values: DATA / MIN / MAX
- IR Interface
- Dual mode – simultaneous calibration and measurement (U / I)
- TRMS AC measurement to 20 kHz
- Measurement and simulation in absolute terms and as percentages (scaled)

- Memory for measurement results: 16 MBit / 46,000 measured values
- Frequency and pulse run generators: 1 Hz ... 2 kHz
- Ramp and staircase functions
- METRAwin<sup>®</sup> 90-2 calibration software (optional), METRAwin10 / METRAHIT multimeter software (optional)
- Transmitter simulator (sink: 0 ... 24 mA)
- DAkkS calibration certificate included
- Rugged, EMC compliant design
- Measuring category: 300V CAT II
- IP 65 protection
- Power pack connector jack

#### INCLUDED WITH THE METRACAL MC:

- KS29 measurement cable set
- Rubber holster with carrying strap
- Two 1.5V AA batteries
- DAkkS calibration certificate

Type	Article
METRACAL MC	M245A



## METRAHIT | CAL / CAL PACK Multifunctional Calibrator



**Multifunctional calibrator for process engineering – 18 calibrator functions. The calibrator can be used for generating and simulating a broad range of electronic quantities, and also covers 10 different thermocouples and 4 resistance temperature sensors. Its outstanding accuracy and rugged design make the METRAHIT CAL a high performance tool for use in the workshop and the lab.**

### FEATURES:

- Simulation function for voltage, resistance and frequency
- Source and sink functions for current, in particular for process quantities, e.g. 0 to 20 mA
- Temperature simulation for resistance thermometers and thermocouples
- Values can be set easily with the help of function keys and the cursor field
- Interval and ramp functions
- Infrared interface for data exchange and parameters configuration at a PC (IR-USB adapter and software available as option)
- Battery operation anywhere with additional mains connection for continuous operation

- Measuring category: 250 V CAT I
- IP 54 protection
- Optional software: METRAwin 90-2 and METRAwin 10 (configuring and analysis software for multimeters)

### INCLUDED WITH THE METRAHIT CAL:

- KS17-2 measurement cable set
- Rubber holster with carrying strap
- Two 1.5V AA batteries
- DAkKS calibration certificate

### INCLUDED WITH THE METRAHIT CAL PACK:

- Handheld calibrator with rubber holster
- METRAHIT X-TRA with rubber holster
- Measurement cable sets and batteries
- HC30 hard case
- DAkKS calibration certificate

Type	Article
METRAHIT CAL	M244A
METRAHIT CAL PACK	M244B

## METRAHIT | 1ASi

### Addressing and Diagnostics Tool



**The handy, rugged addressing and diagnostics tool for initial start-up, maintenance and service of ASi systems offers the following functions:**

### FEATURES:

- Read-out of slave addresses 0 through 31, and A and B, without scrolling – including clear-cut, full LCD
- Read-out of slave IO and ID codes (including extended ID codes 1 and 2)
- Standard addressing mode and extended addressing mode per ASi version 2.1 ASi version 3.0 in preparation (**M235J**)
- Programmable ID code 1
- Function test for slaves, including analog slaves with profile 7.2 (7.3 in preparation)
- Recognition of complete arrays of system components
- Storage, diagnosis and PC gateway functions
- Connection with jack plugs
- Data transmission and management, as well as documentation of system parameters with optional software

### INCLUDED WITH THE METRAHIT 1ASi:

- Rubber holster with carrying strap
- Connector cable set, M12 to jack plug
- Addressing cable (**Z236A**)
- Module base with addressing socket (**Z231G**)
- 4 batteries per IEC LR6

Type	Article
METRAHIT 1ASi	M235H
Z231G (module base)	Z231G
HC20	Z113A







METRAHIT	BASE	Ebase	PRO	ESPECIAL	TECH	ETECH
DC voltage measuring ranges	100.00 mV ... 1000.0 V	600.00 mV ... 1000.0 V	100.00 mV ... 1000.0 V	600.00 mV ... 1000.0 V	100.00 mV ... 1000.0 V	600.00 mV ... 1000.0 V
Intrinsic error for V DC	±0.05% rdg. +3 d		±0.05% rdg. +3 d		±0.05% rdg. +3 d	
AC voltage measuring ranges	100.00 mV ... 1000.0 V	600.00 mV ... 1000.0 V	100.00 mV ... 1000.0 V	600.00 mV ... 1000.0 V	100.00 mV ... 1000.0 V	600.00 mV ... 1000.0 V
Intrinsic error for V AC	±0.5% rdg. +9 d		±0.5% rdg. +9 d		±0.5% rdg. +9 d	
TRMS V	AC, AC+DC		AC, AC+DC		AC, AC+DC	
DC current measuring ranges	Optionally with current clamp sensor		1.0000 A / 10.000 A	6.0000 A / 10.000 A	10.000 mA / 10.000 A	60.000 mA / 10.000 A
Intrinsic error, A DC	–		±0.9% rdg. +5 d		±0.5% rdg. +5 d	
AC current measuring ranges	Optionally with current clamp sensor		1.0000 A / 10.000 A	6.0000 A / 10.000 A	10.000 mA / 10.000 A	60.000 mA / 10.000 A
Intrinsic error, A AC	–		±1.5% rdg. +30 d		±1.5% rdg. +30 d	
TRMS A	AC, AC+DC		AC, AC+DC		AC, AC+DC	
Resistance measuring ranges	100.00 Ω / 40.00 MΩ	600.00 Ω / 60.00 MΩ	100.00 Ω / 40.00 MΩ	600.00 Ω / 60.00 MΩ	100.00 Ω / 40.00 MΩ	600.00 Ω / 60.00 MΩ
Intrinsic error, resistance	±0.2% rdg. +5 d		±0.2% rdg. +5 d		±0.2% rdg. +5 d	
4-wire milliohm measurement	–		–		–	
Power and energy measurement	–		–		–	
Power quality (PQ)	–		–		–	
Capacitance measuring ranges	–		–		10.00 nF / 1000 μF	60.00 nF / 600.0 μF
Intrinsic error, capacitance	–		–		±1% rdg. +6 d	
Cable length measurement	–		–		–	
Temp. measurement, Pt100/1000	–		–		–	- 200 °C ... +850 °C
Temperature measurement TC	- 250 °C... + 1372 °C (K)		- 250 °C... + 1372 °C (K)		- 250 °C... + 1372 °C (K)	
Continuity test	■		■		■	
Diode test	5.1 V		5.1 V		5.1 V	
Frequency measuring ranges	100.00 Hz / 100.00 kHz	600.00 Hz / 300.00 kHz	100.00 Hz / 100.00 kHz	600.00 Hz / 300.00 kHz	100.00 Hz / 100.00 kHz	600.00 Hz / 300.00 kHz
Duty cycle	–		–		–	
Level measurement (dB)	–		–		■	
DATA / MIN-MAX storage	■		■		■	
Data storage (measured values)	–		–		–	
Analog display, 35/36 scale grad.	■		■		■	
Digital display (places/digits)	4½ = 12,000 d	4¾ = 60,000 D	4½ = 12,000 d	4¾ = 60,000 D	4½ = 12,000 d	4¾ = 60,000 D
Display illumination	■		■		■	
Measurements per second	40 analog / 10 digital		40 analog / 10 digital		40 analog / 10 digital	
V AC/V AC+DC band width	1 kHz		10 kHz	20 kHz	10 kHz	20 kHz
Interface / suitable adapter	– IR / USB X-TRA		– IR / USB X-TRA		– IR / USB X-TRA	
Automatic blocking sockets	■		■		■	
Measuring category	CAT III / 1000 V CAT IV / 600 V		CAT III / 1000 V CAT IV / 600 V	CAT II / 600 V	CAT III / 1000 V CAT IV / 600 V	
Calibration certificate	DAkKS		DAkKS		DAkKS	
Weight with batteries	395 g		395 g		395 g	
Batteries / operating hours	2 ea. 1.5 V / 200		2 ea. 1.5 V / 200		2 ea. 1.5 V / 200	
Power pack socket	–		–		–	
Dimensions in mm (W x H x D)	89 x 199 x 43		89 x 199 x 43		89 x 199 x 43	
Protection	IP 52		IP 52		IP 52	
Approvals and certificates	CE, VDE-GS	CE	CE, VDE-GS	CE	CE, VDE-GS	CE
Accessories / included	Cable set	CS, HC20, RH	Cable set	CS, HC20, RH	Cable set	CS, HC20, RH
Software option	– METRAwin10		– METRAwin10		– METRAwin10	
Article number	M241A	M251A	M242A	M252A	M243A	M253A



X-TRA		EXTRA		30M		ENERGY		ULTRA		OUTDOOR		SECULIFE		METRAHIT
100.00 mV /// 1000.0 V		600.00 mV /// 1000.0 V		100.0000 mV /// 600.000 V		60.000 mV /// 600.00 V		300.000 mV /// 600.00 V		100.00 mV /// 1000.0 V				DC voltage measuring ranges
±0.05% rdg. +3 d				±0.003% rdg. +3 d		±0.02% rdg. +15 d		±0.02% rdg. +5 d		±0.05% rdg. +3 d				Intrinsic error for V DC
100.00 mV /// 1000.0 V		600.00 mV /// 1000.0 V		100.0000 mV /// 600.000 V		60.000 mV /// 600.00 V		300.00 mV /// 600.00 V		100.00 mV /// 1000.0 V				AC voltage measuring ranges
±0.5% rdg. +9 d				±0.08% rdg. +5 d		±0.2% rdg. +30 d		±0.2% rdg. +30 d		±0.5% rdg. +9 d				Intrinsic error for V AC
AC, AC+DC				AC+DC		AC, AC+DC		AC, AC+DC		AC, AC+DC				TRMS V
100.00 µA /// 10.000 A		600.00 µA /// 10.000 A		100.0000 µA /// 100.0000 mA		600.00 µA /// 10.000 A		300.000 µA /// 10.0000 A		100.00 µA /// 10.000 A				DC current measuring ranges
±0.5% rdg. +5 d				±0.02% rdg. +5 d		±0.05% rdg. +20 d		±0.02% rdg. +5 d		±0.5% rdg. +5 d				Intrinsic error, A DC
100.00 µA /// 10.000 A		600.00 µA /// 10.000 A		100.0000 µA /// 100.0000 mA		600.00 µA /// 10.000 A		300.00 µA /// 10.000 A		100.00 µA /// 10.000 A				AC current measuring ranges
±1.5% rdg. +30 d				±0.1% rdg. +5 d		±0.5% rdg. +25 d		±0.5% rdg. +30 d		±1.5% rdg. +30 d				Intrinsic error, A AC
AC, AC+DC				AC+DC		AC, AC+DC		AC, AC+DC		AC, AC+DC				TRMS A
100.00 Ω /// 40.00 MΩ		600.00 Ω /// 60.000 MΩ		10.00000 kΩ /// 10.00000 MΩ		600.00 Ω /// 60.000 MΩ		300.000 Ω /// 30.0000 MΩ		100.00 Ω /// 40.00 MΩ		100.00 Ω /// 40.000 MΩ		Resistance measuring ranges
±0.2% rdg. +5 d				±0.005% rdg. +5 d		±0.1% rdg. +5 d		±0.05% rdg. +5 d		±0.2% rdg. +5 d				Intrinsic error, resistance
-				100.0000 Ω /// 1.000000 kΩ		-		-		-				4-wire milliohm measurement
-				-		■		-		-				Power and energy measurement
-				-		■		-		-				Power quality (PQ)
10.00 nF /// 1000 µF		60.00 nF /// 600.0 µF		-		60.00 nF /// 600.0 µF		3.000 nF /// 3.000 mF		10.00 nF /// 1000 µF				Capacitance measuring ranges
±1% rdg. +6 d				-		±1% rdg. +6 d		±1% rdg. +6 d		±1% rdg. +6 d				Intrinsic error, capacitance
-				-		■		-		-				Cable length measurement
-200 °C... +850 °C				-		-200 °C... +850 °C		-200 °C... +850 °C		-200 °C... +850 °C				Temp. measurement, Pt100/1000
-250 °C... +1372 °C (K)				-270 °C... +372 °C (J,K)		-260 °C... +1372 °C (J,K)		-270 °C... +1372 °C (K)		-250 °C... +1372 °C (K)				Temperature measurement TC
■				■		■		■		■				Continuity test
5.1 V				5.1 V		6.0 V		6.0 V		5.1 V				Diode test
100.00 Hz /// 1.0000 MHz		600.00 Hz /// 1.0000 MHz		1.000000 Hz /// 100.0000 kHz		600.00 Hz /// 1.0000 MHz		300.000 Hz /// 1.0000 MHz		100.00 Hz /// 1.0000 MHz				Frequency measuring ranges
■		■		-		■		■		■				Duty cycle
-				-		■		■		-				Level measurement (dB)
■				■		■		■		■				DATA / MIN-MAX storage
540 kB (15,400)		2048 kB (61,600)		30,000		300,000		300,000		540 kB (15,400)				Data storage (measured values)
■		■		-		-		-		■				Analog display, 35/36 scale grad.
4½ = 12,000 d		4 <sup>6/7</sup> = 60,000 d		6½ = 1,200,000 d		60,000 d		310,000 d		4½ = 12,000 d				Digital display (places/digits)
■				■		■		■		■				Display illumination
40 analog / 10 digital				1 digital		40 analog / 10 digital		40 analog / 10 digital		40 analog / 10 digital				Measurements per second
20 kHz		100 kHz		10 kHz		100 kHz		100 kHz		20 kHz				V AC/V AC+DC band width
IR / USB X-TRA				IR / BD232 / USB-Hit		IR / USB X-TRA		IR/Bluetooth® / USB X-TRA		IR / USB X-TRA				Interface / suitable adapter
■				-		■		■		■				Automatic blocking sockets
CAT III / 1000 V		CAT IV / 600 V		CAT II / 600 V		CAT III / 600 V		CAT III / 600 V		CAT III / 1000 V		CAT IV / 600 V		Measuring category
DAkKS				DAkKS		DAkKS		DAkKS		DAkKS				Calibration certificate
395 g				350 g		400 g		400 g		395 g				Weight with batteries
2 ea. 1.5 V / 200				2 ea. 1.5 V / 200		2 ea. 1.5 V / 200		2 ea. 1.5 V / 200		2 ea. 1.5 V / 200				Batteries / operating hours
■				■		■		■		■				Power pack socket
89 x 199 x 43				84 x 195 x 35		89 x 199 x 43		87 x 200 x 45		89 x 199 x 43				Dimensions in mm (W x H x D)
IP 52				IP 42		IP 52		IP 52		IP 65 / IP 52				Protection
CE, VDE-GS		CE		CE		CE		CE		CE				Approvals and certificates
Cable set, RH		CS, HC20, RH		Cable set, RH		Cable set, RH		Cable set, RH		Cable set, RH		CS, HC20, RH		Accessories / included
METRAwin10				METRAwin10		METRAwin10		METRAwin10		METRAwin10				Software option
M240A		M250A		M230B		M249A		M248A/B		M2400		M687A		Article number



METRAHIT	METRAHIT 2+	METRAHIT WORLD	METRAmax 12	METRAport 40S
				
DC voltage measuring ranges	600.0 mV///600.0V	600.0 mV///600.0V / 1000V	400.0 mV/// 400.0V / 600V	30.00 mV/// 300.00V / 600.0V
Intrinsic error for V DC	±0.5% rdg. +3 d	±0.5% rdg. +3 d	±0.5% rdg. +2 d	±0.2% rdg. +3 d
AC voltage measuring ranges	600.0 mV///600.0V	600.0 mV///600.0V / 1000V	400.0 mV/// 400.0V / 600V	30.00 mV/// 300.00V / 600.0V
Intrinsic error for V AC	±1% rdg. +3 d	±1% rdg. +3 d	±1% rdg. +5 d	±0.5% rdg. +30 d
TRMS V	AC	AC	–	AC
DC current measuring ranges	60.00 mA///6.000A / 10.00A	60.00 mA///6.000A / 10.00A	40.00 mA/// 400.0 mA / 10.00A	300.00 µA///3.0000 A / 10.000 A
Intrinsic error, A DC	±1% rdg. +5 d	±1% rdg. +5 d	±0.8% rdg. +2 d	±0.5% rdg. +5 d
AC current measuring ranges	60.00 mA///6.000A / 10.00A	60.00 mA///6.000A / 10.00A	40.00 mA/// 400.0 mA / 10.00A	300.00 µA///3.0000 A / 10.000 A
Intrinsic error, A AC	±1.5% rdg. +2 d	±1.5% rdg. +2 d	±1.0% rdg. +5 d	±1.5% rdg. +30 d
TRMS A	–	–	–	AC
Resistance measuring ranges	600.0 Ω/// 6.000 MΩ / 40.00 MΩ	600.0 Ω/// 6.000 MΩ / 40.00 MΩ	400.0 Ω/// 40.00 MΩ	30.00 Ω/300.00 Ω// 30.000 MΩ
Intrinsic error, resistance	±0.7% rdg. +3 d	±0.7% rdg. +3 d	±0.8% rdg. +2 d	±0.2% rdg. +5 d
4-wire milliohm measurement	–	–	–	–
Insulation resistance measuring ranges / measuring voltage	–	–	–	–
Capacitance measuring ranges	–	40.00 nF/// 400.0 µF	4.000 nF/// 40.00 µF	30.00 nF/// 300.0 µF
Intrinsic error, capacitance	–	±1% rdg +6 d	±3% rdg +40 d	±1% rdg. +6 d
Cable length measurement	–	–	–	–
Temp. measurement, Pt100/1000	–	–	–	-200 °C... + 850 °C
Temperature measurement TC	- 50 °C... + 400 °C (K)	- 50 °C... + +800 °C (K)	–	- 250 °C... + 1372 °C (K)
Continuity test	■	■	■	■
Diode test	2V	2V	3V	5.1V
Frequency measuring ranges	100.0 Hz / 1000 Hz	100. Hz / 1000 Hz/ 1000 kHz	100.00 Hz / ... / 100.00 kHz / 400.0 kHz	300.00 Hz / ... / 300.00 kHz / 1000.0 kHz
Duty cycle	–	■	–	■
Level measurement (dB)	–	–	–	–
DATA / MIN-MAX storage	■	■	■	■
Data storage (measured values)	–	–	–	–
Analog display, 35/36 scale grad.	■	■	■	■
Digital display (places/digits)	3 <sup>6</sup> / <sub>7</sub> = 6000 d	3 <sup>6</sup> / <sub>7</sub> = 6000 d	3 <sup>4</sup> / <sub>5</sub> = 4000 d	4 <sup>4</sup> = 30,000 D
Display illumination	■	■	■	■
Measurements per second	20 analog / 2 digital	20 analog / 2 digital	20 analog / 2 digital	20 analog / 2 digital
V AC/V AC+DC band width	1 kHz	1 kHz	500 Hz	10 kHz
Interface / suitable adapter	–	IR / BD232 / USB-Hit	–	USB mini
Automatic blocking sockets	■	■	–	–
Measuring category	CAT III / 600 V	CAT IV / 600 V CAT III / 1000 V	CAT III / 300 V CAT II / 600 V	CAT II / 300 V
Calibration certificate	DAkkS	DAkkS	–	DAkkS
Weight with batteries	350 g	350 g	200 g	450 g
Batteries / operating hours	2 ea. 1.5V / up to 750	2 ea. 1.5V / up to 750	2 ea. 1.5V / 600	2 ea. 1.5V / 200
Power pack socket	–	–	–	–
Dimensions in mm (W x H x D)	84 x 195 x 35	84 x 195 x 35	92 x 154 x 25	146 x 118 x 44
Protection	IP 40	IP 40	IP 52	IP 42
Approvals and certificates	CE	CE	CE	CE
Accessories / included	Cable set, RH	Cable set, RH	Cable set	Cable set
Software option	–	METRAwin10	–	METRAwin10
Article number	M205A	M206A	M212A	M234D





T-COM		T-COM PLUS		ISO (COIL)		ISO Aero		27M		271 (AS)		27H+E CAR		<b>METRAHIT</b> DC voltage measuring ranges Intrinsic error for V DC AC voltage measuring ranges Intrinsic error for V AC TRMS V DC current measuring ranges Intrinsic error, A DC AC current measuring ranges Intrinsic error, A AC TRMS A Resistance measuring ranges Intrinsic error, resistance 4-wire milliohm measurement Insulation resistance measuring ranges / measuring voltage Capacitance measuring ranges Intrinsic error, capacitance Cable length measurement Temp. measurement, Pt100/1000 Temperature measurement TC Continuity test Diode test Frequency measuring ranges Duty cycle Level measurement (dB) DATA / MIN-MAX storage Data storage (measured values) Analog display, 35/36 scale grad. Digital display (places/digits) Display illumination Measurements per second Bandwidth Interface / suitable adapter Automatic blocking sockets Measuring category Calibration certificate Weight with batteries Batteries / operating hours Power pack socket Dimensions in mm (W x H x D) Protection Approvals and certificates Accessories / included Software option Article number
300.0 mV /// 300.0 V / 600 V		300.0 mV /// 300.0 V / 600 V		300.00 mV /// 300.00 V / 1000.0 V		300.00 mV /// 300.00 V / 1000.0 V		3.0000 V /// 300.00 V / 600.0 V		3.0000 V /// 300.00 V / 600.0 V		3.0000 V /// 300.00 V / 600.0 V		
±0.5% rdg. +1 d		±0.5% rdg. +1 d		±0.15% rdg. +2 d		±0.15% rdg. +2 d		±0.1% rdg. +5 d		±0.1% rdg. +5 d		±0.1% rdg. +5 d		
300.0 mV /// 300.0 V / 600 V		300.0 mV /// 300.0 V / 600 V		300.00 mV /// 300.00 V / 1000.0 V		300.00 mV /// 300.00 V / 1000.0 V		3.0000 V /// 300.00 V / 600.0 V		3.0000 V /// 300.00 V / 600.0 V		3.0000 V /// 300.00 V / 600.0 V		
±1.5% rdg. +3 d		±1.5% rdg. +3 d		±1% rdg. +3 d		±1% rdg. +3 d		±0.2% rdg. +10 d		±0.2% rdg. +10 d		±0.2% rdg. +10 d		
AC, AC+DC		AC, AC+DC		AC, AC+DC		AC, AC+DC		-		-		-		
300.0 µA /// 300.0 mA / 1.000 A		300.0 µA /// 300.0 mA / 1.000 A		300.0 µA /// 3.000 A / 10.00 A		300.0 µA /// 3.000 A / 10.00 A		with Clamp		with Clamp		with Clamp		
±0.5% rdg. +5 d		±0.5% rdg. +5 d		±0.2% rdg. +3 d		±0.2% rdg. +3 d		-		-		-		
300.0 µA /// 300.0 mA / 1.000 A		300.0 µA /// 300.0 mA / 1.000 A		300.0 µA /// 3.000 A / 10.00 A		300.0 µA /// 3.000 A / 10.00 A		-		-		-		
±1.5% rdg. +5 d		±1.5% rdg. +5 d		±1.5% rdg. +5 d		±1.5% rdg. +5 d		-		-		-		
AC, AC+DC		AC, AC+DC		AC, AC+DC		AC, AC+DC		-		-		-		
300. Ω /// 30.0 MΩ		300. Ω /// 30.0 MΩ		300.00 Ω /// 30.000 MΩ		300.00 Ω /// 30.000 MΩ		300.0 Ω /// 30.0 MΩ		300.0 Ω /// 30.0 MΩ		300.0 Ω /// 30.0 MΩ		
±0.5% rdg. +1 d		±0.5% rdg. +1 d		±0.5% rdg. +2 d		±0.5% rdg. +2 d		±0,1% rdg. +5 d		±0,1% rdg. +5 d		±0,1% rdg. +5 d		
-		-		-		-		3.000 mΩ /// 30.000 Ω		3.000 mΩ /// 30.000 Ω		3.000 mΩ /// 30.000 Ω		
5.0 kΩ /// 310.0 MΩ 100V		5.0 kΩ /// 310.0 MΩ 10V / 100V (6/100V)		5.0 kΩ /// 3100 MΩ 50V /// 1000V		5.0 kΩ /// 3100 MΩ 10V /// 500V		-		30.00 MΩ /// 3.000 GΩ 50V /// 500V		30.00 MΩ /// 3.000 GΩ 50V /// 500V		
30.00 nF /// 300.0 µF		30.00 nF /// 300.0 µF		30.00 nF /// 300.0 µF		30.00 nF /// 300.0 µF		-		-		-		
±1% rdg. +6 d		±1% rdg. +6 d		±1% rdg. +6 d		±1% rdg. +6 d		-		-		-		
■		■		-		-		-		-		-		
-200 °C... + 850 °C		-200 °C... + 850 °C		-200.0 °C... + 850.0 °C		-200.0 °C... + 850.0 °C		-200 °C... +600 °C		-200 °C... +600 °C		-200 °C... +600 °C		
-		-		-200.0 °C... +1372.0 °C		-200.0 °C... +1372.0 °C		-		-		-		
■		■		■		■		■		■		■		
13V		13V		13V		13V		3V		3V		3V		
300.0 Hz /// 300.0 kHz		300.0 Hz /// 300.0 kHz		300.0 Hz... 300.0 kHz		300.0 Hz... 300.0 kHz		300.00 Hz / 3.0000 kHz		300.00 Hz / 3.0000 kHz		300.00 Hz / 3.0000 kHz		
-		-		■ (COIL only)		■ (COIL only)		-		-		-		
-		-		-		-		-		-		-		
■		■		■		■		■		■		■		
540 kB (15,400)		540 kB (15,400)		540 kB (15,400)		540 kB (15,400)		32 kB (1000)		32 kB (1000)		32 kB (1000)		
■		■		■		■		-		-		-		
3¼ = 3100 d		3¼ = 3100 d		4¼ = 30,000 d		4¼ = 30,000 d		4¼ = 31,000 d		4¼ = 31,000 d		4¼ = 31,000 d		
■		■		■		■		■		■		■		
40 analog / 10 digital		40 analog / 10 digital		40 analog / 10 digital		40 analog / 10 digital		2 digital		2 digital		2 digital		
10 kHz		10 kHz		10 kHz		10 kHz		1 kHz		1 kHz		1 kHz		
IR / USB X-TRA		IR / USB X-TRA		IR / USB X-TRA		IR / USB X-TRA		IR / BD232 / USB-Hit		IR / BD232 / USB-Hit		IR / BD232 / USB-Hit		
■		■		■		■		-		-		-		
CAT II / 600 V CAT III / 300 V		CAT II / 600 V CAT III / 300 V		CAT II / 1000 V CAT III / 600 V		CAT II / 1000 V CAT III / 600 V		CAT II / 600 V		CAT II / 600 V		CAT II / 600 V		
DAkkS		DAkkS		DAkkS		DAkkS		DAkkS		DAkkS		DAkkS		
420 g		420 g		420 g		420 g		420 g		420 g		420 g		
2 ea. 1.5 V / 200		2 ea. 1.5 V / 200		2 ea. 1.5 V / 200		2 ea. 1.5 V / 200		3 ea. 1.5 V / 20		3 ea. 1.5 V / 20		3 ea. 1.5 V / 20		
■		■		■		■		■		■		■		
89 x 199 x 43		89 x 199 x 43		89 x 199 x 43		89 x 199 x 43		84 x 195 x 35		84 x 195 x 35		84 x 195 x 35		
IP 54		IP 54		IP 54		IP 54		IP 54		IP 54		IP 54		
CE		CE		CE		CE		CE		CE		CE		
Cable set, pouch, RH		Cable set, pouch, RH		Cable set, pouch, GH (COIL adapter)		Cable set, pouch, GH (COIL adapter)		Cable set, RH		Cable set, RH (case)		Cable set, RH (case)		
METRAwin10		METRAwin10		METRAwin10		METRAwin10		METRAwin10		METRAwin10		METRAwin10		
<b>M246A</b>	<b>M246S (M260B)</b>	<b>M246B (246C)</b>	<b>M246M</b>	<b>M227A</b>	<b>M227B / C / S</b>	<b>M227T / U</b>								



## SHUNTS

### Shunts for Multimeters



#### Shunt Resistors for Multimeters Without Current Measuring Function

The shunt resistors serve as adapters for multimeters without their own current measuring function, or are used to extend the current range.

- NW3A (Z205B): 3 A – 0.1  $\Omega$  – class 0.5 – 600 V – CAT IV – 100 mV/A

Type	Article
NW3A	Z205B

## PMA 16

### Power Measuring Adapter



The power measuring adapter is a grounded intermediate plug for safe, trouble-free measurement of power consumption of single-phase consumers with up to 16 A connected by means of a plug.

Type	Article
PMA 16	Z228A

## SM16

### Current Measuring Adapter



For safe, trouble-free measurement of current consumption (up to 16 A) via the grounded mains plug of connected power consumers. The cable with contact-protected connectors is connected directly to the current measurement sockets at the multimeter.

Type	Article
SM 16	GTM9070190E0002

## USB-HIT / USB-PACK

### Bidirectional IR-USB Interface Adapter



Data are transmitted from the multimeter to the adapter in an electrically isolated, bidirectional fashion, and to the USB interface for PCs and laptops.

- USB-Pack: adapter with USB cable including METRAWin10/METRAHit software

Type	Article
USB-HIT	Z216A
USB-Pack	Z216B

## BD232

### Bidirectional IR – RS 232 Interface Adapter



The infrared interface allows for electrically isolated data transmission between PC and multimeter.

Data transmission is indicated visually by means of two LEDs. Up to four adapters can be snapped together side-by-side, and thus cascaded into a multi-channel system.

Type	Article
BD232	GTZ3242100R0001



## BD PACK 1

### BD232 Bidirectional Interface Adapter with METRAwin 10 Software



#### BD-Pack 1

- BD232 adapter
- RS232 cable
- With METRAwin10
- Installation instructions

Type	Article
BD-Pack 1	Z215A

## USB XTRA

### Bidirectional Interface Adapter, IR-USB



Bidirectional infrared-USB interface adapter for Starline multimeters with serial IR interface for connection to a USB port at a PC

Adapter for data transmission between the multimeter and the PC

Type	Article
USB XTRA	Z216C

## USB XTRA SET

### USB X-TRA Interface Adapter with METRAwin 10 Software



Set consisting of USB X-TRA bidirectional interface adapter and software METRAwin 10/METRAHIT

Type	Article
USB XTRA Set	Z216D

## NA HIT 2x, NA HIT 27, NA X-TRA, NA T-COM

### Power Packs



NA X-TRA: mains power pack, 90 ... 250 V<sub>AC</sub>/5 V<sub>DC</sub>

NA HIT 2x: mains power pack, 90 ... 250 V<sub>AC</sub>/5 V<sub>DC</sub>

NA HIT 27: mains power pack, 90 ... 250 V<sub>AC</sub>/5 V<sub>DC</sub>

NA T-COM: mains power pack, 90 ... 250 V<sub>AC</sub>/5 V<sub>DC</sub>

For battery-saving mains operation during continuous measurement with multimeters, e.g. when used as a data logger

Broad range input: 50/60 Hz – measuring category:  
600 V CAT IV (Z218G, H), 600 V CAT II (Z218J, T)

Type	Article
NA X-TRA:	Z218G
NA HIT 2x	Z218H
NA HIT 27	Z218J
NA T-COM	Z218T



## AC/DC CURRENT SENSORS Current Clamp Sensors with Voltage Output

CP30 / CP330 /  
CP1100

CP1800

**CP30, CP330 and CP1100 current clamp sensors have been developed for precise contactless measurement of alternating and direct current.**

They're well suited for precision current measurement thanks to the use of the latest Hall effect technology.

### FEATURES:

- AC and DC current measurement for TRMS multimeters
- Highly accurate: 1%
- Automatic shutdown for extended battery service life

- Transformation ratios can be set directly at many METRAHIT multimeters.
- Easy zero balancing by simply pressing a key
- Measuring category: 300V CAT III

Type	Article
CP30	Z201B
CP330	Z202B
CP1100	Z203B
CP1800	Z204A

Type	Meas. Ranges* DC, AC	Reso- lution	Con- ductor Dia., mm	Overcurrent Capacity	Frequency Range	Intrinsic Uncertainty	Gain Drift / °C	Trans. Ratio mV/A
						± (% rdg. + A)		
CP30	30 A	1 mA	25	500 A (60 s)	DC to 20 kHz (-1 dB)	1% + 2 mA	0.01	100
CP330	30 / 300 A	50 mA / 100 mA	25	600 A (60 s)	DC to 20 kHz (-3 dB)	1% + 50 / 100 mA	0.1	10 / 1
CP1100	100 / 1000 A	100 mA / 500 mA	32	2000 A (60 s)	DC to 20 kHz (-1 dB)	1% + 100 / 500 mA	0.1	10 / 1
CP1800	125 / 1250 A	100 mA / 500 mA	32	2000 A (60 s)	DC to 20 kHz (-1 dB)	1% + 100 / 500 mA	0.1	10 / 1

\* CP 30: DC or AC<sub>peak</sub>, CP 330 / 1100 / 1800: DC or AC<sub>RMS</sub>

## FLEXIBLE AC CURRENT SENSORS

### Flexible AC Current Sensors with Voltage Output



METRAFLEX 3000



METRAFLEX 300M

**METRAFLEX 3000 and METRAFLEX 300M flexible current sensors with voltage output** for measuring alternating current at difficult to access places, highly insulated and with range selector switch (selectable transformation ratio)

Maximum phase angle error is 2.5° at a frequency of up to 1 kHz.

### INCLUDED WITH THE METRAFLEX:

- Two 1.5 V AA batteries

Type	Article
METRAFLEX 3000	Z207E
METRAFLEX 300M	Z207M

Type	Measuring Range AC	Measuring Category	Loop Circumf., mm	Trans. Ratio mV/A	Frequency Range	Intrinsic Uncertainty ± (% rdg. + mA)
METRAFLEX 3000	30 / 300 / 3000 A	CAT III / 1000 V CAT IV / 600 V	610	100 / 10 / 1	10 Hz ... 10 kHz	1% ± 100
METRAFLEX 300M	3 / 30 / 300 A	CAT III / 1000 V CAT IV / 600 V	160	1000 / 100 / 10	20 Hz ... 100 kHz	1% ± 100 / 100 / 500



## AC CURRENT SENSORS

With Voltage Output, mV/A



WZ12C

### AC Current Sensors with Voltage Output, mV/A

Current within conductors can be conveniently and safely measured with current clamp sensors and multimeters.

#### SCOPE OF DELIVERY:

- Current sensor with connector cable

#### ADVANTAGES:

- The electrical circuit need not be interrupted – no electrical connection to the conductor

- Measurement of high amperages – no multimeter overloading due to mains current surges

Type	Article
WZ12B	Z219B
WZ12C	Z219C
WZ11B	Z208B
Z3512A	Z225A



WZ11B



Z3512A

Type	Measuring Range, AC	Measuring Category	Cable Dia. mm	Trans. Ratio mV/A	Frequency range	Intrinsic Uncertainty ± (% rdg. + A)
WZ12B	0.01 ... 100 A	CAT III / 300V	15	100	45 ... 65 ... 500Hz	1.5%+0.1 m
WZ12C	0.001 ... 15 A / 1 ... 150 A	CAT III / 300V	15	1000/ 1	45 ... 65 ... 500Hz	3%+0.15 m / 2%+0.1
WZ11B	0.5 ... 20 A / 5 ... 200 A	CAT III / 600V	20	100/ 10	30 ... 48 ... 65 / ... 500Hz	1 ... 3%
Z3512A	0.001 ... 1 A 0.01 ... 10 A 0.1 ... 100 A 1 ... 1000 A	CAT III / 600V	52	1000/ 100/ 10/ 1	10 ... 48 ... 65Hz / ... 3 kHz	0.2% ... 0.7%

## AC CURRENT TRANSFORMERS

With Current Output, mA/A



Z3512



Z3514

### AC current transformers with current output, mA/A

#### ADVANTAGES:

- The electrical circuit need not be interrupted – no electrical connection to the conductor
- Measurement of high amperages – no multimeter overloading due to mains current surges

#### SCOPE OF DELIVERY:

- Current sensor with connector cable

Type	Article
WZ12A	Z219A
WZ12D	Z219D
WZ11A	Z208A
Z3511	GTZ3511000R0001
Z3512	GTZ3512000R0001
Z3514	GTZ3514000R0001



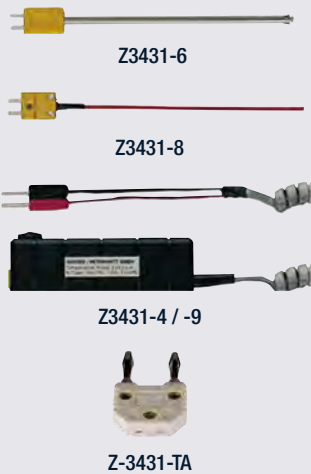
WZ12A/D

Type	Measuring Range, AC	Measuring Category	Conductor Dia. mm	Trans. Ratio mA/A	Frequency Range	Intrinsic Uncertainty
WZ12A	15 ... 180 A	CAT III / 300V	15 mm	1	45 ... 65 ... 400 Hz	±3% rdg.
WZ12D	0.03 ... 150 A	CAT III / 300V	15 mm	1	45 ... 65 ... 500Hz	± (2.5% rdg. + 0.1 mA)
WZ11A	1 ... 200 A	CAT III / 600V	20 mm	1	48 ... 65 ... 400Hz	± 1 ... 3% rdg.
Z3511	4 ... 500 A	CAT III / 600V	30 x 63 mm	1	45 ... 65 Hz ... 1 kHz	±(3% rdg. + 0.4 A)
Z3512	0.5 ... 1000 A	CAT III / 600V	52 mm	1	30 ... 45 ... 65 Hz ... 5 kHz	±0.5 ... 0.7% rdg.
Z3514	1 ... 2000 A	CAT III / 600V	64 x 150 mm	1	30 ... 45 ... 65 Hz ... 5 kHz	±0.5% rdg.



## TEMPERATURE PROBE (TC)

### Temperature Probes and Thermocouples with Miniature Plug



Suitable for temperature measurement from  $-25^{\circ}\text{C}$  to  $+1150^{\circ}\text{C}$ . The measurement output is connected to the mV/V measurement input at the multimeter.

**SCOPE OF DELIVERY:**

- **Z3431-3:** temperature probe\* with a permanently mounted, standard immersion sensor

- **Z3431-4 and Z3431-9:** temperature probe\* without plug-in sensor, with mini-socket

- **Z3431-5/-6/-8:** type K thermocouple with mini-plug

- **Z-3431-TA:** adapter from mini-socket to 4 mm plug for connecting type K sensors to multimeters with TC

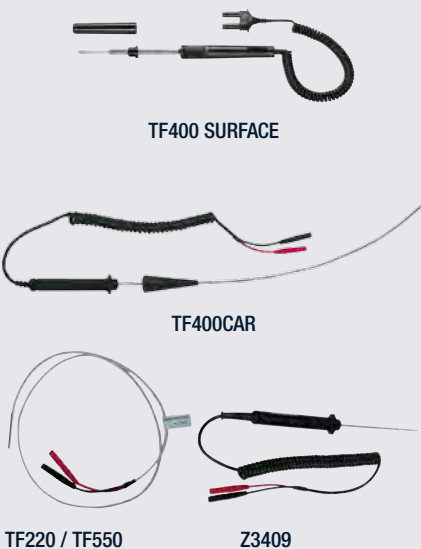
\* For multimeters without measuring function for type K

Type	Article
Z3431-3	GTZ3431003R0001
Z3431-4	GTZ3431004R0001
Z3431-9	GTZ3431009R0001
Z3431-5	GTZ3431005R0001
Z3431-6	GTZ3431006R0001
Z3431-8	GTZ3431008R0001
Z3431-TA	Z102T

Type	Measuring Range	Sensor Type	Intrinsic Uncertainty	Input Impedance Multimeter	Output V	Operating Temperature	Power Supply
Z3431-3	$-20^{\circ}\text{C} \dots +350^{\circ}\text{C}$	NiCr-NiAl Type K thermocouple	$\pm (0.5\% \text{ rdg.} + 0.5^{\circ}\text{C})$	$>10 \text{ k}\Omega$	1 mV/ $^{\circ}\text{C}$	$5^{\circ}\text{C} \dots 45^{\circ}\text{C}$	1.5V baby cell, 250 hrs. Service life
Z3431-4	$-25^{\circ}\text{C} \dots +1150^{\circ}\text{C}$	NiCr-NiAl Type K thermocouple	$\pm (1\% \text{ rdg.} + 1^{\circ}\text{C})$	$>10 \text{ k}\Omega$	1 mV/ $^{\circ}\text{C}$	$5^{\circ}\text{C} \dots 45^{\circ}\text{C}$	1.5V baby cell, 250 hrs. Service life
Z3431-9	$-20^{\circ}\text{C} \dots +350^{\circ}\text{C}$	NiCr-NiAl Type K thermocouple	$\pm (0.5\% \text{ rdg.} + 0.5^{\circ}\text{C})$	$>10 \text{ k}\Omega$	1 mV/ $^{\circ}\text{C}$	$5^{\circ}\text{C} \dots 45^{\circ}\text{C}$	1.5V baby cell, 250 hrs. Service life
Z3431-5	$+1100^{\circ}\text{C}$	NiCr-NiAl Type K thermocouple	Standard immersion sensor, can be plugged into temperature probes Z3431-4 and Z3431-9				
Z3431-6	$\dots +850^{\circ}\text{C}$	NiCr-NiAl Type K thermocouple	Surface sensor, can be plugged into temperature probes Z3431-4 and Z3431-9				
Z3431-8	$\dots +250^{\circ}\text{C}$	NiCr-NiAl Type K thermocouple	Flexible, insulated sensor, can be plugged into temperature probes Z3431-4 and Z3431-9				
Z3431-TA	–	Type K adapter	For connecting type K sensors with mini-plug to multimeters with thermocouple measuring function				

## TEMPERATURE SENSORS

### Temperature Sensors with 4 mm Plugs



**SCOPE OF DELIVERY:**

- Z3409: Pt100 temperature sensor for surface and immersion measurements
- TF220: Pt1000 immersion sensor for measurements in gases and liquids

- TF550: Pt100 immersion sensor for measurements in ovens and freezers
- TF400 SURFACE: fast reacting surface temperature sensor, type K thermocouple
- TF400CAR: Pt1000 temperature sensor for oil temperature measurement

Type	Article
Z3409	GTZ3409000R0001
TF220	Z102A
TF550	GTZ3408000R0001
TF400CAR	Z102C
TF400 SURFACE	Z102E

Type	Sensor Element	Length of Element / Sensor	Temp. Range	Accuracy	Intrinsic Uncertainty K at $0^{\circ}\text{C} / \dots ^{\circ}\text{C}$	Transient Recovery, T90 Water/Air	Lead in mm	Outer Jacket / Insulation
Z3409	Pt100	130/1000 mm	$-40 \dots +600$	Class A	0.15/600:1.35	5 s/30 s	Strand, 2 ea. 0.35	PVC/PVC
TF220	Pt1000	39/1500 mm	$-50 \dots +220$	Class B	0.3/220:1.4	8 s/33 s	Strand, 2 ea. 0.35	Teflon / Teflon
TF550	Pt100	40/1500 mm	$-50 \dots +550$	Class B	0.3/550:3.1	8 s/33 s	Strand, 2 ea. 0.35	V4A / glass
TF400CAR	Pt1000	810/2310 mm	$-50 \dots +500$	Class B	–/–	–/–	Strand, 2 ea. 0.35	PVC/PVC
TF400 SURFACE	K (NiCr-Ni)	280/130 mm	$-50 \dots +400$	–	–/–	2 s	Strand, 2 ea. 0.35	PVC/PVC



# OVERVIEW

## Multimeter Accessories

Type	METRAHIT																METRALINE DIMM15	METRALINE DIMM16	METRAmax				METRA-port		
	BASE / EBASE	TECH / ETECH	X-TRA / EXTRA	SECULIFE HIT	PRO / ESPECIAL	OUTDOOR	T-COM / plus	ISO / ISO@Aero/COIL	ENERGY	ULTRA	METRACAL MC	CAL	2 plus	WORLD	30M	27M/I			27H+E CAR	1A/2A	2	3	6	12	40S
<b>Shunts</b>																									
NW3A	■	■	■	■	■	■	■	■	■	■	■	-	■	■	■	■	■	■	■	■	■	-	-	■	■
<b>Adapters</b>																									
USB X-TRA	-/■	-/■	■	■	-/■	■	■	■	■	■	■	-	-	-	-	-	-	-	-	-	-	-	-	-	-
USB X-TRA SET	-/■	-/■	■	■	-/■	■	■	■	■	■	■	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BD232	-	-	-	-	-	-	-	-	-	-	-	-	-	■ <sup>1</sup>	■	■	■	-	-	-	-	-	-	-	-
BD-Pack1	-	-	-	-	-	-	-	-	-	-	-	-	-	■ <sup>1</sup>	■	■	■	-	-	-	-	-	-	-	-
USB-Hit	-	-	-	-	-	-	-	-	-	-	-	-	-	■	■	■	■	-	-	-	-	-	-	-	-
USB-Pack	-	-	-	-	-	-	-	-	-	-	-	-	-	■	■	■	■	-	-	-	-	-	-	-	-
SM16	-	■	■	■	■	■	■	■	■	■	■	-	-	-	-	-	-	■	-	■	■	-	■	■	■
PMA16	-	-	-	-	-	-	-	-	■	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Power Packs / Chargers</b>																									
NA HIT 2x	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	■	■	■	-	-	-	-	-	-	-
NA HIT 27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	■	■	-	-	-	-	-	-	-	-
NA X-TRA	-	-	■	■	-	■	■	■	■	■	■	-	-	-	-	■ <sup>2</sup>	-	-	-	-	-	-	-	-	-
NA T-COM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Current Sensors</b>																									
CP30	■	■	■	■	■	■	■	■	■	■	■	-	■	■	■	■	■	■	■	■	■	-	-	■	■
CP330	■	■	■	■	■	■	■	■	■	■	■	-	■	■	■	■	■	■	■	■	■	-	-	■	■
CP1100	■	■	■	■	■	■	■	■	■	■	■	-	■	■	■	■	■	■	■	■	■	-	-	■	■
CP1800	■	■	■	■	■	■	■	■	■	■	■	-	■	■	■	■	■	■	■	■	■	-	-	■	■
WZ11B	■	■	■	■	■	■	■	■	■	■	■	-	■	■	■	■	■	■	■	■	■	-	-	■	■
WZ12B	■	■	■	■	■	■	■	■	■	■	■	-	■	■	■	■	■	■	■	■	■	-	-	■	■
WZ12C	■	■	■	■	■	■	■	■	■	■	■	-	■	■	■	■	■	■	■	■	■	-	-	■	■
Z3512A	■	■	■	■	■	■	■	■	■	■	■	-	■	■	■	■	■	■	■	■	■	-	-	■	■
<b>Flexible Current Sensors</b>																									
METRAFLEX 3000	■	■	■	■	■	■	■	■	■	■	■	-	■	■	■	■	■	■	■	■	■	-	-	■	■
METRAFLEX 300M	■	■	■	■	■	■	■	■	■	■	■	-	■	■	■	■	■	■	■	■	■	-	-	■	■
<b>Current Transformers</b>																									
WZ11A	-	■	■	■	■	■	■	■	■	■	-	-	-	-	-	-	-	-	-	-	■	-	-	■	■
WZ12A	-	■	■	■	■	■	■	■	■	■	-	-	-	-	-	-	-	-	-	-	-	-	-	-	■
WZ12D	-	■	■	■	■	■	■	■	■	■	-	-	-	-	-	-	-	-	-	-	■	-	-	-	■
Z3511	-	■	■	■	■	■	■	■	■	■	-	-	-	-	-	-	-	-	-	-	■	-	-	■	■
Z3512	-	■	■	■	■	■	■	■	■	■	-	-	-	-	-	-	-	-	-	-	■	-	-	■	■
Z3514	-	■	■	■	■	■	■	■	■	■	-	-	-	-	-	-	-	-	-	-	■	-	-	■	■
<b>Temperature Sensors and Probes</b>																									
TF400CAR	-	-/■	■	■	-	■	■	■	■	■	■	-	-	-	■	■	■	■	■	■	-	-	-	■	-
TF400 SURFACE	■	■	■	■	■	■	■	■	■	■	■	-	■	■	■	-	-	-	■	■	-	-	-	■	-
TF220	-	-/■	■	■	-	■	■	■	■	■	■	-	-	-	■	■	■	■	■	■	-	-	-	■	-
TF550	-	-/■	■	■	-	■	■	■	■	■	■	-	-	-	■	■	■	■	■	■	-	-	-	■	-
Z3409	-	-/■	■	■	-	■	■	■	■	■	■	-	-	-	■	■	■	■	■	■	-	-	-	■	-
Z3431-3	■	■	■	■	■	■	■	■	■	■	■	-	■	■	■	■	■	■	■	■	■	-	-	■	■
Z3431-4	■	■	■	■	■	■	■	■	■	■	■	-	■	■	■	■	■	■	■	■	■	-	-	■	■
Z3431-9	■	■	■	■	■	■	■	■	■	■	■	-	■	■	■	■	■	■	■	■	■	-	-	■	■
Z3431-TA	■	■	■	■	■	■	■	■	■	■	■	-	■	■	■	■	■	■	■	■	■	-	-	■	■

<sup>1</sup> For one channel only

<sup>2</sup> For dates of manufacture through 2004 only



## HIGH FREQUENCY PROBE

### Z3431-2 High Frequency Probe



**Z3431-2 High Frequency Probe:**  
100 kHz - 750 MHz, 0.25 ... 50 VAC.

In combination with a multimeter, the Z3431-2 high frequency probe allows for measurement of alternating voltages with amplitudes of 0.25 to 50 V within a frequency range of 100 kHz to 750 MHz.

The probe rectifies alternating voltages at a ratio of 1:1. The measuring instrument must have an input impedance of 10 MΩ.

Type	Article
Z3431-2	GTZ3431002R0001

## CABLE SETS

### Cable Sets with Permanently Mounted Test Probes



KS17-ONE KS17-2 KS29



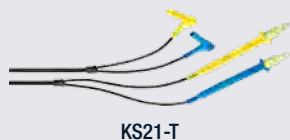
KS17-S



(adjustable test probe, CAT II / CAT IV)  
KS-AP



KS-NTS



KS21-T



KY95-3

Z502U



KY94

#### Cable sets with permanently mounted test probes and contact-protected angle plugs for safe measuring

Hook clips, alligator clips or push-on lugs can be attached to the test probes for special measuring tasks.

- KS17-ONE cable set:  
600 V / CAT III, 1 A, 120 cm long  
600 V / CAT II, 16 A
- KS29 cable set:  
1000 V / CAT III, 1 A safety cable set for power meters
- KS17-2 cable set:  
S1000 V / CAT III, 1 A, 600 V / CAT IV, 1 A  
1000 V / CAT II, 16 A, 120 cm long
- KS17-S cable set:  
1000 V / CAT II, 150 cm long,  
stainless steel test probes, 2 mm diameter
- KS-AP cable set:  
1000 V / CAT II, 19 A, 1000 V / CAT IV, 1 A, with  
adjustable test probes, 115 cm long  
4 mm angle plug
- KS-NTS cable set:  
1000 V / CAT II / III, 20 A,  
double insulated silicon measurement cables,  
120 cm long, with one pair each of small test  
probes, alligator clips, clip hooks and North  
American test probes
- KS21-T cable set  
1000 V / CAT II, 16 A,  
200 cm long for cable multimeter
- KY95-3 alligator clip:  
1000 V / CAT III, 16 A,
- Magnetic test probes with 4 mm plug  
1000 V / CAT III, 4 A
- KY94 hook clips (1 pair)

Type	Article
KS17-ONE	Z110K
KS29	Z229A
KS17-2	GTY3620034P0002
KS17-S	Z110H
KS-AP	Z110S
KS-NTS	Z110W
KS21-T	Z110U
KY95-3	Z110J
Magnetic test probes - 4 mm	Z502U
KY94	GTY3610094P01





## KELVIN CLIPS

### Kelvin Clips



Kelvin Clip



Kelvin Probe



Kelvin Clip & Probe

Kelvin clips are used for connecting low impedance resistors (e.g. contact resistors, shunts etc.) to an ohmmeter with 4-wire connection. This allows for compensation of cable resistance.

- KC4: Kelvin clips (1 set = 2 pieces) for 4-pole connection of low-resistance DUTs, cable length: 120 cm, clip for connection to DUTs with diameters of up to 30 mm
- KC27: Kelvin probes (1 set of 2 ea.) with 2 stainless steel tips for 4-pole connection of low-resistance DUTs, 120 cm cable length

#### KC&S: SET INCLUDING 1 KELVIN CLIP AND 1 KELVIN PROBE

- Cable set including 1 Kelvin clip and 1 Kelvin probe, as well as 2 stainless steel tips for 4-wire measurement, 120 cm cable length with 4 mm angle plugs

Type	Article
KC4	Z227A
KC27	Z227B
KC&S	Z227C

## ACCESSORIES

### Multimeters Overview

Type	METRAHIT																METRALINE DMM15	METRALINE DMM16	METRAMax								
	BASE/EBASE	TECH/ETECH	X-TRA/EXTRA	SECULIFE HIT	PRO/ESPECIAL	OUTDOOR	T-COM /plus	ISO/ISO@Aero/COIL	ENERGY	ULTRA	METRACAL MC	CAL	2 plus	WORLD	30M	27M/I			27H+E CAR	1A/2A	2	3	6	12	40S	3A	
<b>High-Frequency Probe</b>																											
Z3431-2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Measuring Accessories</b>																											
KS17-ONE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KS17-2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KS17-S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KS-AP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KS-NTS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KS21-T	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KS29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KY95-3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Z502U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Kelvin Clips</b>																											
KC4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KC27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KC&S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

## FUSES

### Overview

Type	Designation	Article	For following devices:
FF (UR) 16 A / 1 kV AC/DC	Fuse link	Z109B	METRAHIT 24S ... 26S
FF (UR) 10 A / 1 kV AC/DC	Fuse link	Z109L	METRAHIT PRO, TECH, X-TRA, ETECH, EXTRA, ISO (AERO), OUTDOOR, 2, WORLD, ULTRA, 29S, ENERGY
FF (UR) 1.6 A / 1 kV AC/DC	Fuse link	Z109C	METRAHIT 23S ... 26S, 27M/I, 27H+E CAR, 29S
FF 1.6 A / 700V AC	Fuse link	Z109E	METRAHIT ONE Plus/2/WORLD/2A, T-COM (PLUS), METRAMax 12, METRAport 3A
FF (UR) 16 A / 600V AC	Fuse link	Z109D	METRAHIT ONE Plus
FF 630 mA / 700V	Fuse link	Z109J	METRAHIT CAL, METRAHIT 1A
FF 6.3 A / 400V	Fuse link	Z109K	METRAHIT 1A
FF 16 A / 600V AC	Fuse link	Z109A	METRAMax 12, METRAport 3A, METRAHIT 2A
FF 1 A / 380V (5 x 20)	Fuse link	Z109H	METRAport 32S / 32XS
T 16 A / 500V (6.3 x 32)	Fuse link	Z109I	METRAport 32S / 32XS
FF 0.63 A / 400V	Fuse link	Z109M	METRACAL MC



## ACCESSORIES

### Pouches, Hard Cases, Covers, Hangers for Multimeters

Type	Designation	Article	METRAHIT			METRAmax		METRAport
			STARLINE	ONE ... 30M	1A / 2A	2 / 3 / 6	12	40S / 3A
HitBag	Cordura belt pouch	Z115A	■	■	■	■	■	■
HitBag +	Large belt pouch	Z115B	■	■	■	■	■	■
HIT-Clip	Magnetic hanger and belt strap for METRAHIT with rubber holster	Z117A	■	■	–	–	–	–
F809	Ever-ready case with cable compartment	GTY3172083P01	–	–	■	–	–	–
F822	Ever-ready case with cable compartment	GTY3172095P01	–	–	■	■	■	■
F823	Ever-ready case with cable compartment	GTY3172097P01	–	–	–	–	■	–
F825	Ever-ready case with cable compartment	GTY3172100P01	–	–	–	■	–	–
F829	Carrying pouch	GTZ3301000R0003	■	■	–	–	■	–
F836	Ever-ready case with cable compartment	GTZ3302000R0001	■	■	–	–	–	–
F841	Carrying pouch	Z104A	–	–	■	■	■	■
GH X-TRA	Rubber holster	Z104C	■	–	–	–	–	–
GH18	Rubber holster with carrying strap	GTZ3212000R0001	–	■	–	–	–	–
GH19	Rubber holster	Z104B	–	–	–	■	–	–
HC20	Hard case for 1 device, accessories	Z113A	■	■	–	–	–	–
HC30	Hard case for 2 devices, accessories	Z113B	■	■	–	–	–	–
HC30	Hard case with foam inserts on both sides	Z113E	■	■	■	■	■	■



HitBag



HitBag +



F809



F822



F823



F825



F829



F836



F841



GH X-TRA



GH 19



HIT-Clip



GH18



HC20



HC30

Power quality – always on the safe side with clean electrical networks. Industry, commerce, health care services, banks and other service providers are extremely dependent on electrical and electronic systems. These systems influence power quality themselves in many ways, but they react extremely sensitively to disturbances as well.

There's a single convincing response to the numerous challenges faced by users in the area of electrical power supply: highly versatile MAVOWATT power quality analyzers for power quality testing and assurance.

With the help of these innovative class A (2008) products, all relevant measured quantities can be acquired which are decisive for the quality of electrical supply power – the perfect foundation for sustainable optimization.

## CONTENTS

---

### POWER QUALITY

- 02 - 2 Instruments: Overview
- 02 - 3 MAVOWATT 230 / 240 / 270 / 270-400
- 02 - 4 MAVOWATT 230 / 240 / 270 / 270-400 - Applications / Functions
- 02 - 5 MAVOWATT 230 / 240 / 270 / 270-400 - Packages, Accessories
- 02 - 6 MAVOWATT 20
- 02 - 7 MAVOWATT 30
- 02 - 8 MAVOWATT 20 / 30 Packages, Accessories
- 02 - 9 Current Sensors / Current Clamps
- 02 - 10 MAVOSYS 10
- 02 - 10 MAVOWATT 4



**MAVOWATT 230 / 240 / 270**

The new power analyzers included in the MAVOWATT product range are used for monitoring, analysis and recording of mains quantities. Disturbances and events can be easily pinpointed, documented and analyzed with reference to applicable standards.



**MAVOWATT 230**  
PAGE 02 - 3



**MAVOWATT 240**  
PAGE 02 - 3



**MAVOWATT 270**  
PAGE 02 - 3

**MAVOWATT 20**

The MAVOWATT 20 mains and power analyzer acquires power, demand and energy, and it calculates consumption costs as well as CO<sub>2</sub> footprint.



**MAVOWATT 20**  
PAGE 02 - 6

**MAVOWATT 30**

The power analyzer simultaneously monitors TRMS values, harmonics, flicker and transients down to a time range of approximately 80 μs. Automatic detection of measuring configuration and current type



**MAVOWATT 30**  
PAGE 02 - 7

**CURRENT SENSORS / CURRENT CLAMPS**

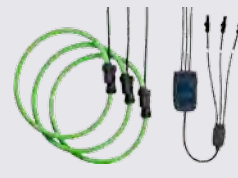
- AC current clamp sensors
- AC-DC current clamp sensors
- Flexible AC current sensors
- Miniature AC current sensors



**TR-2510B**  
PAGE 02 - 9



**PR150/SP2B**  
PAGE 02 - 9



**METRAFLEX 3003 XBL**  
PAGE 02 - 9



**METRAFLEX 300MXBL**  
PAGE 02 - 9

**MAVOSYS 10**

Same as MAVOWATT30 but with additionally integrated intelligence for fast, reliable pinpointing of power quality problems



**MAVOSYS 10**  
PAGE 02 - 10

**MAVOWATT 4**

The multiple power meter for direct measurement of DC power, as well as RMS power measurement for single-phase alternating current and balanced load three-wire, three-phase current.



**MAVOWATT 4**  
PAGE 02 - 10



## MAVOWATT I 230 / 240 / 270 / 270-400

### 3-Phase Energy and Power Disturbance Analyzers



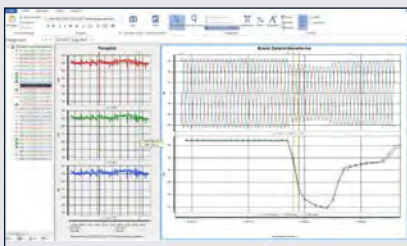
MAVOWATT 230



MAVOWATT 240



MAVOWATT 270-400



DranView 7: Fault Recording with Detail View



DranView 7

#### APPLICATIONS

The power analyzers included in the MAVOWATT product range are used for monitoring, analysis and recording of mains quantities.

All relevant measured quantities can be acquired which are decisive for the quality of electrical supply power. Disturbances and events can be easily pinpointed, documented and analyzed with reference to applicable standards. Power measurements at frequency converter outputs are also easily possible.

Diverse communication options, extremely safe operation and numerous recording and report generating functions distinguish these products.

#### CUSTOMER BENEFITS

##### SAFE

- 1000 V CAT III / 600 V CAT IV for safe work in public networks, as well as for measurements of up to 1000 V<sub>RMS</sub> AC/DC in industrial environments.
- Wireless remote access via smartphone, tablet and PC permits hazard-free work and configuration in safety-critical environments
- Complies with the latest industrial standards and permits legally secure recording of, for example, voltage quality per EN 50160 / IEC 61000

##### INTUITIVE AND PRODUCTIVE

- Convenient operation and analysis thank to the enormous 7" color touch-display
- Automatic detection of electrical system types, as well as nominal values for voltage, current and frequency
- Quick overview during measurement thanks to the PQ and energy dashboard with real-time warnings and red-green display
- Supports troubleshooting and diagnosis of interference sources with the help of AnswerModules®

##### FLEXIBLE

- Power measurements at frequency converter outputs
- 8 differential inputs (4 U / 4 I) permit precise and flexible acquisition of measured values in star and delta systems or simultaneous, direct measurement of AC and DC signals of up to 1000 V<sub>RMS</sub>.
- 1 MHz sampling and 2000 V<sub>PEAK</sub> for capturing transients
- Various frequency bands for worldwide use in systems with 16⅔, 50 and 60 Hz, or optionally in 400 Hz systems as well
- GPS receiver input for time synchronization
- Ethernet, WiFi, Bluetooth and USB for data transmission and remote access

#### COMPLIANCE WITH THE STANDARDS

Amongst others, the instruments fulfill all requirements specified in the IEC 61000-4-30 measuring instrument standard for "class A instruments", as well as IEC 61000-4-7 (measuring procedures for harmonics) and IEC 61000-4-15 (flicker meters).

This permits legally secure recording of the limit values stipulated in EN 50160 (voltage characteristics of electricity supplied by public distribution networks), e.g. for voltage quality.

##### MAVOWATT 230

- All functions and measurements: class A (4U/ 4I)
- Load profile analyses and energy measurements
- Voltage quality per EN 50160 including report function
- Acquisition of transients: 512 values per period
- Two frequency bands: 16⅔ and 50/60 Hz
- Events recording: RMS and waveform
- Pre/post-trigger: max. 100 periods
- Snapshot function
- USB and Ethernet
- Time synchronization via GPS clock (optional)
- AnswerModules® – analysis module for motor status

##### MAVOWATT 240

All functions same as MAVOWATT 230 plus:

- AnswerModules® – analysis module for voltage dip direction
- Switching of compensation capacitors, motor status
- Ripple control signal recording
- Expanded detail time window for events with up to 10,000 periods (pre/post-trigger)
- Bluetooth
- WiFi

##### MAVOWATT 270

All functions same as MAVOWATT 240 plus:

- 1 MHz sampling for transients up to 2000 V<sub>PEAK</sub>

##### MAVOWATT 270-400

All functions same as MAVOWATT 270 plus:

- Expanded frequency band for 400 Hz applications



## MAVOWATT I 230 / 240 / 270 / 270-400

### Overview

Instrument		MAVOWATT 230	MAVOWATT 240	MAVOWATT 270
Application / Function				
Communication	Ethernet	■	■	■
	Wi-Fi	–	■	■
	Bluetooth	OPTIONAL	■	■
	USB	■	■	■
	VNC for full remote control of the instrument	■	■	■
	Apple and Android app for acquisition and alarm generation	■	■	■
	GPS time synch* (see comment)	■	■	■
Inputs	(4) differential, voltage channels, 0 to 1000 V AC/DC	■	■	■
	(4) differential, voltage channels for current sensors, 0.1 to 6000 V (AC/DC) with supply voltage for flexible current sensors	■	■	■
Measurements	1000 V CAT III, 600 V CAT IV	■	■	■
	IEC 61000-4-30:2008, class A with certificate	■	■	■
	Sampling rate: 512 values/period/channel for U & I	■	■	■
	U-I dips and swells	■	■	■
	Transients as of 32 / 40 µs (60 / 50 Hz)	■	■	■
	Transients as of 1 µs	–	–	■
	Power demand and energy consumption	■	■	■
	IEEE 1459, advanced energy	–	■	■
	Harmonics and interharmonics U (127), I (63)	■	■	■
	EN 50160, edition 3	■	■	■
400 Hz monitoring	–	–	(400)*	
AnswerModules	Motor status	■	■	■
	Voltage dip direction	–	■	■
	Switching of compensation capacitors	–	■	■
Setups	Automatic setups for power quality, power demand and energy consumption	■	■	■
	Setup wizard	■	■	■
	Monitoring operating modes	7	9	9
	Max. pre/post-trigger periods	100	10.0000	
	Number of transient triggers	3	3	4

\* Comment:

- GPS time synch necessitates an optional GPS receiver and antenna (Z802H).

- (400) with MAVOWATT 270-400 only







## MAVOWATT I 230 / 240 / 270 / 270-400

### Packages

Designation	Type	Article
Instrument including set of measurement cables, rechargeable battery, charger, factory calibration certificate, DranView 7 Professional software and carrying pouch	MAVOWATT 230	M820A
MAVOWATT 230 with accessories (see above) and flexible current sensors: one METRAFLEX 3003XBL and one METRAFLEX 3001XBL	MAVOWATT 230 Flex Package	M820D
MAVOWATT 230 with accessories (see above) and miniature current sensors: four METRAFLEX 300MXBL (3/30/300 A)	MAVOWATT 230 Mini Flex Package	M820H
MAVOWATT 230 with accessories (see above) and current clamps: four TR2510B (1 ... 10 A)	MAVOWATT 230 TR2510B Package	M820N
Instrument including same accessories as MAVOWATT 230 plus Bluetooth adapter and DranView 7 Enterprise Software	MAVOWATT 240	M820B
MAVOWATT 240 with accessories (see above) and flexible current sensors: 1 METRAFLEX 3003XBL and 1 METRAFLEX 3001XBL	MAVOWATT 240 Flex Package	M820F
MAVOWATT 240 with accessories (see above) and miniature current sensors: four METRAFLEX 300MXBL (3/30/300 A)	MAVOWATT 240 Mini Flex Package	M820I
MAVOWATT 240 with accessories (see above) and current clamps: four TR2510B (1 ... 10 A)	MAVOWATT 240 TR2510B Package	M820O
Instrument including same accessories as MAVOWATT 230 plus Bluetooth adapter and DranView 7 Enterprise Software	MAVOWATT 270	M820C
MAVOWATT 270 with accessories (see above) and flexible current sensors: 1 METRAFLEX 3003XBL and 1 METRAFLEX 3001XBL	MAVOWATT 270 Flex Package	M820G
MAVOWATT 270 with accessories (see above) and miniature current sensors: four METRAFLEX 300MXBL (3/30/300 A)	MAVOWATT 270 Mini Flex Package	M820J
MAVOWATT 270 with accessories (see above) and current clamps: four TR2510B (1 ... 10 A)	MAVOWATT 270 TR2510B Package	M820P
Instrument including same accessories as MAVOWATT 230 plus Bluetooth adapter and DranView 7 Enterprise Software	MAVOWATT 270-400	M820K
MAVOWATT 270-400 with accessories (see above) and flexible current sensors: 1 METRAFLEX 3003XBL and 1 METRAFLEX 3001XBL	MAVOWATT 270-400 Flex Package	M820L
MAVOWATT 270-400 with accessories (see above) and miniature current sensors: four METRAFLEX 300MXBL (3/30/300 A)	MAVOWATT 270-400 Mini Flex Package	M820M
MAVOWATT 270-400 with accessories (see above) and current clamps: four TR2510B (1 ... 10 A)	MAVOWATT 270-400 TR2510B Package	M820Q

## MAVOWATT I 230 / 240 / 270 / 270-400

### Accessories

Designation	Type	Article	
<b>Rechargeable batteries and power packs</b>			
 BP-HDPQ	Rechargeable battery pack for MAVOWATT 230 / 240 / 270	BP-HDPQ	Z802A
	External battery charger, 250/125 V for MAVOWATT 230 / 240 / 270	XBC-HDPQ-EU	Z802L
	Power pack for MAVOWATT 230 / 240 / 270	PS-HDPQ	Z802C
<b>Measurement cables and clips</b>			
 VCS-HDPQ	Measurement cable set consisting of 8 measurement cables (4 white, 4 black) 8 alligator clips (4 white, 4 black), 4 jumper cables and cable markings	VCS-HDPQ	Z802D
	Jumper cable, 25 cm	114013-G1	Z802E
	White alligator clip, 600 V CAT III / 1 000 V CAT II	901962	Z802F
	Black alligator clip, 600 V CAT III / 1 000 V CAT II	901794	Z802G
<b>Communication</b>			
 USB-Bluetooth	GPS receiver with magnetic retainer for the antenna	GPSMAKIT-HDPQ	Z802H
	Adapter, USB to Bluetooth 2.1, class 1	USB, Bluetooth	Z802I
<b>Pouches and cases</b>			
 ENCL-HDPQ-EU	Practical carrying pouch for measuring instrument, current clamps, measuring accessories and much more	SCC MAVOWATT	Z802J
	Water-proof protective case for outdoor use. Dimensions: 42.5 x 30 x 20 cm	ENCL-HDPQ-EU	Z802K
	IP 65 protective case, dimensions: 46.9 x 35.7 x 17.8 cm	LPC-HDPQ-EU	Z802M



## MAVOWATT I 20

### 3-Phase Energy and Power Analyzer



An overview of the software's performance features is available on the Internet.

#### APPLICATIONS

The MAVOWATT 20 mains and power analyzer acquires power, demand and energy, and it calculates consumption costs as well as CO<sub>2</sub> footprint.

Harmonics and RMS voltage dips can also be recorded for the purpose of mains evaluation.

DC coupled measurement inputs make it possible to determine the efficiency of photovoltaic inverters.

Channel D is laid out as a differential input for measuring voltage between the neutral conductor and protective earth.

Recording of energy exported to and imported from the grid has proven especially advantageous within a setting of alternative energy concepts.

#### CUSTOMER BENEFITS

- Acquisition of energy consumption and costs
- Determination of CO<sub>2</sub> footprint
- Determination of inverter efficiency
- Uninterrupted recording of all mains-relevant parameters
- Measurement possible at 2 systems: AC/DC
- Monitoring of energy flow direction
- License-free EPRW software
- Print-out of comprehensive, customer-specific reports
- Compatible with DranView6

#### TECHNICAL DATA, MAVOWATT 20

- Dimensions: 203 x 300 x 64 mm
- Weight: 1.8 kg
- Operating temperature: 0 to +50 °C
- Storage temperature: -20 to +50 °C
- Relative humidity: 10 to 90%, no condensation
- System time: system clock with quartz movement, resolution: 1 second
- Power pack / charger: 90 to 264 V<sub>AC</sub>, 47 to 63 Hz
- Battery operation time: 2 hours
- Display: LCD, color touch-screen, 12 x 9.5 cm
- Data storage: high-speed compact flash, 4 GB

#### DranView Professional Software for MAVOWATT 20

#### LANGUAGES

- European version includes: English, French, Finnish, German, Italian, Polish, Spanish and Swedish
- Asian version includes: English, Chinese (simplified and traditional), Japanese, Korean and Thai

#### FUNCTIONS AND CONFORMITY

- IEC/EN 61000-4-7, harmonic analysis
- ISO 5001, energy management system
- EEE 1159 PQ guideline, events identification
- Continuous data logging of all measured quantities with min., max. and mean values within specified intervals
- Acquisition and recording of voltage dips/swells with time stamp and characteristic values

#### INCLUDED WITH MAVOWATT 20:

- Energy and power analyzer including a complete set of measurement cables
- Rechargeable battery and charger
- CF memory card, 4 GB
- Factory calibration certificate
- DranView Professional software
- Carrying pouch





## MAVOWATT I 30

### 3-Phase Energy and Power Disturbance Analyzer



#### APPLICATIONS

MAVOWATT power quality analyzers are class A devices (2008) which simultaneously monitor TRMS values, harmonics, flicker and transients down to a time range of approximately 80  $\mu$ s. The measuring configuration and the type of electrical circuit is selected automatically based on detected measured quantities. Acquired data are stored to a CF memory card and can be transferred to DranView for further processing.

#### CUSTOMER BENEFITS:

- Simple control per EN50160, EN 61000-4-7 and EN 61000-4-15
- Simple monitoring of energy costs
- Simple handling, automatic detection of electrical system types
- Automatic analysis/evaluation of measurement results in a matter of just seconds
- Automatic report generation with ultramodern PC software
- Automatic setup assistant

#### MAVOWATT 30:



- 8 measurement inputs, 4 voltage (differential)
- 4 current (current transformer), for measurement with line frequencies of 45 to 65 Hz and 16 $\frac{2}{3}$  Hz
- Storage of data to compact flash card, up to 32 GB
- Power supply: via charger at 90 ... 264 V / 47 ... 63 Hz or integrated rechargeable battery for up to 2 hours

#### INCLUDED WITH MAVOWATT 30:

- Energy and power analyzer including a complete set of measurement cables
- Rechargeable battery and charger
- CF memory card, 4 GB
- Factory calibration certificate
- DranView Professional software
- Carrying pouch

## MAVOWATT I 20 / 30

### Overview

Instrument	MAVOWATT 20	MAVOWATT 30
<b>APPLICATION / FUNCTION</b>		
Mains analysis per EN 50160	–	■
Voltage quality measuring method	–	IEC 61000-4-30, IEEE 1159
Energy / load tests / examinations	■	■
Extended load disturbance and asymmetry	–	–
Frequency measuring range	16%, 50–60 Hz	16%, 50–60 Hz
Errors recording / in-rush	–	–
Motor testing	–	–
Data logging	■	■
Harmonic analysis up to the 63 <sup>rd</sup> harmonic (IEC61000-4-7, IEEE519)	■	■
Flicker per IEC 61000-4-15, IEEE1453	–	■
Acquisition of fast transients	–	$\geq 80 \mu$ s
Answer module (motor condition, capacitance switching, voltage dip)	–	–
Measurement inputs	“Common reference”	Differential
Demand and energy reports	■	–
Monitoring modes	2	4
Pre/error/post-cycles	0	100
Languages	11	11








## MAVOWATT I 20 / 30

### Packages

Designation	Type	Article
Instrument including set of measurement cables, rechargeable battery, charger, 4 GB CF memory card, factory calibration certificate, DranView 7 Professional software and carrying pouch	Mavowatt 20	–
MAVOWATT 20 with accessories (see above) and flexible current sensors: 1 METRAFLEX 3003XBL and 1 METRAFLEX 3001XBL	MAVOWATT 20 Flex Package	M810B
MAVOWATT 20 with accessories (see above) and miniature current sensors: four METRAFLEX 300MXBL (3/30/300 A)	MAVOWATT 20 Mini Flex Package	M810C
MAVOWATT 20 with accessories (see above) and current clamps: four TR2500B (10 ... 500 A)	MAVOWATT 20 TR2500B Package	M817Q
MAVOWATT 20 with accessories (see above) and current clamps: four TR2510B (1 ... 10 A)	MAVOWATT 20 TR2510B Package	M817R
MAVOWATT 20 with accessories (see above) and current clamps: four TR2550B (1 ... 100 A)	MAVOWATT 20 TR2550B Package	M817T
MAVOWATT 20 including same accessories as with MAVOWATT 20 Flex Package plus PR150/SP2B AC/DC current clamp, 150 A, battery powered, 9 V	MAVOWATT 20 PR150/SP2B Package	M810D
MAVOWATT 20 including same accessories as with MAVOWATT 20 Flex Package plus PR1500/SP8B current clamp, 1500 A, 500 A, battery powered, 9 V	MAVOWATT 20 PR1500/SP8B Package	M810E
Instrument including set of measurement cables, rechargeable battery, charger, 4 GB CF memory card, factory calibration certificate, DranView 7 Professional software and carrying pouch	MAVOWATT 30	–
MAVOWATT 30 with accessories (see above) and flexible current sensors: 1 METRAFLEX 3003XBL and 1 METRAFLEX 3001XBL	MAVOWATT 30 Flex Package	M810F
MAVOWATT 30 with accessories (see above) and miniature current sensors: four METRAFLEX 300MXBL (3/30/300 A)	MAVOWATT 30 Mini Flex Package	M810G
MAVOWATT 30 with accessories (see above) and current clamps: four TR2500B (10 ... 500 A)	MAVOWATT 30 TR2500B Package	M810H
MAVOWATT 30 with accessories (see above) and current clamps: four TR2510B (1 ... 10 A)	MAVOWATT 30 TR2510B Package	M810I

## MAVOWATT I 20 / 30

### Accessories

Designation	Type	Article
<b>Rechargeable batteries and power packs</b>		
 <p>BP-PX5</p>	Power pack for MAVOWATT20 / 30	117029-G1 Z801A
	External battery charger	XBC-PX5 Z818K
	Rechargeable battery pack	BP-PX5 Z818G
<b>Measurement cables and clips</b>		
 <p>4 mm adapter</p>  <p>ISOFLEX-MHXL</p>	Measurement cable set consisting of 8 measurement cables (1 red, 1 yellow, 1 blue, 1 gray and 4 white) 8 alligator clips (4 red and 4 black, 600 V CAT III) and 4 jumper cables	16042-G3 Z802B
	Same measurement cable set as above (Z802B), alligator clips, 1000 V CAT III	116042-G7 Z803I
	Measurement cable set consisting of 6 measurement cables (1 red, 1 yellow, 1 blue, 1 gray and 2 white), 6 alligator clips (4 red and 2 black, 600 V CAT III) and 1 jumper cable	116042-G6 Z803C
	Same measurement cable set as above (Z803C), alligator clips, 1000 V CAT III	116042-G8 Z803H
	Fused measurement cable set for measuring applications consisting of 4 measurement cables with 4 mm safety plugs and 4 alligator clips (3 black and 1 blue), 600 V CAT III / 1000 V CAT II, approx. 2.30 m long, fuse adapter (500 mA / FF / 700 V <sub>AC</sub> ).	3 phase fused cable set Z8180
	Jumper cable, 25 cm	114013-G1 Z802E
	White alligator clip, 600 V CAT III / 1000 V CAT II	900371 Z803E
	Black alligator clip, 600 V CAT III / 1000 V CAT II	900372 Z803F
	Adapter for current clamps with 4 mm safety plugs	4 mm adapter Z817T
	Power supply with two isolated outputs for flexible sensors	ISOFLEX-MHXL Z817M
	Distributor cable for connecting current clamp to ISOFLEX-MHXL	RR/PS/4A Z818R
	<b>Communication</b>	
 <p>COMM-OUA</p>	RS 232 adapter with NodeLink software	COMM-RS 232 Z818A
	USB adapter with NodeLink software (COMM-RS232 and IR cable included)	COMM-OUA Z818C
	Selected CF card, ≥ 4 GB	CFDATA-DB Z818F
<b>Pouches and cases</b>		
 <p>SCC-4300</p>	Water-proof protective case for outdoor use. Dimensions: 42.5 x 30 x 20 cm	ENCL-HH Z803G
	Carrying pouch for measuring instrument, current clamps and manuals	SCC-4300 Z818H
	Rugged transport container	RSC-4300 Z818L

## ACCESSORIES

### Current Sensors / Current Clamps

Designation		Type	Article
<b>AC current clamp sensors</b>			
<p>TR-2510B      TR-2500B</p>	1 to 10 A <sub>RMS</sub> , 40 Hz to 5 kHz, max. cable diameter: 15 mm	TR-2510B	Z817A
	10 to 500 A <sub>RMS</sub> , 40 Hz to 5 kHz, max. cable diameter: 50 mm	TR-2500B	Z817B
	100 to 3000 A <sub>RMS</sub> , 40 Hz to 5 kHz, max. cable diameter: 72 mm	TR-2520B	Z817C
	100 mA to 1.2 A <sub>RMS</sub> , 40 Hz to 5 kHz, max. cable diameter: 15 mm	TR-2501B	Z817Y
	20 to 300 A <sub>RMS</sub> , 30 Hz to 5 kHz, max. cable diameter: 54 mm	TR-2530B	
	10 to 1000 A <sub>RMS</sub> , 30 Hz to 5 kHz, max. cable diameter: 54 mm	TR-2540B	
	1 to 100 A <sub>RMS</sub> , 40 Hz to 10 kHz, max. cable diameter: 15 mm	TR-2550B	Z817U
<b>AC-DC current clamp sensors</b>			
<p>PR150/SP2B</p>	150 A, battery operated (9 V)	PR150/SP2B	Z817N
	1500 A, battery operated (9 V)	PR1500/SP8B	Z817O
	150 A, operation via additional power pack (included in scope of delivery)	PR150/SP1B	Z817P
	1500 A, operation via additional power pack (included in scope of delivery)	PR1500/SP7B	Z817Q
	EURO power pack for PR150/SP1B or PR1500/SP7B	ACADP-PR9VEURO	Z817R
<b>Extension cords and power packs for current clamp sensors</b>			
<p>TREXT10</p>	1.5 m extension cord for TR and PR series current sensors with Hypertronics plug	TREXT5	Z800A
	3 m extension cord for TR and PR series current sensors with Hypertronics plug	TREXT10	Z800B
	4.5 m extension cord for TR and PR series current sensors with Hypertronics plug	TREXT15	Z800C
	6 m extension cord for TR and PR series current sensors with Hypertronics plug	TREXT20	Z800D
	7.5 m extension cord for TR and PR series current sensors with Hypertronics plug	TREXT25	Z800E
	9 m extension cord for TR and PR series current sensors with Hypertronics plug	TREXT30	Z800F
<b>Flexible AC Current Sensors</b>			
<p>METRAFLEX 3001 XBL/24</p> <p>METRAFLEX 3003 XBL/24</p>	30, 300, 3000 A, sensor length: 61 cm	METRAFLEX 3001 XBL/24	Z207O
	30, 300, 3000 A, sensor length: 91 cm	METRAFLEX 3001 XBL/36	Z207R
	30, 300, 3000 A, sensor length: 122 cm	METRAFLEX 3001 XBL/48	Z207S
	30, 300, 3000 A, sensor length: 61 cm	METRAFLEX 3003 XBL/24	Z207P
	30, 300, 3000 A, sensor length: 91 cm	METRAFLEX 3003 XBL/36	Z207W
	30, 300, 3000 A, sensor length: 122 cm	METRAFLEX 3003 XBL/48	Z207X
	60, 600, 6000 A, sensor length: 61 cm	METRAFLEX 6001 XBL/24	Z461A
	60, 600, 6000 A, sensor length: 91 cm	METRAFLEX 6001 XBL/36	Z461B
	60, 600, 6000 A, sensor length: 122 cm	METRAFLEX 6001 XBL/48	Z461C
	60, 600, 6000 A, sensor length: 61 cm	METRAFLEX 6003 XBL/24	Z463A
	60, 600, 6000 A, sensor length: 91 cm	METRAFLEX 6003 XBL/36	Z463B
	60, 600, 6000 A, sensor length: 122 cm	METRAFLEX 6003 XBL/48	Z463C
<b>Miniature AC current sensors</b>			
<p>METRAFLEX 300MXBL/2</p>	3, 30, 300 A, sensor length: 16 cm	METRAFLEX 300MXBL/2	Z207Q
	3, 30, 300 A, sensor length: 22 cm	METRAFLEX 300MXBL/3	Z207Y
	3, 30, 300 A, sensor length: 31.5 cm	METRAFLEX 300MXBL/4	Z207Z



## MAVOSYS 10

### Power Disturbance Analyzers



#### Monitoring System for Analyzing Power Quality, Power and Energy

Disturbances and events can be easily pinpointed, documented and analyzed with the **MAVOSYS 10**, even in highly branched-out systems, with reference to applicable standards – the perfect foundation for sustainable optimization. Optimization increases operating reliability, keeps product quality stable and assures high levels of cost effectiveness.

#### FEATURES:

- Combination of up to four virtual analyzers in a single housing
- Input modules for 4 x voltage, 4 x current, 8 x digital signal
- Local operation and visualization with an optional ¼ VGA touch-screen
- Certification in accordance with IEC 61000-4-30, class A
- Time synchronization via NTP server and/or optional GPS receiver
- Internal and external cross-triggering

- Complies with all national and international standards
- Ethernet 10/100 BaseT, RS 232 and RS 485 interfaces included as standard equipment
- TCP/IP, HTTP, XML and Modbus TCP/RTU communication protocols

It's the first power analyzer to go beyond the conventional upper limit of 8 channels for voltage and current inputs.

Users can now select from amongst various input modules for voltage (4 channels), current (4 channels) and digital signals (8 channels).

Applications which used to require two or more devices can now be implemented by combining up to 4 modules in a single **MAVOSYS 10**.

**Refer to our current price list or our website for preconfigured complete systems and other configuration options.**

## MAVOWATT 4

### Multiple Power Meter



The multiple power meter for direct measurement of DC power, as well as RMS power measurement for single-phase alternating current and balanced load three-wire, three-phase current.

#### BENEFITS:

- Determination of reactive power
- Measurement of phase-to-phase voltage(s)
- Ideal instrument for training facilities
- Phase sequence indicator
- $\cos \varphi$  measurement

#### INCLUDED WITH MAVOWATT 4:

- Batteries

#### OPTIONAL ACCESSORIES:

- Factory calibration certificate

Type	Article
MAVOWATT 4	GTM3033000R0001

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 DIN VDE 0100 (IEC 60364), DIN VDE 0126 (IEC 62446), VDE 0105 (EN 50110), VDE 0660-600-1 (DIN EN 61439-1) and VDE 0113-1 (EN 60204-1) regulations.

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

## CONTENTS

### TEST INSTRUMENTS

- 03 - 2 Test Instruments: Overview
- 03 - 4 PROFITEST MASTER
- 03 - 6 PROFITEST MASTER - Testing Packages
- 03 - 7 PROFITEST INTRO
- 03 - 8 Test Instruments: Accessories
- 03 - 10 PROFITEST H+E BASE
- 03 - 11 PROFITEST H+E TECH
- 03 - 12 PROFISIM 1
- 03 - 13 PROFISIM 2
- 03 - 14 METRALINE
- 03 - 15 METRALINE / METRATHERM
- 03 - 16 Photovoltaics - PROFITEST PV
- 03 - 17 PROFITEST PV Accessories, PV SUN, PV SUN MEMO
- 03 - 18 VDE 0113-1/EN 60204-1, EN 61439-1
- 03 - 19 Accessories / VDE 0113-1/EN 60204-1
- 03 - 20 Insulation and Low Resistance Measuring Instruments
- 03 - 22 Insulation Measuring Instruments
- 03 - 23 High-Voltage Measuring Instruments / ISO Calibrator
- 03 - 24 Accessories for METRISO PRIME and PROFITEST MASTER
- 03 - 25 Accessories for PROFITEST
- 03 - 27 Accessory Pouches and Cases
- 03 - 28 Earth Testers
- 03 - 30 Accessories for Earth Testers
- 03 - 33 Phase Sequence Indicator
- 03 - 34 Voltage Testers
- 03 - 36 Current Clamp Meters



## PROFITEST MASTER

For testing the effectiveness of safety measures in electrical systems in accordance with  
DIN VDE 0100-600 / IEC 60364-6 /  
VDE 0105-100



**PROFITEST MBASE+**  
PAGE 03 - 4



**PROFITEST MTECH+**  
PAGE 03 - 4



**PROFITEST MPRO**  
PAGE 03 - 4



**PROFITEST MXTRA tester**  
PAGE 03 - 4

## PROFITEST INTRO PROFITEST H+E BASE / TECH PROFISIM 1 / 2

Test instrument  
DIN VDE 0100 - 600 / IEC 60364-6 /  
VDE 0105-100



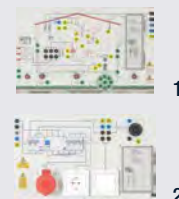
**PROFITEST INTRO**  
PAGE 03 - 7



**PROFITEST H+E BASE**  
PAGE 03 - 10



**PROFITEST H+E TECH**  
PAGE 03 - 11



**PROFISIM 1 / 2**  
PAGE 03 - 12

## METRALINE, METRATHERM

Loop impedance measurement  
Testing of RCCBs  
Insulation resistance measurement



**METRALINE ZCHECK**  
PAGE 03 - 14



**METRALINE RCDCHECK**  
PAGE 03 - 14



**METRALINE ISOCHECK**  
PAGE 03 - 15



**METRATHERM 1**  
PAGE 03 - 15

## PROFITEST PV, PV SUN / MEMO

Photovoltaics  
Peak power measuring instrument and  
curve tracer for PV modules and strings



**PROFITEST PV**  
PAGE 03 - 15



**PROFITEST PV SUN**  
PAGE 03 - 17



**PROFITEST PV SUN MEMO**  
PAGE 03 - 17

## TEST INSTRUMENTS

VDE 0113-1 / EN 60204-1  
VDE 0660-600-1 / DIN EN 61439-1



**PROFITEST 204+**  
PAGE 03 - 18



**METRAMACHINE 204**  
PAGE 03 - 18

## METRISO

Insulation and low resistance measuring  
instruments



**METRISO PRO**  
PAGE 03 - 20



**METRISO BASE**  
PAGE 03 - 20



**METRISO TECH**  
PAGE 03 - 20



**METRISO XTRA**  
PAGE 03 - 20

**METRISO, METRAOHM**

Insulation and low resistance measuring instruments

**METRISO INTRO**  
PAGE 03 - 20**METRISO 5024**  
PAGE 03 - 22**METRISO C**  
PAGE 03 - 21**METRAOHM 413**  
PAGE 03 - 21**METRISO, ISO CALIBRATOR**

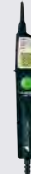
Insulation measuring instruments, ISO calibrator

**METRISO PRIME**  
PAGE 03 - 22**METRISO PRIME+**  
PAGE 03 - 23**ISO CALIBRATOR 1**  
PAGE 03 - 23**GEOHM, PROFITEST MPRO, METRACLIP EARTH**

Earth testers

**GEOHM C**  
PAGE 03 - 28**GEOHM 5**  
PAGE 03 - 28**PROFITEST MPRO**  
PAGE 03 - 4**METRACLIP EARTH**  
PAGE 03 - 28**METRAPHASE, PROFISAFE, DUSPOL, METRAVOLT**

Phase sequence indicators, voltage testers

**METRAPHASE 1**  
PAGE 03 - 33**PROFISAFE 690**  
PAGE 03 - 35**DUSPOL**  
PAGE 03 - 34**METRAVOLT 12D+L**  
PAGE 03 - 35**CURRENT CLAMP METERS**METRACLIP 41 / 410  
METRACLIP 61 / 62 / 63 / 64  
METRACLIP 85 / 86 / 87 / 88**METRACLIP 41**  
PAGE 03 - 36**METRACLIP 61**  
PAGE 03 - 36**METRACLIP 64**  
PAGE 03 - 36**METRACLIP 87**  
PAGE 03 - 36**MICROOHMMETER**MICRO CENTURION II, TR MARK III, T-REX,  
TR-1, WR14, WR50, WR100**MICRO CENTURION II**  
PAGE <ÜS>**T-REX / T-REX R**  
PAGE 03 - 39**WR50-12/13**  
PAGE 03 - 40**WR100-12R**  
PAGE 03 - 40



## PROFITEST | MASTER

### DIN VDE 0100–600 (IEC 60364-6) / VDE 0105–100 (EN 50110)



An overview of the software's performance features is available in chapter 6 of the catalog, and on the Internet.



The PROFITEST APP / PROFISCAN



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

Low-resistance, insulation, earth resistance, standing-surface insulation, loop and line impedance measurements, as well as testing of RCDs, RCMs, IMDs, PRCs and charging stations.

#### FEATURES:

- 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 a barcode scanner
- Including ETC software (Electrical Testing Center)
- Bidirectional data exchange with DDS-CAD / ep INSTRUM planning software
- Free firmware updates with the master updater

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

- Registration at myGMC

([www.gossenmetrawatt.com](http://www.gossenmetrawatt.com))

#### Benefits (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-sections
- Leakage and equalizing current of up to 1 A, as well as working current of up to 150 A, can be measured with the W Z12C current clamp
- Phase sequence measurement (including highest line-to-line voltage)
- Phase sequence measurement (including highest line-to-line voltage)

- SRCs, PRCs (Schukomat, Sidos and others), types A, AC, B, B+, EV, F, G/R
- Testing of RCD protection in IT systems
- Insulation measurement with rising voltage
- Current measurement with Metraflex (option)
- Creation of test sequences (ETC)
- e-mobility – testing of charging stations per IEC 61851 with PRO-TYP I / II, test box or test instruments from Mennekes, Walther and Hensel

#### PROFITEST MXTRA – Functions

- Intelligent ramp, simultaneous measurement of breaking current  $I_{AN}$  and breaking time  $t_A$
- Testing of IMDs and RCMs
- 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
- Testing of type S and K PRCs with the PROFITEST PRC driven by means of test sequences
- Testing of charging stations

#### INCLUDED WITH THE PROFITEST MASTER SERIES:

- 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

#### PROFITEST MASTER TEST INSTRUMENTS

Type	Article
PROFITEST MBASE+	M520S
PROFITEST MTECH+	M520R
PROFITEST MPRO	M520N
PROFITEST MXTRA	M520P





## PROFITEST | MASTER

### Overview

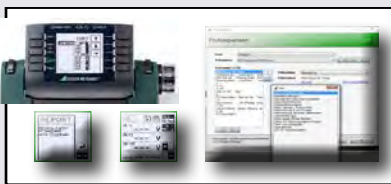
#### Working Efficiently

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 the mode, 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.



**DESIGN PLUS**  
powered by: light+building



Characteristics / Features	PROFITEST			
	MBASE+	MTECH+	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, EV (PROFITEST MTECH+, MXTRA)	■	■	■	■
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 $R_{LOOP}$ (battery operation) 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_{INS}</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 $R_{E(INS)}$	■	■	■	■
Leakage current with PRO-AB adapter	–	–	–	■
Residual voltage test	–	–	–	■
Intelligent ramp	–	–	–	■
Testing of charging stations per IEC 61851	–	■	–	■
<b>Features</b>				
Selectable user interface language	■	■	■	■
Memory (database for up to 50,000 objects)	■	■	■	■
Automatic test sequence function	■	■	■	■
Interface for RS 232 RFID/scanner	■	■	■	■
USB port for data transmission	■	■	■	■
Bluetooth® interface	–	■	–	■
ETC user software for PC	■	■	■	■
Measuring category: 600 V CAT III / 300 V CAT IV	■	■	■	■
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 values.



# TESTING PACKAGES

DIN VDE 0100–600 (IEC 60364-6) / VDE 0105–100 (EN 50110)

Accessories	Article Number	BASE+ Starter Package	TECH+ Starter Package	Master Package TECH+	E-CHECK-Set +	epINSTROM Set	Starter Package XTRA	Master Package XTRA	MED Package XTRA	Profi Package XTRA
PROFITEST MBASE+	M520S	■	–	–	–	–	–	–	–	–
PROFITEST MTECH+	M520R	–	■	■	■	■	–	–	–	–
PROFITEST MXTRA tester	M520P	–	–	–	–	–	■	■	■	■
SP350 earth spike	GTZ3304000R0001	–	–	■	–	–	–	–	–	–
TR50 drum	GTY1040014E34	–	–	■	–	–	–	–	–	–
VARIO plug adapter set	Z500A	■	■	■	■	■	■	■	■	■
PRO-RLO II adapter	Z501P	–	–	■	–	■	–	■	■	–
Probe set	Z503F	■	■	■	■	■	■	■	■	■
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	–	–	–	–	–	–	–	–	■
PRO-W Schuko angled plug insert	Z503A	–	–	■	–	■	–	■	–	■
F2000 universal carrying pouch	Z700D	■	–	–	–	–	–	–	–	–
Test case	Z502W	–	–	■	–	■	–	■	■	■
Sortimo case with insert	Z503D	–	■	–	–	–	■	–	–	–
E-CHECK case	Z502M	–	–	–	■	–	–	–	–	–
Rechargeable battery pack	Z502H	■	■	■	■	■	■	■	■	■
Charger	Z502R	■	■	■	■	■	■	■	■	■
epINSTROM	Z613A	–	–	–	–	■	–	–	–	–



Probe Set



SP350 Earth Spike / TR50 Drum



VARIO Plug Adapter Set



PRO-RLO II Adapter



PRO-AB Leakage Current Measuring Adapter



E-Clip 2 Clamp Generator



Z3512A Clamp Meter



PRO-RE 2 Measuring Adapter



PRO-W Adapter



F2000 Universal Carrying Pouch



Test case



Sortimo Case



## PROFITEST | INTRO

### Test Instrument for DIN VDE 0100-600 / VDE 0105-100 / IEC 60364-6



PROFITEST INTRO

The PROFITEST INTRO provides professional electricians with a universal, compact and rugged, state-of-the-art measuring tool.

The test instrument is capable of executing all measurements for testing the effectiveness of safety measures in electrical systems as required by IEC 60364-6 (DIN VDE 0100-600) and other country-specific standards, and as specified in the individual sections of DIN EN 61557 (VDE 0413).

Thanks to its intelligent and ergonomic design, intuitive operation and an advanced technical concept, it's aligned consistently to routine daily tasks making it the ideal companion for any electrician.

#### BENEFITS

- Tester for testing safety measures in electrical installations per IEC 60364-6
- Measurement of  $R_{LO}$ ,  $Z_{L-PE}$ ,  $Z_{L-N}$ ,  $R_{ISO}$ ,  $R_E$ ,  $\Delta U$ , phase sequence and voltage
- Testing of RCD types A, AC, F, B, B+, EV, MI and G/R, as well as SRCDs and PRCDs
- Individual measured value memory and memory structure setup
- Bidirectional data exchange via USB port, epINSTROM
- Measuring category: 600 V CAT III / 300 V CAT IV

#### TECHNICAL CHARACTERISTICS:

- Low-resistance measurement for protective and equipotential bonding conductors with automatic polarity reversal
- Measurement of internal system and fault loop impedance without tripping the RCD
- RCD test with continuously rising ramp, time to trip, tripping current
- Insulation measurement with rising ramp
- Varistor response test with rising ramp and variable test current
- Earthing resistance measurement
- Voltage measurement for  $U_N$  120, 230 and 400 V, phase sequence
- Individual measured value memory for approx. 50,000 objects / measured values
- ETC software (Electrical Testing Center) for, amongst other functions, creating tree structures and documentation per ZVEH
- Bidirectional data exchange via USB port, epINSTROM
- Connection of an RFID reader or a barcode scanner
- PRO-JUMPER for easy measurement cable compensation

#### PROFITEST INTRO Starter Package consisting of:

- PROFITEST INTRO – test instrument for DIN VDE 0100-600 / DIN VDE 0105-100
- PRO-Schuko measuring adapter – single-phase 230 V AC country-specific measuring adapter
- PRO jumper – touch-guarded country-specific short-circuit adapter for cable compensation
- Master battery pack – sealed battery pack consisting of 8 rechargeable batteries
- Charger – charger with 6.3 / 2.5 mm barrel plug with mains plug function – EU, GB
- F2010 universal carrying pouch – universal carrying pouch with flexible compartments and display protection

#### PROFITEST INTRO Master Package consisting of:

- PROFITEST INTRO – test instrument for DIN VDE 0100-600 / DIN VDE 0105-100
- PRO-Schuko measuring adapter – single-phase 230 V AC country-specific measuring adapter
- PRO jumper – touch-guarded country-specific short-circuit adapter for cable compensation
- Master battery pack – sealed battery pack consisting of 8 rechargeable batteries
- Charger – charger with 6.3 / 2.5 mm barrel plug with mains plug function – EU, GB
- Test probe with remote triggering
- Variable plug adapter – 3 self-retaining test probes for connection to, for example, CEE and Perilex sockets
- Probe set – special test probes, 600 V CAT III, for measurements in controllers
- SORTIMO L-BOXX – plastic system case with foam insert



PROFITEST INTRO Starter Package



PROFITEST INTRO Master Package

Type	Article
PROFITEST INTRO	M520T
PROFITEST INTRO Starter Package	M503A
PROFITEST INTRO Master Package	M503B



## BARCODE READER

### Barcode Scanner



**Barcode scanner with laser and coil cable laid out especially for the PROFITEST MASTER / INTRO series.**

For identifying system components, equipment etc. These can be logged by the **PROFITEST**, and acquired measured values can be allocated to them with the scanner.

#### FEATURES:

- Scanning of barcodes from considerable distances
- Variable barcode lengths

- Improved reading accuracy
- Green Spot technology
- Configuration of EAN13, CODE 39 and CODE 128 barcodes

Type	Article
Barcode Profiscanner RS 232	Z502F

## PROFISCAN | ETC D

### List with Barcodes



**List with barcodes, CODE 128, for use with the Z502F barcode scanner and PROFITEST MASTER / INTRO series testers**

#### FEATURES:

- Creation of system structures and distributors
- Acquisition of room designations
- Functions for navigating within the database for the **PROFITEST MASTER / INTRO** series
- Initial entry and expansion of test texts

- Go/no-go acknowledgment of report texts, inspections and much more
- Acquisition of defects / defects lists
- Space for self-generated barcodes in ETC software

Type	Article
PROFISCAN ETC D	Z502G

## SCANBASE / SCANWRITE RFID

### RFID Reader/Scanner



**The RFID identification system is used to mark and identify tools and equipment.**

#### FEATURES:

ID numbers can be written to RFID tags via a PC with the SCANWRITE. The SCANWRITE, as well as other SCANBASE RFID reading devices, read out the code and forward it to our test instruments, in order to be able to allocate measured values and test results to the device under test in an unequivocal fashion.

RFID reader/scanner, RS 232

See "RFID Reader/Scanner", on page 04 - 19 for details.

Type	Article
SCANBASE RFID	Z751G



## PROFITEST | PRCD

### Adapter for Standards Compliant Testing of PRCDs



**Adapter for standards compliant testing of type S and K PRCDs by simulating faults per DIN VDE 0701-0702, VDE 0661, DGUV-I 203-006 and manufacturers' specifications.**

#### FEATURES:

- Testing of the following types of portable protective devices:
  - PRCD-S (single-phase / 3-pole and 3-phase / 5-pole)
  - PRCD-K (single-phase / 3-pole)
  - PRCD, 2-pole / 3-pole
- Function test, i.e. tripping test by means of simulating the following faults:
  - Interruption
  - Reversed wires
  - PE to phase

- Measurement of protective conductor current with current clamp transformer
- Measurement of protective conductor and insulation resistance with the PROFITEST MXTRA tester
- Tripping test with nominal residual current and measurement of time to trip with PROFITEST MXTRA tester
- Evaluation and documentation of the individual test steps with the PROFITEST MXTRA tester

Type	Article
PROFITEST PRCD	M512R

## METRAFLEX P300

### Flexible AC Current Sensor for PROFITEST MASTER



**Flexible AC current sensor, 3, 30, 300 A, flexible current loop length: 45 cm, with batteries for PROFITEST MBASE, MTECH+, MPRO, MXTRA**

#### FEATURES:

- Diverse range of applications, 3 measuring ranges 3 A, 30 A, 300 A AC
- Broad bandwidth of 20 Hz to 4 kHz for harmonic analysis
- Easy to use in tight spaces thanks to a small sensor cross-section of 9.9 mm and a narrow, 13.6 mm end-cap

- High levels of safety for the operator, measuring category: 1000 V CAT III, 600 V CAT IV and unlimited overload capacity
- Accurate measurement, even with low current values, thanks to large dynamic range and high sensor sensitivity
- Current sensor with IP 65 protection

Type	Article
METRAFLEX P300	Z502E

## PRO-... PLUG INSERTS



PRO-RLO II



PRO-UNI II

#### PRO-SCHUKO

Plug insert for Germany and other countries with corresponding plug systems

#### PRO-CH

Plug insert for Switzerland in accordance with SEV

#### PRO-W

Same as PRO-Schuko but with angled earthing contact plug

#### PRO-A3 II

2/3-pole Measuring adapter

#### PRO-A3 II NCC

Same as PRO-A3 II but with 10 m non-coil cables instead of coil cables

#### PRO-RLO II

Plug inserts for PE and other similar measurements

#### PRO-UNI II

Plug inserts with 3 connector cables for any connection standards

#### PRO-GB/USA Set

Plug insert with adapter for GB and USA

#### PRO-RSA

Plug insert for South Africa

Type	Article
PRO-SCHUKO	GTZ3228000R001
PRO-CH	GTZ3225000R001
PRO-W	Z503A
PRO-A3 II	Z5010
PRO-A3 II NCC	Z503C
PRO-RLO II	Z501P
PRO-UNI II	Z501R
PRO-GB/USA Set	Z503B
PRO-RSA	Z501A



## PROFITEST H+E BASE

### Test adapters for Electric Charging Stations



The test instrument is intended for examining the functional performance of charging stations for electric vehicles with type 2 connector socket (mode 3 charging).

The test instrument is connected to the charging station to this end, in order to document communication between the charging station and the test instrument.

If the charging process doesn't start, the source of error can be quickly pinpointed.

The range of applications includes R&D and service.

#### SCOPE OF DELIVERY:

- 1 PROFITEST H+E BASE test instrument
- 2 9 V block batteries
- 1 12 V power pack
- 1 set of operating instructions

Type	Article
PROFITEST H+E BASE	M525A

#### BENEFITS

- Complete diagnosis of electric charging stations with a single test instrument:
  - Vehicle states
  - Cable condition
  - Error states
  - PWM signal evaluation
  - Phases and phase sequence
  - Battery level
- Error simulations:
  - Diode short-circuit in the vehicle's circuit
  - Short-circuit between CP and PE
  - Testing of the RCD by tripping and measuring breaking time
- Indication of states by means of easy-to-understand symbols
- Easy operation and diagnosis
- Compact, battery powered device, which is thus suitable for outdoor use

#### FEATURES

- Connection option for a test consumer via an integrated earthing contact socket (230 V, max. 13 A)
- Compact case, ideal for service calls
- Large display, for which background illumination can be activated
- Selectable user interface language
- Power supply via 9 V (rechargeable) block batteries or power pack
- USB data interface:
  - For firmware updates
  - For transmitting diagnosis results to a connected PC



## PROFITEST H+E TECH

### Diagnosis Tester Between the Electric Charging Station and the Vehicle



The test instrument is intended for examining the functional performance of charging stations for electric vehicles with type 2 connector socket (mode 3 charging).

The test instrument is connected between the charging station and the electric vehicle to this end, in order to document communication between the two.

If the charging process doesn't start, the source of error (charging station or electric vehicle) can be quickly pinpointed.

The range of applications includes R&D and service.

#### SCOPE OF DELIVERY:

- 1 PROFITEST H+E TECH test instrument
- 2 9 V block batteries
- 1 12 V power pack
- 1 set of operating instructions

Type	Article
PROFITEST H+E TECH	M525B

#### BENEFITS

- Complete diagnosis of electric charging stations and vehicles with a single test instrument:
  - Vehicle states
  - Cable condition
  - Error states
  - PWM signal evaluation
  - Phases and phase sequence
  - Battery level
- An electric vehicle can be simulated in order to diagnose a charging station
- Indication of states by means of easy-to-understand symbols
- Easy operation and diagnosis
- Compact, battery powered device, which is thus suitable for outdoor use
- Displays communication between the charging station and the electric vehicle in real-time

#### FEATURES

- Connection option for electric vehicles:
  - OEM type 2 plug
- Compact case, ideal for service calls
- Large display, for which background illumination can be activated
- Selectable user interface language
- Power supply via 9 V (rechargeable) block batteries or power pack
- USB data interface:
  - For firmware updates
  - For transmitting diagnosis results to a connected PC



# PROFISIM 1

## Installation Board for Error Simulation



PROFISIM case with PROFISIM 1



Error Simulator with 12 Error Options via Switches

Installation board ("service line with main grounding busbar") for error simulation for measurements per IEC 60364-6 (DIN VDE 0100-600) and EN 50110 (DIN VDE 0105-100)

The installation board functions as a compact building service line with main grounding busbar for consumer systems including an error simulator.

It's used primarily for training sessions and project work covering all aspects of "testing systems in accordance with DIN VDE 0100-600".

The board is equipped with all of the necessary modules of a building supply line to this end including an extended main grounding busbar for the implementation of testing and error options.

### BENEFITS

- Service line with main grounding busbar
- External and internal lightning protection
- Earthing measurements
- TN/TT systems
- Simulation of errors via 12 switches
- Single and double error circuit
- Lockable error switching panel
- Console-like housing
- Can be used as a benchtop instrument or in an experiment base frame

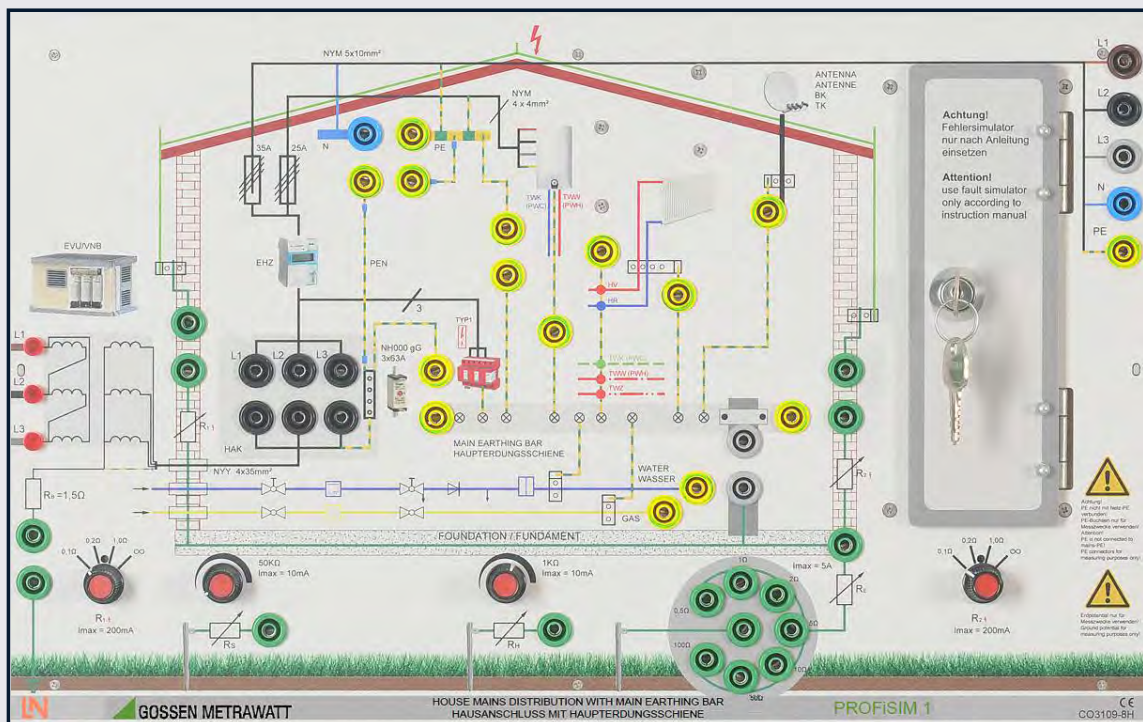
### CONTENT

- Simulation of a building service line with main fuse
- Simulation of external and internal lightning protection
- Main grounding busbar with all important equipotential bonding cables and earth strips
- Implementation of various mains systems (TT, TN)
- Generation of test reports in accordance with DIN VDE 0100

### SCOPE OF DELIVERY:

- 1 installation board
- 1 set of operating instructions
- 1 test regulation

Type	Article
PROFISIM 1	M560A
PROFISIM Case	Z560A





## PROFISIM 2

### Installation Board for Error Simulation



PROFISIM case with PROFISIM 2



Error Simulator with 25 Error Options via Switches

Installation board (“sub-distribution branch with installation circuits”) for error simulation for measurements per IEC 60364-6 (DIN VDE 0100-600) and EN 50110 (DIN VDE 0105-100)

The installation board functions as a compact building service line with main grounding busbar for consumer systems including an error simulator.

It's used primarily for training sessions and project work covering all aspects of “testing systems in accordance with DIN VDE 0100-600”.

The board is equipped with all of the necessary modules of a building supply line to this end including an extended main grounding busbar for the implementation of testing and error options.

#### BENEFITS

- Service line with main grounding busbar
- Simulation of errors via 25 switches
- Single and double error circuit
- Lockable error switching panel
- Console-like housing
- Can be used as a benchtop instrument or in an experiment base frame

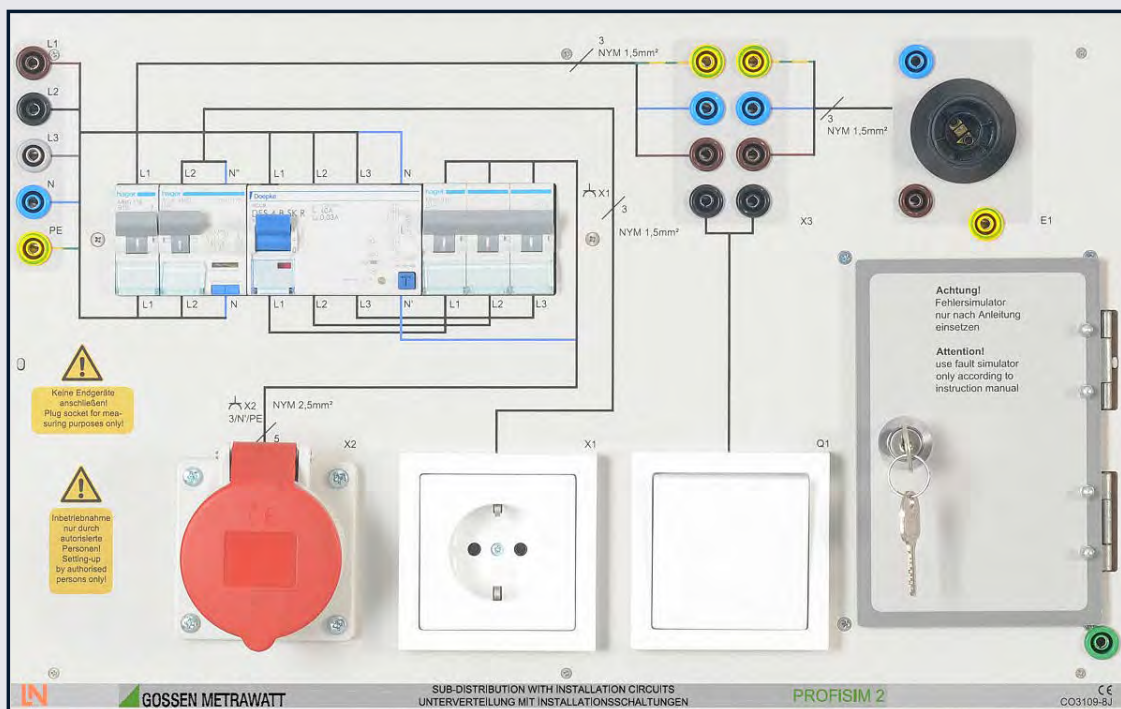
#### CONTENT

- Simulation of a small sub-distribution branch with 3 electrical circuits
- Testing of various protective devices
- Main grounding busbar with all important equipotential bonding cables and earth strips
- Troubleshooting in installation circuits
- Generation of test reports in accordance with DIN VDE 0100

#### SCOPE OF DELIVERY:

- 1 installation board
- 1 set of operating instructions
- 1 test regulation

Type	Article
PROFISIM 2	M560B
PROFISIM Case	Z560A





## METRALINE | ZCHECK

### Loop Resistance Measuring Instrument



Measurement Results



Phase Detection



Table Display

#### Loop Impedance Measurement

The test instrument is used to measure earth-fault loop impedances and line impedance. The measuring range of 0 to 200 Ω (0.27 Ω to 200 Ω per VDE 0413 / EN 61557) allows for calculation of short-circuit current from 0 to 23 kA.

The **METRALINE ZCHECK** allows for the evaluation of measured impedance in consideration of type, nominal current and breaking time. A table with the parameters of various protective devices is included in device memory.

#### FEATURES:

- Fault loop impedance with short-circuit current
- Fault loop impedance with short-circuit current without tripping the RCCB (as of 100 mA)
- Line impedance with short-circuit current
- Line voltage
- Phase detection
- Table of common protective devices can be displayed
- Digital display, backlit color OLED display

- Switching between brief and detailed representation, LED for measurement point illumination
- Patented means of securing test probes
- Compact and rugged
- Factory calibration certificate

Type	Article
METRALINE ZCHECK	M507A

## METRALINE | RDCHECK

### Testing of Residual Current Devices



Touch Voltage



Time to Trip



Tripping Current

#### Testing of Residual Current Devices (RCCBs)

As indicated by the designation, this is a measuring instrument which tests the characteristics of an RCD. In particular, this involves the measurement of touch voltage, breaking time and breaking current for type A, AC (impermissible in Germany), and S RCDs, as well as type F mixed frequency RCDs as of recently.

#### FEATURES:

- Measurement of touch voltage without tripping the RCCB
- Touch voltage is measured with reference to nominal residual current using 1/3 of the nominal residual current value.
- Tripping test with nominal residual current, measurement of time to trip
- Special tests for systems and RCDs
- Testing of systems and RCDs with rising residual current including indication of tripping current

- Testing of RCDs, IDN = 10, 30, 100, 300 and 500 mA
- Testing of RCCBs with:
  - ½ • I<sub>ΔN</sub>, 1 • I<sub>ΔN</sub>, 2 • I<sub>ΔN</sub>, (5 • I<sub>ΔN</sub> up to 100 mA nominal current)
- Testing of RCDs with half-waves (pulsating direct current) for determining time to trip and tripping current
- Testing of special RCDs: selective **S**, type AC, type A, type F
- Measurement of line voltage and fault loop impedance
- Factory calibration certificate

Type	Article
METRALINE RDCHECK	M507B



## METRALINE | ISOCHECK

### Insulation Resistance Measurement



Ramp Function



Measurement Results



Table Display

#### Measurement of Insulation Resistance

The test instrument allows for the measurement of insulation resistance with test voltages between 50 and 1000 V in accordance with VDE 0413-1,-2 (EN 61557-1,-2). The measuring range is 100 kΩ to 1 GΩ.

#### FEATURES:

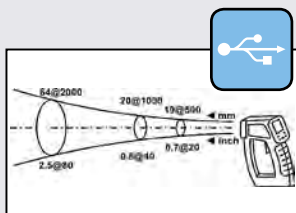
- Measurement of insulation resistance at voltage-free devices and equipment with nominal voltages of up to 1000 V depending on variant
- Measurement of surge protection devices, up to 1000 V depending on variant.
- Checking of test objects for absence of voltage
- Insulation resistance measurement with test voltage from 50 to 1000 V
- Voltage measurement to 600 V
- Measurement of surge protection devices with test voltage from 50 to 1000 V
- Table of common varistors can be displayed
- Digital display, backlit color OLED display

- Indication of dangerous touch voltage
- LED for measurement point illumination
- Patented means of securing test probes
- Compact and rugged
- For service calls under harsh conditions and laboratory use
- Factory calibration certificate

Type	Article
METRALINE ISOCHECK	M507C

## METRATHERM | 1

### Infrared Thermometer



#### Contactless infrared thermometer with laser pointer and data logger software for temperature measurement at a safe distance from the danger zone

For repairs and maintenance work in the automotive industry and in air conditioners, scientific experiments, manufacturing processes in the field of semiconductor technology, contacts in electrical control cabinets, food monitoring and processing

#### FEATURES:

- Infrared temperature measuring range: -50 ... 1000 °C (-58 ... 1832 °F)
- Exact positioning with laser sighting (can be activated if desired)
- High D:S ratio of 50:1
- Emissivity adjustable from 0.1 to 1.00 in steps of 0.01
- Additional contact measurements with type K thermocouple
- Individual/continuous measurement, 10 memory locations for individual measurements
- Storage of currently measured temperature, lowest and highest temperature or maximum temperature difference  $\Delta T$

- USB port for data transmission to a PC
- Software for displaying and recording measured values (data logger)

#### INCLUDED WITH THE METRATHERM 1:

- Carrying strap
- Type K thermocouple
- USB adapter cable
- 9 V battery
- CD-ROM with installation program for PC display and recording program

Type	Article
METRATHERM 1	M680A



## PROFITEST | PV

### Photovoltaics



External Load Disconnecter



Calibrated Irradiation Sensor



External Pt1000 Temperature Sensor



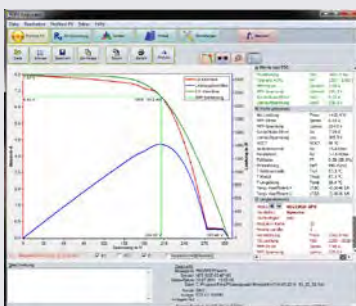
4-Wire Measurement Cable Set, 10 m



External Power Pack



Case System for the PROFITEST PV and Accessories



PV Analyzer

#### Peak power measuring instrument and curve tracer for PV modules and strings

The **PROFITEST PV** allows for the measurement of characteristic IU curves, as well as individual photovoltaic modules and strings.

#### FEATURES:

- Generator voltages of up to 1000 V<sub>DC</sub>, current of up to 20 A<sub>DC</sub>
- Measurement of short-circuit current ISC, open circuit voltage UOC, instantaneous peak power of a solar cell P<sub>max</sub> and series resistance R<sub>S</sub>
- Measurement of internal parallel resistance R<sub>P</sub>
- Automatic conversion of momentary measured values to STC
- Patented calculation process for evaluating PV generators without knowledge of the manufacturer's specifications
- Patented calculation process for determining the generator's internal series resistance based solely on a single characteristic IU curve
- Separate measurement of temperatures at the irradiation sensor and the back of the module for increased measuring accuracy
- High level of intrinsic safety thanks to included load disconnecter (1000 V / 32 A<sub>DC</sub>) for all-pole disconnection of the measuring instrument from the PV generator
- Calibrated irradiation sensor in accordance with IEC/EN 60904-2 with integrated Pt1000 temperature sensor
- Integrated customer/module database with bidirectional data exchange
- Software for graphic representation, evaluation and documentation with integrated database / PV analyzer

#### INCLUDED WITH THE PROFITEST PV:

- Irradiation sensor with integrated Pt1000 temperature sensor, 10 m
- External safety disconnecter, 1000 V / 32 A
- 4-wire measurement cable set, 10 m
- Pt100 PV surface sensor
- External power pack

#### PV ANALYZER

The database software offers effective support for testing and documentation. It's been specially developed for use in the field of photovoltaics and allows for graphic representation and analysis of measurement results.

PV Analyzer includes the following functions and more:

- Measured characteristic curve values are read in from the **PROFITEST PV**.
- Export of measured values or results (e.g. as XLS file)
- Generation of a test report (e.g. as a PDF file)
- Online measurement – graphic representation of the characteristic curve and measured values (also suitable for continuous measurement)
- Online access to the database / data management in the **PROFITEST PV**
- Representation of measured and calculated values under STC
- Overview of characteristic IU curves for a given test series in the browser window
- Module database (approx. 40,000 modules)
- Analysis function: evaluation of measured values acquired under STCs (error interpretation)

Type	Article
PROFITEST PV	M360A



## ACCESSORIES FOR PROFITEST PV

### Accessories



Trolley, Magnetic Test Probes, Adapter Sets, Measurement Cable

- **Trolley**  
Trolley for case system
- **Magnetic Test Probes**  
with MC4 plug
- **PV Adapter Set**  
MC3-MC4
- **PV Adapter Set**  
TYCO-MC4
- **PV Adapter Set**  
SUNCLIX-MC4
- **4-Wire Measurement Cable**  
25 meter connection

Type	Article
Trolley	Z502V
Magnetic test probes	Z502Y
MC3-MC4	Z360K
TYCO-MC4	Z360J
SUNCLIX-MC4	Z360H
4-wire measurement cable	Z360L

## PROFITEST | PV SUN PROFITEST | PV SUN MEMO

### Test instrument



PROFITEST PV SUN



PROFITEST PV SUN MEMO



PROFITEST PV SUN-SOR

Test instrument for testing PV modules and strings per DIN EN 62446 (VDE 0126-23)

- Voltage measurement: 0 ... 1000 V<sub>DC</sub>
- Current measurement (direct): 0 ... 20 A<sub>DC</sub>
- Insulation resistance measurement
- Measuring range: 0 ... 20 MΩ – test voltages: 250, 500, 1000 V DC
- Ground fault measurement: 0 ... 1000 V<sub>DC</sub>
- Testing for protective conductor continuity: 0 ... 10 Ω / > 200 mA
- Polarity test
- Backlit LCD panel
- Compact and rugged, for service calls under harsh conditions
- Weight: only 500 g

**PV SUN MEMO** – same as **PV SUN** but with internal memory (10,000 measured values), bidirectional interface, software and USB interface cable

**INCLUDED WITH THE PROFITEST PV SUN:**

- 4 batteries, 1.5 V IEC LR6 (AA)
- 3 safety measurement cables, 1.5 m, red, blue and yellow
- 1 solar plug adapter to MC3 and MC4
- 1 plug-on safety test probe with socket
- 1 plug-on safety alligator clip with socket
- 1 carrying case with foam insert + operating instructions

**ACCESSORIES FOR PROFITEST PV SUN / PROFITEST PV SUN MEMO:**

- **PROFITEST PV SUN-SOR (Z360N):** sensor for irradiation, temperature and inclination

Type	Article
PROFITEST PV SUN	M360C
PROFITEST PV SUN MEMO	M360D
PROFITEST PV SUN-SOR	Z360N



## PROFITEST 204+ / L+

Test Instrument for VDE 0113-1, EN 60204-1



Portable test instrument for measurements per **EN 60204-1, VDE 0113-1** and similar regulations for machines and their electrical systems, with measured value storage and report generation

### MEASURING INSTRUMENT FOR:

- Protective conductor measurements
- Insulation measurements
- Residual voltage measurements
- Touch current

### INCLUDED WITH THE PROFITEST 204+:

- 1 test probe with integrated control unit for remote control of functions for protective conductor and insulation resistance measurement with permanently connected measurement cable
- 1 test probe with integrated fuse and permanently connected measurement cable
- 1 cable lug
- Mains power cable with earthing contact plug
- Factory calibration certificate
- 1 RS 232 bus cable for connection to the COM port

**PROFITEST 204L+:** same as **PROFITEST 204+**, plus:

- Permanently connected 12 meter measurement cable
- Start/Store function activation in the test plug

Type	Article
PROFITEST 204+	GTM5027000R0001
PROFITEST 204L+	M505C

## METRAMACHINE | 204/2.5+

## METRAMACHINE | 439/5.4+ Testing of Residual Current Devices



**MetraMachine 204/2.5+:** for VDE 0113-1, EN 60204-1, VDE 0660-600-1, EN 61439-1

Portable test instrument for measurements per EN 60204-1, VDE 0113-1 and similar regulations for machines and their electrical systems, with measured value storage and report generation

### INCLUDED WITH THE MetraMachine 204/2.5+:

- PROFITEST 204+
- PROFITEST 204HP
- Signal 204
- Leadex 204
- Caddy 204
- Test report

**INCLUDED WITH THE MetraMachine 439/5.4+:**

- PROFITEST 204+
- PROFITEST 204HV
- Signal 204
- Leadex 204
- Caddy 204
- Test report

Type	Article
MetraMachine 204/2.5+	M504D
MetraMachine 439/5.4+	M504F

**MetraMachine 439/5.4+:** for VDE 0113-1, EN 60204-1

Portable test system for testing low-voltage switch-gear combinations per VDE 0113-1, EN 60204-1.



## ACCESSORIES FOR PROFITEST 204+

### Accessories



Signal 204 Cable Lug 204 Leadex 204



Caddy 204

Claim 204



RS 232-USB

F2000

- **Signal 204**  
Indicator / signal lamp combination on a magnetic base plate for high-voltage tests in accordance with DIN VDE 0104
- **Cable Lug 204**  
Adapter for PE and ISO tests – plug-on cable lug for secure attachment of the test probe to terminals
- **Leadex 204**  
12 meter extension for the measurement cable with test probe to which the measuring circuit fuse is installed
- **Caddy 204**  
Trolley for basic instrument combined with high-voltage module, includes cover with side pockets
- **Claim 204**  
Set of various items used to warn unauthorized persons and for securing large areas, machines or machine components during the performance of high-voltage testing

- **RS 232 – USB Converter**  
Interface adapter cable for connecting the RS 232 port at the test instrument to the USB port of a PC for transferring data between the PC and the test instrument, e.g. for software updates
- **F2000**  
Universal carrying pouch for test instrument and accessories

Type	Article
Signal 204	Z504D
Cable Lug 204	Z504E
Leadex 204	Z504C
Caddy 204	Z504A
Claim 204	Z504G
RS 232 – USB Converter	Z501L
F2000	Z700D

## PROFITEST 204 HP / 2.5 KV PROFITEST 204 HV / 5.4 KV High-Voltage Modules



### High-Voltage Modules for Connection to PROFITEST 204+ and Metriso PRIME+

#### PROFITEST 204 HP-2.5

2 kV high-voltage module for connection to the PROFITEST 204+ and expanded measuring options for high-voltage testing with 2 x UN or 1000 V, from 500 VA transformer (max. 700 VA). Adjustable high-voltage: 1000 ... 2500 V, EN 61439-1, VDE 660-600-1.

#### PROFITEST 204 HV-5.4

5 kV high-voltage module for connection to the PROFITEST 204+ and expanded measuring options for high-voltage testing, adjustable: 1000 ... 5400 V (max. 100 VA).

Type	Article
PROFITEST 204HP-2.5 kV	M505A
PROFITEST 204HV-5.4 kV	M505B

## SECUTEST SI+ SECUTEST PSI

### For PROFITEST 204+ /L+ and METRISO PRIME+



The SECUTEST SI / SECUTEST PSI serves strictly as an input device for the PROFITEST 204+ and the METRISO PRIME+.

With the help of the SECUTEST PSI, test results can be printed out in the form of documented reports with date and time.

Type	Article
SECUTEST SI+	M702G
SECUTEST PSI	GTM5016000R0001



## METRISO INTRO / BASE / TECH / XTRA / PRO

### Insulation Measuring Instrument / Low Resistance Measuring Instrument



METRISO INTRO



METRISO BASE



METRISO TECH



METRISO XTRA



METRISO PRO

#### FEATURES:

- Intelligent filter system – measurement-dependent, precision activation for the measurement of very high resistances with:
  - Beating, i.e. compensation of 16% and 50 Hz interference
  - Attenuation of capacitive influences from power cables etc.
  - Suppression of electric field influences
- Indication of dangerous touch voltage by means of LED
- Acoustic signal generation in the event of limit value violations
- Interference voltage detection when switched off (not with METRISO INTRO)
- Overvoltage protection – protects the instrument in the event of inadvertent connection to mains power
- Electronic fuse for protection of low-resistance ( $R_{LO}$ ) and resistance (R) measurements
- Device self-test with integrated 10 M $\Omega$  test resistor per EN 50110/VDE 0105-100 (not with METRISO INTRO)
- DAKkS calibration certificate (not with METRISO INTRO / PRO)

Type	Article
METRISO INTRO	M550N
METRISO BASE	M5500
METRISO TECH	M550P
METRISO XTRA	M550S
METRISO PRO	M550R

Type	METRISO INTRO	METRISO BASE	METRISO TECH
Display	LCD	LCD	LCD
Measuring voltage	250, 500, 1000 V	50 to 500 V (50, 100, 250, 500)	50 to 1000 V (50, 100, 250, 500, 1000)
Measuring range	10 k $\Omega$ ... 10 G $\Omega$	10 k $\Omega$ ... 100 G $\Omega$	10 k $\Omega$ ... 200 G $\Omega$
Polarization index, PI/DAR	–	–	–
Low-resistance measurement	0.17 $\Omega$ ... 10 $\Omega$	0.17 $\Omega$ ... 10 $\Omega$	0.17 $\Omega$ ... 10 $\Omega$
Voltage measurement	10 V ... 1000 V	10 V ... 500 V	10 V ... 1000 V

Type	METRISO XTRA	METRISO PRO
Display	LCD	Analog
Measuring voltage	50 to 1000 V (50, 100, 250, 500, 1000)	50 to 1000 V (50, 100, 250, 500, 1000)
Measuring range	10 k $\Omega$ ... 1 T $\Omega$	10 k $\Omega$ ... 1 T $\Omega$
Polarization index, PI/DAR	■	–
Low-resistance measurement	0.17 $\Omega$ ... 10 $\Omega$	0.20 $\Omega$ ... 5 $\Omega$
Voltage measurement	10 V ... 1000 V	10 V ... 1000 V

## ACCESSORIES

### METRISO® SET INTRO / BASE / TECH / XTRA / PRO

#### INCLUDED WITH METRISO sets:

- Test probe for remote triggering the METRISO, PROFITEST INTRO
- Ever-ready case for METRISO, PROFITEST INTRO

Type	Article
Test probe for remote triggering	Z550A
Ever-ready case	Z550C

Type	Article
METRISO INTRO Set	M551N
METRISO BASE Set	M5510
METRISO TECH Set	M551P
METRISO XTRA Set	M551S
METRISO PRO Set	M551R



Test Probe for Remote Triggering



Ever-Ready Case





## METRISO C



### Insulation Resistance Tester

**Battery Powered Insulation Resistance Tester for Measurements in Systems with Nominal Voltages of up to 1000V**

#### FEATURES:

- Measurement of insulation and high value ohmic resistance with display of the measured value and the actual measuring voltage
- Measurements at bonding and protective conductors with low-resistance measurement
- Measurement of touch current
- Voltage and frequency measurement
- Optional temperature measurement, measurement of relative humidity
- All measurements are in compliance with the following regulations:  
**DIN VDE 0100-600 and DIN VDE -0702, EN 1081** (insulation measurement only)

- Unambiguous limit value and go/no-go indication by means of LEDs and display of useful information
- All measurement values are stored to memory with reference to their respective electrical circuit designations
- Rugged 2-component housing for everyday use

#### INCLUDED WITH THE METRISO C:

- Measurement cables

Type	Article
METRISO C	M541A

#### TECHNICAL DATA:

Function	Measuring Range	Measuring Voltage	Nominal Current
Insulation resistance $R_{INS}$	0.00 k $\Omega$ ... 99.9 G $\Omega$	50V ... 1000V	1 mA ( $R = 1 \text{ k}\Omega / V$ )
Resistance $R_{LO}$	0.00 $\Omega$ ... 99.9 $\Omega$	4.5 V ( $U_0$ )	$\geq 200 \text{ mA}$ ( $R < 10 \Omega$ )
Voltage $U_{ISO} / U_{\sim}$	0V ... 1200V	–	–
Touch current $I_B$	0.00 mA ... 9.99 mA	–	–

## METRAOHM | 413



### Low Resistance Measuring Instrument

**Digital low-resistance measuring instrument for measuring protective conductors, equipotential bonding and much more per VDE 0413-4 / DIN EN 61557-4**

#### FEATURES:

- Two measuring ranges from 0.01 to 1999 k $\Omega$ , zero balancing for measurement cables
- Measuring current: 200 mA constant at  $< 10 \Omega$
- Indication of interference voltage
- Compact and rugged, for service calls under harsh conditions and laboratory use
- Overvoltage protection – protects the instrument in the event of inadvertent connection to mains power
- Measuring category: 300V CAT III / 600V CAT II
- IP 65 protection

Type	Article
METRAOHM 413	M630A

#### INCLUDED WITH THE METRAOHM 413:

- Plug-in measurement cable
- 9 V battery



## METRISO | 5024

### Analog Insulation Measuring Instrument



**Analog insulation measuring instrument, low-resistance measuring instrument and voltmeter with buzzer for quick, two-hand operation**

#### FEATURES:

- Ergonomic handling
- Illuminated scale
- Insulation measurement with 100, 250 and 500 V measuring voltages
- Low-resistance measurements for protective conductor and equipotential bonding conductor resistance, and continuity

- Buzzer and blinking LED indicate alarm status for erroneous and implausible measurements
- Fluttering pointer as last-resort warning function

#### INCLUDED WITH THE METRISO 5024:

- Insulation measuring instrument, ohmmeter and voltmeter
- Carrying pouch

Type	Article
METRISO 5024	M540E

Measuring Range	Intrinsic Uncertainty	Overload	Measuring Current	Short-Circuit Current
<b>Insulation resistance measurement, measuring voltage: 100 / 250 / 500 V</b>				
0.1 ... 400 M $\Omega$	2.5%	600 V AC	> 1 mA	< 10 mA
Measuring error under reference conditions relative to scale length (l = 84.6 mm)				
<b>Low resistance measurement, measuring voltage: 4.5 V</b>				
0 ... 4 $\Omega$	2.5%	250 V DC	> 200 mA	–
Measuring error under reference conditions relative to upper range value (l = 74.9 mm)				
<b>Voltage measurement, DC / AC (40 ... 200 Hz)</b>				
0 ... 500 V	2.5%	600 V AC	450 k $\Omega$	–
Measuring error under reference conditions relative to scale length (l = 73.3 mm)				

## METRISO PRIME

### Analog High-Voltage Insulation Measuring Instrument



**Analog high-voltage insulation measuring instrument with permanently connected measurement cables and test probes**

**METRISO PRIME (crank generator):** The battery powered **METRISO PRIME** is converted into the muscle powered **METRISO PRIME** by replacing the battery module with a crank generator.

#### FEATURES:

- Extensive measuring range: 10 k $\Omega$  ... 1 T $\Omega$
- Measuring range: 100 k $\Omega$  ... 100 M $\Omega$  (1000 V)
- Measuring voltages: 100, 250, 500, 1000, 1500, 2000, 2500 and 5000 V
- Measurements to 1000 V per **DIN VDE 0413**
- Voltage measurement to 2000 V
- Concise logarithmic display
- Guard terminal for the elimination of surface current
- Measuring category: 600 V CAT III, 300 V CAT IV

#### METRISO PRIME (crank generator)

- With crank generator
- 5 kV alligator clips (KY 5000 A)

#### METRISO PRIME Set / METRISO PRIME Set K (crank generator)

- KY 5000A
- GUARD 5000 A
- F2000 Universal Carrying Pouch

Type	Article
METRISO PRIME	M550T
METRISO PRIME (crank generator)	M550U
METRISO PRIME Set	M551T
METRISO PRIME Set K	M551U

#### INCLUDED WITH THE METRISO PRIME (M550T):

- With battery module
- 5 kV alligator clips (KY 5000 A)





## METRISO PRIME+

### Digital High-Voltage Insulation Measuring Instrument



METRISO PRIME+ with SECUTEST PSI

#### Digital high-voltage insulation measuring instrument with test voltages of up to 5000 V DC Voltage Measurement to 1000 V

Testing for absence of voltage at the device under test in systems of up to 1 kV can be performed with the voltage measuring range.

#### Discharging Capacitive Devices Under Test

Capacitive devices under test such as cables and coils, which may be charged with test voltage, are discharged by the measuring instrument. The falling voltage value can be observed at the display.

#### Measurements per EN 61557, DIN VDE 0413

Nominal current amounts to 1 mA at a test voltage of 100, 250, 500 or 1000 V.

#### Highly Insulated Measurement Cables

The highly insulated measurement cables are permanently connected for safety reasons in order to avoid danger resulting from an inadvertently disconnected cable.

#### Polarization Index – PI

Polarization index testing is recommended for electrical machines. This procedure involves expanded testing of insulation resistance. DC measuring voltage from the **METRISO PRIME+** is applied to the insulation for a duration of 10 minutes. The measured value is documented after one minute, and after ten minutes. If the insulation is defective, the value measured after ten minutes is higher than the value measured after one minute. The relationship between the two measurement values is the polarization index. Charged material within the insulation is aligned due to the application of measuring voltage over a long period of time, resulting in polarization. The polarization index indicates whether or not the charged material contained in the insulation can still be moved, thus allowing for polarization. This, in turn, is an indication of the condition of the insulation.

#### FEATURES:

- Extensive measuring range: 0.4 MΩ ... 1 TΩ
- Variable test voltage, or in fixed steps: 100 V, 250 V, 500 V, 1 kV, 1.5 kV, 2 kV, 2.5 kV, 5 kV
- Polarization index and absorption ratio
- Voltage measurement to 1000V
- Frequency measurement: 15 Hz ... 1 kHz
- Capacitance measurement: 0.1 ... 5 mF
- Measurement of electrical discharge
- Guard terminal for the elimination of surface current
- Supply power from mains, battery pack or external 12V power supply
- Backlit dot matrix display
- Digital display of measured values and limit values
- Timer function: 1 s ... 100 min.
- Measuring category: 600 V CAT III, 300V CAT IV

#### INCLUDED WITH THE METRISO PRIME+:

- Basic unit with permanently connected measurement cables and test probes
- Alligator clips (5 kV version)

Type	Article
METRISO PRIME+	M5000
METRISO PRIME+	M5000-V001

## ISO CALIBRATOR 1

### Test Adapter



#### Test Adapter for Insulation Measuring Instruments and Ohmmeters

Adapter for rapid, efficient testing of the accuracy of measuring instruments for insulation resistance and low-value resistors.

Insulation measuring instruments with nominal voltages of up to 1000 V can be tested with the **ISO CALIBRATOR 1**.

#### FEATURES:

- Test range: 100 kΩ to 100 MΩ
- Protection, housing: IP 50 / connector jacks: IP 20
- Usable with following instruments: **METRISO** series, **PROFITEST MASTER** series

Type	Article
ISO Calibrator 1	M662A



## GUARD 5000A, LEADEx 5000

### Guard Terminal for METRISO PRIME



Surface current is eliminated by using the guard terminal / guard cable.

**Guard 5000A:** guard cable and 1 alligator clip

**Leadex 5000:** 5 m extension cord

Type	Article
Guard 5000 A	Z580C
Leadex 5000	Z580D

## KY 5000A

### Alligator Clip for METRISO PRIME



Alligator Clips, 5 kV Variant

Type	Article
KY 5000A	Z580B

## GENERATOR 5000A

### Crank Generator for METRISO PRIME



The battery powered **METRISO PRIME** is converted into the muscle powered **METRISO PRIME (crank generator)** by replacing the battery module with a crank generator.

Type	Article
Generator 5000 A	Z580A

## T/H SENSOR

### Adapter for Temperature and Atmospheric Humidity Measurement for METRISO C



Adapter for temperature and atmospheric humidity measurement with infrared interface to the measuring instrument

- Leakage, insulation and surface resistance
- Temperature range: -10... +50 °C

- Relative humidity measuring range: 10 to 90%

Type	Article
T/H sensor	Z541A

## PRO-AB

### Leakage Current Measuring Adapter



**PRO-AB** leakage current measuring adapter for **PROFITEST MXTRA**

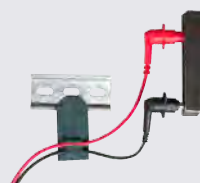
- Input current: 0 to 10 mA
- Input impedance: 1 k $\Omega$   $\pm$ 0.5%
- Output impedance: 10 k $\Omega$

- Output voltage: 10:1: 0 ... 1 V (0.1 V/mA)  
1:1: 0 ... 10 V (1 V/mA)

Type	Article
PRO-AB	Z502S

## MAGNETIC MEASURING PROBES

### Measuring Probes



Magnetic measuring probes with 4 mm sockets

Type	Article
Magnetic test probes – 4 mm sockets	Z502Z



## 3-PHASE CURRENT ADAPTER A3-16 ... 63

### 3-phase current adapter



**3-phase current adapter for connecting test instruments to 5-pole CEE outlets**

#### FEATURES:

- The adapter corresponds to the 5-pole CEE outlet with appropriate nominal current.
- For 16 A nominal current: A3-16, 32 A: A3-32, 63 A: A3-63
- Phase sequence testing with signal lamps
- Measuring category: 600 V CAT IV

- Testing the effectiveness of safety measures with five 4 mm contact protected sockets

Type	Article
A3-16	GTZ3602000R0001
A3-32	GTZ3603000R0001
A3-63	GTZ3604000R0001

## AC CURRENT CLAMP SENSORS

### Current clamp sensors



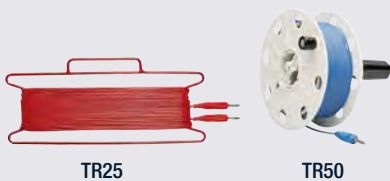
**Z3512A:** Current sensor clamp, 0.1/1/10/100/1000 A AC, switchable

**Article: WZ12C:** Current clamp sensor, 1 mA ... 15 A AC, 1 mV/mA, 1 A ... 150 A AC, 1 mV/A, switchable

Type	Article
Z3512A	Z225A
WZ12C	Z219C

## MEASUREMENT CABLE

### Measurement Cable



**TR50:** Plastic Drum with 50 m Measurement Cable  
One end of the cable is integrated into the drum as a socket, and the other is equipped with a banana plug. The drum axle can be inserted with a single action.

**TR25:** Reel with 25 m Measurement Cable  
Cable ends are equipped with banana plugs.

Type	Article
TR25	GTZ3303000R0001
TR50	GTY1040014E34

## KS24 CABLE SET

### Cable Set



**KS24** cable set consisting of a 4 m long extension cord with a permanently attached test probe and a contact protected socket at the other end, plug-on alligator clip

Type	Article
KS24 cable set	GTZ3201000R0001

## BATTERY SET

### Set of Rechargeable Batteries



**Battery set for PROFITEST MASTER series:**  
8 rechargeable NiMH batteries

**Chargers for Z502H battery set**

**PROFITEST MTECH+/MBASE+**

**PROFITEST MXTRA/MPRO/METRISO XTRA**

**PROFITEST INTRO**

Type	Article
Comp. master battery pack	Z502H
Charger PROFITEST MBASE MTECH	Z502P
Charger PROFITEST MTECH+/MBASE+/ MXTRA/MPRO/INTRO METRISO XTRA	Z502R



## SP350

### Earth Spike



Earth spike, 35 cm long, with connector for 4 mm banana plug.

Can also be used as a probe or auxiliary earth electrode for earth measurements, testing RCCBs etc.

Type	Article
SP350	GTZ3304000R0001

## VARIO PLUG ADAPTER SET

### VARIO Plug



Three self-retaining, contact protected test probes for the connection of measurement cables with 4 mm banana plugs, or with contact protected plugs for sockets with an opening of 3.5 mm to 12 mm, e.g. CEE, Perilex sockets.

For example, the test probes also fit the square PE jacks on Perilex sockets. Maximum permissible operating voltage: 600 V per IEC 61010.

Type	Article
VARIO plug adapter set	Z500A

## 1081 PROBE

### Probe



#### Floor Probe

This metallic tripod-type measurement electrode is used for:

- Determination of electrical resistance at elastic floor coverings in accordance with EN 1081

- Resistance measurement for insulating floors and walls in accordance with DIN VDE 0100 – 600

Type	Article
1081 Probe	GTZ3196000R0001

## PROBE SET

### Test Probes



600 V CAT III

#### Test Probes, 600 V CAT III

Set of test probes (red/black) 600 V CAT III, 1 A, test probe working range: 68 mm, diameter: 2.3 mm

Type	Article
Probe set	Z503F

## PRO-PE CLIP

### PRO-PE CLIP, 1000 V CAT IV, 32 A



Flat test clip for contacting busbars quickly and safely

Type	Article
PRO-PE Clip	Z503G



## POUCHES AND CASES

### Universal Pouches



F2000



F2010

#### F2000

Universal carrying pouch for measuring and test instruments, as well as accessories. Dimensions: 380 x 310 x 200 mm

#### F2010

Universal carrying pouch with flexible compartments and display protection for PROFITEST INTRO, METRISO INTRO, BASE, TECH, PRO, XTRA and SECUTEST BASE, BASE 10, PRO



HC30-C / HC40

#### HC30-C

Hard case for series C test instruments and accessories.

Dimensions: 394 x 294 x 106 mm



Ever-Ready Case

#### HC40

Hard case for 2 series C test instruments and accessories. Dimensions: 450 x 361 x 140 mm

#### Ever-Ready Case

Ever-ready case for PROFITEST MASTER with external pockets for accessories

Type	Article
F2000	Z700D
F2010	Z700G
HC30-C	Z541C
HC40	Z541D
Ever-ready case	Z502X

## E-CHECK SET

### Special Set



Included with the E-CHECK Set (article: M500U):

- PROFITEST MTECH+ (article: M520R)
- E-CHECK case (article: Z502M)
- VARIO plug adapter set (article: Z500A)
- Charger (article: Z502P)
- Comp. master battery pack (article: Z502H)
- Writing pad

**E-CHECK case (article: Z502M):**  
Printed with contents layout.

**Optional: trolley (article: Z502N):**  
Suitable for E-CHECK case

Type	Article
E-CHECK set	M500U
E-CHECK case	Z502M
Trolley	Z502N

## SORTIMO L-BOXX GM

### Plastic System Case



Plastic system case made of impact resistant ABS for PROFITEST MASTER



**Optional:** foam insert for SORTIMO L-BOXX GM with compartment for PROFITEST INTRO



**Optional:** foam insert for SORTIMO L-BOXX GM with compartment for PROFITEST MASTER

Type	Article
SORTIMO L-BOXX GM	Z503D
Foam SORTIMO L-BOXX, Profitest INTRO	Z503O
Foam SORTIMO L-BOXX, Profitest M	Z503E



## GEOHM C

### Earth Tester



#### Battery Powered Earth Tester – also for Measurement of Soil Resistivity

##### FEATURES:

- Compact, menu-driven instrument for the measurement of earthing resistance for 3 or 4-wire connection
- Continuous monitoring of interference voltage and auxiliary earth electrode and probe resistance with indication when allowable limit values are exceeded.
- Complete display of all required values at a large dot matrix display, or warning with 4 LEDs Easy, concise operation with only 4 keys.
- Measurement of earthing resistance in 5 ranges up to 50 k $\Omega$
- Voltage measurement: 10 to 250 V
- Frequency measurement: 45 to 200 Hz
- Battery monitoring and self-test
- Integrated memory with IrDA interface
- Earth tester per **DIN VDE 0413**
- Extremely rugged 2-component housing

#### INCLUDED WITH THE GEOHM C:

- Neck strap
- Set of batteries
- Factory calibration certificate
- Operating Instructions

Type	Article
GEOHM C	M590A

## GEOHM 5

### Earth Tester for All Known Measuring Methods



This battery powered measuring instrument can also be used to ascertain or measure soil resistivity and ohmic resistance in accordance with the current-voltage measuring method. Easy, concise operation with only 4 keys.

##### FEATURES:

- Measurement of:
  - Earth resistance
  - Selective earth resistance
  - Soil resistivity
- Current (TRMS) via clamp meter (optional)
- Conventional 3 and 4-pole measurement
- Selective single-clamp measurement (optional)
- 2-clamp measurement (optional)
- Battery operation is possible (optional)
- No balancing required
- Continuous monitoring of interference voltage and auxiliary earth electrode resistance with indication when allowable limit values are exceeded
- Data storage for 250 measurements (1000 measured values)
- Data interface for transmission of measured values to a PC

#### INCLUDED WITH THE GEOHM 5-SET:

- One 4.5 meter black test cable, one 4.5 meter green test cable, one 15 meter red test cable
- Blue test cable, 20 meters
- 4 earth spikes
- 4 batteries per LR14
- Carrying strap
- Stackable system case

Type	Article
GEOHM 5-SET	M591B





## METRACLIP EARTH

### Earth Clamp Meter



 **CAT IV**

#### APPLICATIONS

The earth clamp meter can be used to test the resistance of any conductive system which demonstrates loop characteristics.

The following measurements are possible:

- Earth resistance measurement if grounding is connected in series to the equipotential bonding conductor
- Other earth measurements, for example via overhead ground wires or interconnected transmission towers for power transmission or telecommunications
- Measurements at distributed ground connections with a common ground plane

#### MEASURING METHOD

The earth clamp meter simultaneously fulfils requirements for use as a clamp generator and a clamp meter:

- The test current which flows through the generator winding generates an alternating voltage in the enclosed conductor with a constant level E.
- A sensor winding detects current I induced in the conductor in this way, from which the clamp meter calculates loop impedance using the following equation:  $Z_{Loop} = E/I$ .

In the advanced mode, an additional loop inductance measurement is performed which takes the influence of the respective line frequency into consideration.

#### BENEFITS

- Clamp generator and meter in a single device – permits simplified measurement without auxiliary earth electrodes
- Clamp measuring functions:
  - Ground loop resistance: 0.01 ... 1500  $\Omega$
  - Loop inductance: 10 ... 500  $\mu\text{H}$
  - Leakage current: 0.2 mA ... 40 A AC
  - Touch voltage: 0.1 ... 75 V
- Minimal influence due to interference current
- Large OLED display: up to 3 measured values can be read simultaneously
- Measured value memory for resistance and leakage current, each with date and time
- Measured value transmission via Bluetooth® to PROFITEST MXTRA test instrument in preparation
- Compact and user-friendly: one-hand operation thanks to minimal weight
- and easy to open clamp with spring force compensation
- Extremely safe thanks to 600 V CAT IV

#### FEATURES

- Measurement of loop impedance in parallel connected grounding networks with a much simpler procedure than possible with conventional processes using two auxiliary earth electrodes
- Impedance measurement is especially accurate for low values, because inductance present in the loop is taken into consideration during resistance measurement.
- Touch voltage is estimated by multiplying loop impedance and leakage current. The voltage value ascertained in this way is the maximum value which can occur between the measuring point and earth, because the measured loop impedance value takes the entire loop into account.

#### INCLUDED WITH THE METRACLIP EARTH:

- 1 earth clamp meter in carrying case
- 4 batteries (LR6 or AA)
- 1 test certificate
- 1 mini CD-ROM with operating instructions in D, GB, F, E and I
- 1 set of condensed operating instructions in D, GB, F, E and I, as well as NL, PL and RO, printed
- 1 safety data sheet in 20 languages
- 1 calibration loop



Type	Article
METRACLIP EARTH	M312N



## E-SET 3

Usable with following instruments: GEOHM C, GEOHM 5, PROFITEST MXTRA/MPRO\*



Set of measuring accessories for measurements with earth spikes.

### MEASURING ACCESSORIES SET CONSISTING OF:

- 2 reels
- 2 measurement cables, 25 m each
- 1 measurement cable, 40 m long
- 2 measurement cables, 3 m each
- 4 earth spikes (zinc plated)
- 2 spike pullers
- 1 hammer

Type	Article
E-SET 3	GTZ3301005R0001

\* Only in combination with PRO-RE adapter (Z501)

## E-SET 4

Usable with following instruments: GEOHM C, GEOHM 5, PROFITEST MXTRA/MPRO\*



Set of measuring accessories for earth measurements, same as E-Set 3 but with earth drills instead of spikes.

### MEASURING ACCESSORIES SET CONSISTING OF:

- 2 reels
- 2 measurement cables, 25 m each
- 1 measurement cable, 40 m long
- 2 measurement cables, 3 m each
- 4 earth drills

Type	Article
E-SET 4	Z590A

\* Only in combination with PRO-RE adapter (Z501)

## E-SET 5

Usable with following instruments: GEOHM C, GEOHM 5, PROFITEST MXTRA/MPRO\*



Extensively equipped earth measurement case for device and accessories.

### EARTH MEASUREMENT CASE CONSISTING OF:

- 1 imitation leather case
- 1 drum with 25 m measurement cable
- 2 drums with 50 m measurement cable each
- 3 measurement cables, 0.5 m each
- 1 measurement cable, 2 m long
- 1 test clamp
- 4 earth drills, 350 mm long
- 1 dust cloth
- 2 pads with forms

Type	Article
E-SET 5	Z590B

\* Only in combination with PRO-RE adapter (Z501)



## PRO-TYP I

### Single Phase Test Adapter with Type 1 Plug for Testing Electric Charging Stations with the PROFITEST MTECH+ / MXTRA



Single-phase test adapter with type 1 plug for testing the effectiveness of protective measures at electric charging stations with the PROFITEST MTECH+ / MXTRA, simulation of fictitiously connected electric vehicles and current-carrying capacity of cord sets per IEC 61851-1

- **Vehicle simulation (CP):**  
Vehicle states A through E are selected with a rotary switch.
- **Cable simulation (PP):** with permanently wired cable coding
- **Fault simulation:**  
Simulation of a short-circuit between CP and PE by means of a rotary switch
- **Indication of phase voltages** via LED

#### APPLICATIONS

VDE tests can be conducted at electric charging stations in accordance with IEC 61851 with the help of the PRO-Typ I in combination with the PROFITEST MTECH+ and MXTRA test instruments.

The test adapter triggers the charging process by simulating an electric vehicle. Only by means of simulation is the charging station's outlet energized so that it can be tested with the PROFITEST MTECH+ and MXTRA test instruments.

The range of applications includes R&D and service.

#### SCOPE OF DELIVERY:

- 1 PRO-TYP I test adapter
- 1 set of operating instructions

#### OPTIONAL:

**F2010** universal carrying pouch with flexible compartments

Type	Article
PRO-TYP I	Z525B
F2010	Z700G

## PRO-TYP II

### Single and 3-Phase Test Adapter with Type 2 Plug for Testing Electric Charging Stations with the PROFITEST MTECH+ and MXTRA



Single and 3-phase test adapter with type 2 plug for testing the effectiveness of protective measures at electric charging stations with the PROFITEST MTECH+ / MXTRA, simulation of fictitiously connected electric vehicles and current-carrying capacity of cord sets per IEC 61851-1

- **Vehicle simulation (CP):** Vehicle states A through E are selected with a rotary switch.
- **Cable simulation (PP):** The various codings for charging cables with 13, 20, 32 and 63 A, as well as "no cable connected", can be simulated with the help of a rotary switch.
- **Fault simulation:**  
Simulation of a short-circuit between CP and PE by means of a rotary switch
- **Indication of Phase Voltages:** Via LEDs, depending on the charging station, either one or three phases can be active.
- **Testing of electric charging stations with permanently attached charging cable by means of an extended CP test pin**

#### APPLICATIONS

VDE tests can be conducted at electric charging stations in accordance with IEC 61851 with the help of the PRO-Typ II in combination with the PROFITEST MTECH+ and MXTRA test instruments.

The test adapter triggers the charging process by simulating an electric vehicle. Only by means of simulation is the charging station's outlet energized so that it can be tested with the PROFITEST MTECH+ and MXTRA test instruments.

The range of applications includes R&D and service.

#### SCOPE OF DELIVERY:

- 1 PRO-TYP II test adapter
- 1 set of operating instructions

#### OPTIONAL:

**F2010** universal carrying pouch with flexible compartments

Type	Article
PRO-TYP II	Z525A
F2010	Z700G



F2010 universal carrying pouch

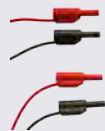


## E-CLIP 1 / E-CLIP 2

### Clamp Meter and Generator Clamp



E-Clip 1



E-Clip 2

#### E-CLIP 1

**Clamp meter: 1 MA ... 1200 A, 1 mA/A, 40 HZ ... 5 KHZ, 52 MM DIA.**

- Measuring range: 1 mA ... 1200 A
- Measuring category: 600V CAT III
- Max. cable diameter: 52 mm
- Transformation ratio: 1000A/1 A
- Frequency range: 40Hz ... 5kHz
- Output signal: 1  $\mu$ A ... 1.2A

#### INCLUDED WITH THE E-CLIP 1:

- Clamp meter with connector cable (1.5 m) and laboratory safety plug

#### E--CLIP 2

**Generator clamp, 0.2 ... 1200 A, 1 mA/A, 0 Hz ... 5 kHz, 52 mm dia., same as E-Clip 1, except:**

- Measuring range: 0.2A ... 1200 A
- Output signal: 0.2mA ... 1.2A

#### INCLUDED WITH THE E-CLIP 2:

- Generator clamp with laboratory safety plug inputs

Type	Article
E-Clip 1	Z591A
E-Clip 2	Z591B

## PHASECOP 2

### Phase Sequence Indicator



#### Phase Sequence Indicator with LEDs and Contact Protected Plugs

Instrument for determining direction of rotation and phase sequence in three-phase systems Phase sequence is acquired by means of an electronic circuit.

The direction of rotation is indicated by one of two directional arrows, each of which is equipped with an LED. An LED is provided for each phase which indicates whether or not the phase conductor is live.

The device can be used in all low-voltage systems.

#### FEATURES:

- Complies with **DIN VDE 0413-7 / EN 61557-7**, indicates direction of rotation and phase
- Nominal range of use: 90 ... 660 V / 45 ... 1000 Hz
- Measuring category: 600 V CAT III

#### INCLUDED WITH THE PHASECOP 2:

- Phase sequence indicator
- 3 permanently connected measurement cables with contact-protected plugs
- 3 plug-on test probes
- 1 alligator clip

#### OPTIONAL ACCESSORIES:

- F801 ever-ready case (**GTY3172070P01**)

Type	Article
PhaseCOP 2	GTM5202000R0001



## METRAPHASE 1

### Phase Sequence Indicator



#### Phase Sequence Indicator in Compliance with Safety Regulations Including Electronic Rotary Dial, Frequency Display and Nominal Line Voltage Display

The mechanical rotary dial based on the Ferraris principle preferred by many users necessitates a large housing for the respective clearances and creepage distances.

Our phase sequence indicator has an electronic rotary dial. LEDs arranged in a circular array not only indicate the direction of rotation, but rather line frequency as well by means of LEDs which light up in various colors.

The presence of voltage at each phase is indicated with additional LEDs in accordance with the regulations, as is nominal line voltage. The phase sequence indicator can be used as a 3-pole or a 2-pole indicator.

#### INCLUDED WITH THE METRAPHASE 1:

- 3 plug-in measurement cables with contact-protected plugs
- 3 plug-on test probes
- 1 alligator clip
- 4 batteries
- Carrying case

#### OPTIONAL ACCESSORIES:

- **GH18 (GTZ3212000R0001):** rubber holster
- **Vario plug adapter set (Z500A):** 3.5... 12 mm diameter

Type	Article
METRAPHase 1	M620A

#### FEATURES:

- Complies with DIN VDE 0413-7 / EN 61557-7
- Indicates direction of rotation and phase, as well as nominal line frequency and voltage
- Nominal range of use: 100... 690 V / 50... 400 Hz
- Power supply: 4 ea. mignon cell per IEC LR 6
- Measuring category: 600 V CAT IV

#### ROTATING FIELD DIRECTION:

Phase Sequence	Phase Sequence	Display Phase LEDs	Display Rotation LEDs
Clockwise	L1 - L2 - L3	L1, L2, L3 light up	Green LED rotates clockwise
Counterclockwise	L3 - L2 - L1	L1, L2, L3 light up	Red LED rotates counterclockwise
Asymmetrical rotary field	Lx - N/PE - Lx	Connection to N/PE does not light up	Green or red LED rotates clockwise or counterclockwise depending on connection
One missing phase	Lx - X - Lx	Missing phase does not light up, the other 2 do	—



## DUSPOL®

IEC / EN 61243-3 / VDE 0682-401:2011-02

### DUSPOL® Voltage and Continuity Testers – Top Level Product Safety

#### FEATURES:

- Direct display without key activation – high-impedance testing
- Continuity test with buzzer and LED or LCD
- Load switched via pushbutton (low-impedance testing)
- Vibration alarm in the tester handle
- Measuring point illumination
- Single-pole phase test
- Phase sequence test
- Storage of test results
- Rugged housing with rubberized grip
- Voltage display: 12 to 1000 V (AC/DC), fully functional even without batteries
- Impact resistant, dustproof housing, protected against water jets (IP 65)
- Safety – always and everywhere: no batteries required (Duspol analog)

Type	Article
DUSPOL® – analog 1000	M611D
DUSPOL® – expert 1000	M611E
DUSPOL® – digital 1000	M611F



DUSPOL® – analog 1000



DUSPOL® – expert 1000



DUSPOL® – digital 1000

EN 61243-3	DUSPOL® - analog 1000	DUSPOL® - expert 1000	DUSPOL® - digital 1000
Display	Plunger coil / LED	LED	LED / LCD
Display levels	12 V to 1000 V	12 V to 1000 V	1 V ... 1000 V <sub>AC</sub> (TRMS) / 1200 V <sub>DC</sub>
Continuity test	–	LED up to 100 kΩ	LED up to 100 kΩ
Resistance	–	–	0.1 kΩ to 300 kΩ
Diode	–	–	0.3 V ... 2 V
Phase sequence test	LED	Green LED	Green LED
Single-pole phase test	LED	Red LED	Red LED
Polarity test	LED	LED	LCD
Frequency	–	–	15 Hz ... 1 kHz
30 mA RCCB tripping via pushbutton	■	■	■
Measuring point illumination	–	■	■
Batteries	–	2 ea. 1.5 V AAA	2 ea. 1.5 V AAA





## PROFISAFE 690 B / L

EN 61243-3 (DIN VDE 0682-401)



PROFISAFE 690 B / L



LCD PROFISAFE 690 B / L



Rugged Voltage, Phase, Continuity, Polarity Tester and Phase Sequence Indicator, 690 V, in accordance with EN 61243-3 (VDE 0682 – 401).

### FEATURES:

- Double indication reliability
- Individually tested for dielectric strength
- Voltage test
- Phase test
- Polarity test
- Phase sequence indicator
- Continuity test
- Rugged housing, hazard-free use
- Even under damp conditions, IP 65 protection
- Easy to operate, VDE-GS approved
- Measuring category: 690 V CAT III, 600 V CAT IV

Type	Article
PROFISAFE 690B	M630H
PROFISAFE 690L	M630J

## METRAVOLT 12D + L

EN 61243-3 (DIN VDE 0682-401)



Voltage and resistance tester with display of phases, polarity and direction of rotation

- Large backlit display
- Resistance measurement: 10 k $\Omega$  ... 1999 k $\Omega$
- Measuring category: 1000 V CAT III, 600 V CAT IV

Type	Article
METRAVOLT 12D + L	M630G

EN 61243-3	PROFISAFE 690B	PROFISAFE 690L	METRAVOLT 12D + L
Nominal voltage	12 ... 690V	12 ... 690V	24 ... 1 000 V <sub>AC</sub> / 1 500 V <sub>DC</sub>
Measuring category	690 V CAT III / 600 V CAT IV	690 V CAT III / 600 V CAT IV	1000 V CAT III / 600 V CAT IV
Protection	IP 65	IP 65	IP 65
Surge strength / test voltage	> 8 kV / 6 kV	> 8 kV / 6 kV	> 12 kV / 6 kV
Display levels	12 / 24 / 50 / 120 / 230 / 400 / 690 V	–	–
Input impedance	167 k $\Omega$ AC/DC at 690 V 200 k $\Omega$ AC/DC at 50 V	167 k $\Omega$ AC/DC at 690 V 200 k $\Omega$ AC/DC at 50 V	Approx. 320 k $\Omega$ AC Approx. 710 k $\Omega$ DC
Continuity test	0 ... 1000 k $\Omega$	0 ... 1000 k $\Omega$	0 ... 1999 k $\Omega$
Frequency range	0 ... 500 Hz	0 ... 500 Hz	15 ... 10 kHz < 500 V
Current	3.4 mA	3.4 mA	3.2 mA
Display	LCD (backlit) + LEDs	LCD (backlit) + LEDs	LCD (backlit) + LEDs
Power supply	Rechargeable Li battery	Rechargeable Li battery	9 V block battery
Functions	Voltage testing and measurement plus phase, continuity, polarity and phase sequence indicator		



## AC/DC Current Clamp Meters



Technical Data		METRACLIP 41	METRACLIP 410	METRACLIP 61	METRACLIP 62
Article		M320A	M320B	M311D	M311F
Special features		Accurate measurement of low-value direct and alternating current	Compact, lightweight and handy for direct and alternating current	Compact and lightweight for low and high value alternating current (sinusoidal)	Insensitive to magnetic interference fields thanks to double shielding
Clamp opening (mm)		25	25	40	18
AC measuring method		TRMS	TRMS	Absolute mean value	TRMS
Vmax (V) / CAT		300 V CAT III	300 V CAT III	300 V CAT III	300 V CAT III
Current (A)	AC	4.000 / 4000 A <sub>RMS</sub>	40.00 / 400.0 A <sub>RMS</sub>	30.00 / 300.0 mA 30.00 / 300.0 A	200.0 / 2000 mA <sub>RMS</sub> 9.99 A <sub>RMS</sub>
	DC	±4.000 / ±40.00 A <sub>DC</sub>	±40.00 / ±400.0 A <sub>DC</sub>	–	±200.0 / ±2000 mA <sub>DC</sub> ±9.9 A <sub>DC</sub>
	AC/DC	–	–	–	–
	Starting current	–	–	–	–
Voltage (V)	AC	–	–	–	–
	DC	–	–	–	–
	AC/DC	–	–	–	–
Frequency range	(U) AC	–	–	–	–
	(I) AC	–	–	–	–
Peak memory		DATA HOLD	DATA HOLD	DATA HOLD	Min / Max / Hold
Continuity		–	–	–	–
Resistance (Ohms)		–	–	–	–
Active power (W)		–	–	–	–
Apparent power		–	–	–	–
Reactive power		–	–	–	–
Power supply (batt.)		9 V IEC 6F22/6LR61	9 V IEC 6F22/6LR61	2 ea. 1.5 V LR44/SR 44	2 ea. 1.5 V LR6 (AA)
Dimensions (mm)		75 x 190 x 30	75 x 190 x 30	64 x 176 x 23	76 x 194 x 30
Weight with battery		0.235 kg	0.235 kg	0.125 kg	0.35 kg
Accessories included in scope of delivery		Pouch optional	Pouch optional	Imitation leather pouch	Imitation leather pouch

METRACLIP EARTH (see Page 03 - 29)





AC/DC Milliampere Clamp Meters		AC/DC Clamp Multimeters			
<b>METRACLIP 63</b>	<b>METRACLIP 64</b>	<b>METRACLIP 85</b>	<b>METRACLIP 86</b>	<b>METRACLIP 87</b>	<b>METRACLIP 88</b>
<b>M311G</b>	<b>M311H</b>	<b>M312J</b>	<b>M312K</b>	<b>M312L</b>	<b>M312M</b>
Accurate measurement of low-value direct and alternating current (sinusoidal)	Accurate measurement of low-value direct and alternating current (sinusoidal)	Multimeter functions, temperature measurement, adapter function	Multimeter functions, power measurement	Multimeter functions, power measurement, data logger, analysis software	Multimeter functions, power measurement
5	30	34	34	48	60
Absolute mean value	Absolute mean value	TRMS	TRMS	TRMS	TRMS
300 V CAT III	300 V CAT III	1000 V CAT III 600 V CAT IV	1000 V CAT III 600 V CAT IV	1000 V CAT IV	1000 V CAT IV
99.99 / 999.9 mA 9.999 A	99.99 / 999.9 mA 9.999 A	60.00 / 600.0 A <sub>RMS</sub>	60.00 / 600.0 A <sub>RMS</sub>	99.99 / 999.9 A <sub>RMS</sub>	99.99 / 999.9 / 2000 A <sub>RMS</sub>
±99.9 / ±999. mA <sub>DC</sub>	±99.9 / ±999. mA <sub>DC</sub>	±60.0 / ±600. / ±900 A <sub>DC</sub>	±60.0 / ±600. / ±900 A <sub>DC</sub>	±99.99 / ±999.9 / ±1500 A <sub>DC</sub>	±99.99 / ±999.9 / ±3000 A <sub>DC</sub>
–	–	60.00 / 600.0 A <sub>RMS</sub> 60.00 / 600.0 / 900 A <sub>Peak</sub>	60.00 / 600.0 A <sub>RMS</sub> 60.00 / 600.0 / 900 A <sub>Peak</sub>	99.99 / 999.9 A <sub>RMS</sub> 99.99 / 999.9 / 1500 A <sub>Peak</sub>	99.99 / 999.9 / 2000 A <sub>RMS</sub> 99.99 / 999.9 / 3000 A <sub>Peak</sub>
–	–	6 ... 600 A <sub>RMS</sub> / 900 A <sub>Peak</sub>	6 ... 600 A <sub>RMS</sub> / 900 A <sub>Peak</sub>	10 ... 1000 A <sub>RMS</sub> / 1500 A <sub>Peak</sub>	20 ... 2000 A <sub>RMS</sub> / 3000 A <sub>Peak</sub>
–	–	60.00 / 600.0 / 1000 V <sub>RMS</sub>	60.00 / 600.0 / 1000 V <sub>RMS</sub>	99.99 / 999.9 V <sub>RMS</sub>	99.99 / 999.9 V <sub>RMS</sub>
–	–	±60.00 / ±600.0 / ±1000 V <sub>DC</sub>	±60.00 / ±600.0 / ±1000 V <sub>DC</sub>	±99.99 / ±999.9 V <sub>DC</sub>	±99.99 / ±999.9 V <sub>DC</sub>
–	–	60.00 / 600.0 / 1000 V <sub>RMS</sub> 60.00 / 600.0 / 1 400 V <sub>Peak</sub>	60.00 / 600.0 / 1000 V <sub>RMS</sub> 60.00 / 600.0 / 1 400 V <sub>Peak</sub>	99.99 / 999.9 V <sub>RMS</sub> 99.99 / 999.9 / 1 400 V <sub>Peak</sub>	99.99 / 999.9 V <sub>RMS</sub> 99.99 / 999.9 / 1 400 V <sub>Peak</sub>
–	–	5.0 Hz ... 19.99 kHz	5.0 Hz ... 19.99 kHz	5.0 Hz ... 19.99 kHz	5.0 Hz ... 19.99 kHz
–	–	5.0 ... 2999 Hz	5.0 ... 2999 Hz	5.0 ... 1999 Hz	5.0 ... 999.9 Hz
DATA HOLD	DATA HOLD	Min / Max / Hold	Min / Max / Hold / Peak	Min / Max / Hold / Peak	Min / Max / Hold / Peak
–	–	0 ... 599.9 Ω	0 ... 599.9 Ω	0 ... 999.9 Ω	0 ... 999.9 Ω
–	–	0 ... 59.99 kΩ	0 ... 59.99 kΩ	0 ... 99.99 kΩ	0 ... 99.99 kΩ
–	–	–	5999 W / 59.99 / 599.9 / 900 kW	9999 W / 99.99 / 999.9 / 1500 kW	9999 W / 99.99 / 999.9 / 3000 kW
–	–	–	5999 VA / 59.99 / 599.9 / 900 kVA	9999 VA / 99.99 / 999.9 / 1 500 kVA	9999 VA / 99.99 / 999.9 / 3 000 kVA
–	–	–	5999 var / 59.99 / 599.9 / 900 kvar	9999 var / 99.99 / 999.9 / 1500 kvar	9999 var / 99.99 / 999.9 / 3000 kvar
4 ea. 1.5 V LR6 (AA)	4 ea. 1.5 V LR6 (AA)	9 V IEC 6F22/6LR61	9 V IEC 6F22/6LR61	4 ea. 1.5 V LR6 (AA)	4 ea. 1.5 V LR6 (AA)
19 x 113 x 28	33 x 170 x 24	222 x 78 x 42	222 x 78 x 42	272 x 92 x 41	296 x 11 x 41
0.28 kg	0.28 kg	0.34 kg	0.34 kg	0.60 kg	0.64 kg
Carrying pouch, analog output cable		1 pair of safety measurement cables with test probe, temperature sensor (0 to +200 °C), carrying pouch	1 pair of safety measurement cables with 2 plug-on test probes and 1 alligator clip, carrying pouch	1 pair of safety measurement cables with 2 plug-on test probes and 2 alligator clips, carrying pouch, PC program for measurement data evaluation	1 pair of safety measurement cables with 2 plug-on test probes and 1 alligator clip, carrying pouch



Test instruments for testing the electrical safety of electrical devices at the workplace and in production.

The fulfillment of legal requirements such as occupational safety legislation, medical device regulations and product safety law necessitates comprehensive measurements and testing in accordance with the technical stipulations set forth in DIN VDE, as well as EN and IEC standards, for example:

- As an equipment manufacturer per IEC / EN 61010, 60601, 60950, 60335, 60065, 62368-1, 62911
- For service work or as the operating company
  - For electrical equipment per DIN VDE 0701-0702
  - For medical devices per IEC 62353 (VDE 0751)
  - For welding units per IEC 60974-4 (VDE 0544-4)

## CONTENTS

### TEST INSTRUMENTS

- 04 - 2 Test Instruments: Overview
- 04 - 4 Electrical Safety of Devices - SECUTEST
- 04 - 7 Electrical Safety of Devices - SECUTEST S2N+ / S2N+ 10
- 04 - 8 Electrical Safety of Devices - SECUTEST SIII+ / SECULIFE ST
- 04 - 9 Electrical Safety of Devices - SECUSTAR FM+
- 04 - 10 Electrical Safety of Devices - SECULIFE SB / SR
- 04 - 11 Electrical Safety of Devices - METRATESTER 5+ / 3P
- 04 - 12 Electrical Safety of Devices - MINITEST BASE / PRO / MASTER
- 04 - 13 Test Instrument SECUTEST 3PL, Workshop Test Panels 21F / WP
- 04 - 14 Accessories - Adapters
- 04 - 16 Accessories - Adapters, Cables, USB Converter
- 04 - 17 Accessories - Clamps, Probes, Sensors
- 04 - 18 Accessories - Memory and Input Module, Adapter, Barcode Printer
- 04 - 19 Identification Accessories / Pouches, Cases
- 04 - 20 Overview Table - Instruments and Accessories



**SECUTEST BASE, PRO**

Universal test instrument for testing the electrical safety of electrical devices in accordance with DGUV regulation 3, MPG



**SECUTEST BASE**  
PAGE 04 - 4



**SECUTEST PRO**  
PAGE 04 - 5

**SECUTEST**

Universal test instrument for testing the electrical safety of electrical devices in accordance with DGUV regulation 3, MPG



**SECUTEST S2N+ / S2N+ 10**  
PAGE 04 - 7



**SECUTEST SIII+ / SECULIFE ST**  
PAGE 04 - 8

**SECUSTAR / SECULIFE**

Universal test instrument for testing the electrical safety of electrical devices in accordance with DGUV regulation 3, MPG



**SECUSTAR FM+**  
PAGE 04 - 9



**SECULIFE SB**  
PAGE 04 - 10



**SECULIFE SR**  
PAGE 04 - 10

**METRATERESTER**

Instrument for electrical safety testing of electrical equipment per DIN VDE 0701-0702



**METRATERESTER 5+**  
PAGE 04 - 11



**METRATERESTER 5+ 3P**  
PAGE 04 - 11

**MINITEST**

Test instrument for DIN VDE 0701-0702, for testing and measurement of repaired or modified devices



**MINITEST BASE**  
PAGE 04 - 12



**MINITEST PRO**  
PAGE 04 - 12



**MINITEST MASTER**  
PAGE 04 - 12



**MINITEST 3P Master**  
PAGE 04 - 12

**SECUTEST**

Test Case, Workshop Test Panels



**SECUTEST 3PL**  
PAGE 04 - 13



**SECUTEST 3PL**  
PAGE 04 - 13



**SECUTEST WP**  
PAGE 04 - 13



Type	MINITEST			METRA-TESTER 5+	SECUTEST			SECUSTAR FM+	SECULIFE SR
	BASE	PRO	MASTER 3P MASTER		BASE / PRO	SECUTEST SIII + SECULIFE ST	SECUTEST S2 N+ (10)	SECULIFE SB	
Article Number	M712C	M712D	M712U M712X	M700D	M7050- ...	Configurable	M7010-V031 M7010-V032	M761A/M691A	M692A
<b>Applications, Target Groups</b>									
DGUV regulation 3, VDE 0701-0702, BetrSichV (German occupational safety legislation)	■	■	■	–	■	■	■	■	–
For trained persons	■	■	■	–	■	■	■	■	–
Repairs and service	■	–	–	■	■	■	■	–	■
Production	–	–	–	–	–	–	–	–	–
Tooling expenditures	■	–	–	■	■	–	■	–	–
Medical technology, VDE 0751, IEC 62353	–	–	–	–	■	■	■	■	■
Medical technology, IEC 60601 (SFC conditions)	–	–	–	–	–	■	–	–	–
Welding technology, IEC 60974-4 (VDE 0544-4)	–	–	–	–	■	–	■	■	–
USB (m = master, s = slave)	–	s	s	–	■	–	–	4 × m	s
Ethernet	–	–	–	–	–	–	–	■	–
CF connection	–	–	–	–	–	–	–	■	–
RS 232C	–	–	■	–	–	■	■	–	–
Test sequences	–	–	–	–	8+1, fixed per standard, changeable assignment	6 (9) per standard	5 per standard	Programmable	–
Data storage (devices under test)	–	–	2000 meas. values	–	Approx. 50000	–	125	Approx. 3000*	–
Software (optional)	See chapter 6 for complete information.								
<b>Functions / Measurements</b>									
Visual Inspection	–	–	–	–	■	■	■	Programmable	–
Protective cond. resistance	200 mA				200 mA / 10 A		200 mA 10 / 25 A	200 mA	
Insulation resistance	■	■	■	■	Adjustable voltage				■
Leakage Current Test Method d = direct, E = equivalent, Δ = differential									
Protective conductor current	Δ (AC)	Δ (AC)	Δ (AC)	E, Δ (AC)	E, Δ (AC), d	E, Δ (AC)	d (AC, DC, RMS) E, Δ (AC)	d (RMS) E, Δ (AC)	
Device leakage current	–	–	–	–	d (AC, DC, RMS) E, Δ (AC)	d (AC, DC, RMS) E, Δ (AC)	d (AC, DC, RMS) E, Δ (AC)	d (RMS) E, Δ (AC)	
Touch current	d (AC)	d (AC)	d (AC)	d (AC)	d (AC, DC, RMS) E, Δ	d (AC, DC, RMS)	d (AC, DC, RMS)	d (AC, DC, RMS) E, Δ (AC)	
Leakage current from the applied part	–	–	–	–	E (AC), d	E (AC)	d (AC) E (AC)	E (AC)	
Patient leakage current	–	–	–	–	d (AC, DC, RMS)	d (AC, DC, RMS)	d (AC, DC, RMS) E (AC)	d (AC, DC, RMS)	
Function Test U = line voltage, I = current consumption, P = power, PF = power factor									
	–	–	–	U, I	U, I, P, PF				
Other measurements	–	–	–	–	–	–	–	Expandable as desired	–
High-voltage test, DC	–	–	–	–	–	■*	–	–	–
Residual current test (time)	–	–	–	–	■	–	–	■	–
Voltage measurement	–	–	–	–	■	■	■	–	–
Temperature: Pt 100 / Pt 1000 (optional)	–	–	–	–	–	■	■	–	–
<b>Miscellaneous</b>									
Display	LED	2-line LCD		Custom-er-specific	Color display	Black and white dot matrix		Color touch-screen	Black and white dot matrix
Operation	Rotary switch, save key			Rotary switch	Rotary switch, scroll keys			Touch-screen, keys	Keys
Mains power	230 V / 50 Hz			230 V / 50 Hz	90 V ... 250 V 40 Hz ... 400 Hz	230 V / 50 Hz 115 V / 60 Hz		Battery, 90 V ... 250 V 40 Hz ... 400 Hz	90 V ... 250 V 40 Hz ... 400 Hz

\* Option



## SECUTEST | BASE

### The New 4<sup>th</sup> Generation of the SECUTEST Series



Front View



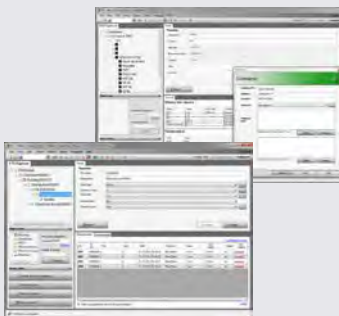
Ready for Transport



Left Side View



Right Side View



ETC Report Generating Software



#### Reliable, comprehensive and efficient testing of the electrical safety of:

- Electrical devices per DIN VDE 0701-0702 including extension cords and PRCDs
- Electrical medical devices per DIN EN 62353 (VDE 0751) and GOST R (FOCT P) 62353
- Arc welding equipment per IEC/EN 60974-4 (VDE 0544-4)

Testing of the electrical safety of electrical devices is necessary after each and every repair, and within the framework of work safety in order to assure the safety of users, and is required in accordance with legislation and regulations set forth by official authorities, operating companies and insurance carriers.

Preventive testing must be conducted at regular intervals.

Test instruments included in the new SECUTEST range make it possible for electricians to safely and efficiently perform and document the test steps specified in the relevant standards.

#### HIGHLIGHTS:

- 8 preconfigured test sequences for quickly testing operating equipment
- One universal, adjustable test sequence
- One test sequence executed with individual measurements
- Suitable for use by trained persons
- Extensive data management and storage concept for automated test sequences and individual measurements – for up to 50,000 data records
- Quick access to measuring and test functions via the double rotary switch, direct selection keys and softkeys
- High-resolution, brilliant 4.3" TFT color display
- Unique multiple measurement allows convenient recording of several measuring points.
- Automatic DUT connection and protection class detection
- Compact, impact resistant housing with integrated rubber protector
- Comprehensive, legally secure preparation of test reports
- Modern interfaces for data entry (two USB A) and data exchange (one USB B)
- Extensive setting options for international use (language, keyboard, character set, date, time)

#### ETC report generating software

ETC offers a wide variety of support functions for documenting completed tests.

#### OPTIONAL:

**Z853R database expansion** for bidirectional data exchange and for generating personalized test sequences. See SECUTEST PRO, functions expansion.

Standard Model	Article
SECUTEST BASE	M7050-V001

Test current for protective conductor test: 200 mA

#### SCOPE OF DELIVERY:

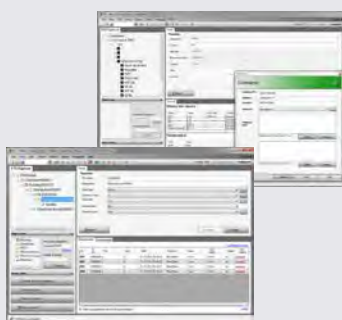
- Mains power cable
- Test probe, 2 m, not coiled
- 1 USB cable
- 1 plug-on alligator clip
- DAkkS calibration certificate in D/GB/FR

# SECUTEST | PRO

## The New 4<sup>th</sup> Generation of the SECUTEST Series



Perspective View



ETC Report Generating Software

### Additional functions as opposed to SECUTEST BASE (Z853R scope of features):

- Remote control is possible with PC software
- Additional database elements: property, building, floor and room – in order to better be able to structure comprehensive data – plus additional department and cost center fields as well
- Multi-print – print-out of all reports for a given test object by pressing a single key (via Z721S thermal printer)
- Creation of user-defined report templates with the help of ReportDesigner (can be downloaded for free from myGMC)
- RFID transponder, read/write (Z751R,S,T), with SCANBASE RFID Z751E (UID or memory depending on how the reader is programmed)
- XML data export to a USB stick
- Data import of all test object master data from ETC, or from a USB stick
- Creation of user-defined test sequences with the help of SequenceDesigner (can be downloaded for free from myGMC)

- Electrically isolated connector sockets for voltage measurements
  - For measuring SELV / PELV
  - For connecting an AT3-IIIIE / AT3-IIS
  - For connecting a WZ12C current clamp
  - For connecting a SECULOAD

### Free Report Generating Software and Tools

#### ETC Report Generating Software

ETC offers a wide variety of support functions for documenting completed tests.

#### SequenceDesigner

User-defined test sequences can be created at the PC and transferred to the test instrument with SequenceDesigner software.

#### ReportDesigner

Report templates can be created for the Z721S printer at the PC and transferred to the test instrument with ReportDesigner software.

Standard Model	Article
SECUTEST PRO	M7050-V003

### TECHNICAL EXPANSIONS

- Connection for a 2<sup>nd</sup> test probe for measurement between any two measuring points, e.g. protective conductor resistance, insulation resistance or equivalent leakage current
- Touch-screen for data entry at the display

### SCOPE OF DELIVERY:

Same as SECUTEST BASE plus:

- KS17-ONE cable set for voltage measuring inputs

Packages		Starter Package SECUTEST BASE	Master Package SECUTEST DB+	Profi Package SECUTEST PRO	Welding Package SECUTEST PRO	Service Package SECUTEST PRO
Article	Article Number	M7050-V901	M7050-V912	M7050-V903	M7050-V904	M7050-V905
SECUTEST BASE	M7050-V001	■	-	-	-	-
SECUTEST BASE 10 including DB+	M7050-AA02 G01 KB01	-	■	-	-	-
SECUTEST PRO	M7050-V003	-	-	■	■	■
EL1	Z723A	■	■	■	-	-
SK2, 2 <sup>nd</sup> probe, 2 m	Z745D	-	-	■	-	-
SK5, 2 <sup>nd</sup> probe, 5 m	Z7450	-	-	-	-	■
Sortimo Boxx	Z503D	■	■	■	2x ■	■
Sortimo insert for Secutest	Z701D	■	■	■	■	■
Sortimo insert for adapter	Z701E	-	-	-	■	-
Brush probe	Z701E	■	-	-	-	-
Barcode reader (2D scanner)	Z751A	-	■	■	-	-
Thermal printer	Z721S	-	-	-	-	■
AT16-DI	Z750A	-	-	-	■	-
CEE16/32 adapter cable	Z750F	-	-	-	■	-
SECULOAD-N	Z745R	-	-	-	■	-



SECUTEST BASE Starter Package



SECUTEST DB+ Master Package



SECUTEST PRO Profi Package



SECUTEST PRO Welding Package



SECUTEST PRO Service Package

Description of accessories beginning on Page 04 - 14



## SECUTEST | BASE / PRO

### Test Instruments for Measuring the Electrical Safety of Devices

#### Individually Configurable Test Instruments

##### Observe the following:

When ordering features, please enter the entire order number (not the standard model). Features with the “available” selection option (☐) can be freely chosen. Only one selection is possible per feature identification letter.

#### Sample order for a SECUTEST BASE10 with English user interface:

**M7050 AA02 C01 G01**

Highlighted features (in this case boldface – with gray background in the table) belong to the fixed basic equipment of the SECUTEST BASE10, and other features can be selected as desired.

#### AA02 device variant SECUTEST BASE10

C01: user interface, keyboard layout and test sequences in English

G01: R-PE test current for protective conductor measurement: 200 mA and 10 A

Features	Characteristic Attributes	Device Variants SECUTEST			Article Number Feature
<b>Basic Instrument</b>					<b>M7050</b>
	SECUTEST BASE	<b>AA01</b>			
	SECUTEST BASE10		<b>AA02</b>		
	SECUTEST PRO			<b>AA03</b>	
<b>Connections –</b> country-specific mains plug and test socket	Germany with detection of connection and protection classes	☐	☐	☐	B00
	UK	☐	☐	☐	B01
	CH	☐	☐	☐	B02
	FR/CZ/PL	☐	☐	☐	B03
	China	☐	☐	☐	B04
	USA	☐	☐	☐	B05
	AUS	☐	☐	☐	B06
	DK	☐	☐	☐	B07
	IT	☐	☐	☐	B08
		CH with detection of connection and protection classes	☐	☐	☐
	FR/CZ with detection of connection and protection classes	☐	☐	☐	B10
<b>User interface language</b> (can be subsequently changed to any of the other languages listed below)	German	☐	☐	☐	C00
	English	☐	☐	☐	C01
	French	☐	☐	☐	C02
	Italian	☐	☐	☐	C03
	Spanish	☐	☐	☐	C04
	Czech	☐	☐	☐	C05
	Dutch	☐	☐	☐	C06
	Polish	☐	☐	☐	C07
<b>Data entry via touch-screen keyboard</b>	Included	–	–	■	E01
<b>Additional R-PE test current: 10 A for protective conductor measurement</b>	Included <sup>1</sup>	–	■	■	G01
<b>Connection for 2<sup>nd</sup> test probe</b>	Included	–	–	■	H01
<b>DVM function (digital voltmeter) with 2 additional V-COM measurement inputs</b>	Included	–	–	■	I01
<b>Database expansion</b>	Included	☐	☐	■	KB01
<b>Bluetooth®</b>	Included	☐	☐	☐	M01
<b>DAkkS calibration certificate</b> (language combinations)	In D/GB/F	☐	☐	☐	P00
	In D/GB/PL	☐	☐	☐	P01
	In D/GB/IT	☐	☐	☐	P02
<b>DAkkS calibration certificate</b> (recalibration)		☐	☐	☐	

Key: ☐ freely selectable ■ standard equipment – not possible

<sup>1</sup> 10 A R<sub>PE</sub> measurements are only possible with line voltages of 115/230 V and line frequencies of 50/60 Hz.





## SECUTEST | S2N+ SECUTEST | S2N+ 10

### Test Instrument with Test Sequences per DE 0701-0702 and IEC 62353



SECUTEST S2N+  
with SECUTEST SI+

#### Universal test instrument for testing the electrical safety of portable electrical equipment in commercial and medical applications.

In order to evaluate electrical safety, tests are performed for protective conductor connections, insulation resistance and leakage current (differential current, equivalent leakage current, device leakage current, patient leakage current, touch current).

#### Technical safety tests for, amongst other things:

- Electrical equipment per DIN VDE 0701-0702, edition: 2008-6
- Electrical medical devices per DIN VDE 0751 / IEC 62353

Plus the following with **SECUTEST S2N+10**:

- Protective conductor resistance test possible with **10 A** test current

#### Expanded functionality:

- Automatic recognition of safety class (I, II) (with German and French outlets only) and mains connection errors
- Menu-driven test sequences: fully automated or manual
- Safety for the user thanks to integrated personal protection – suitable for persons with basic electro-technical instruction
- Convenient memory and report generating functions (optional with S2N+)
- Data interface for PC, printer and barcodes
- Report generation via PSI, SI and SI+ printer modules or PC software
- New: data transfer to ETC – free of charge after registering at myGMC
- German user interface
- Parallel test sockets for devices under test without mains plug
- Patient leakage current: AC and DC components measured separately
- Equivalent leakage current measurement with approx. 230 V test voltage
- Function test with power analysis
- Temperature measurement
- Current measurement (with optional current clamp)
- Voltage and resistance measurement
- Dimensions: 292 x 130 x 243 mm, weight: 4.0 and 4.5.kg respectively

#### New functions – matched to DIN VDE 0701-0702:

- Testing SELV / PELV protective measures (AC/DC voltage measurement, TRMS value)
- Testing of 3-phase current devices and 3-phase extension cords with a rated current of greater than 16 A in combination with our AT3-II or VL2 3-phase current adapter.
- Omission of the protective conductor test (necessary, for example, when testing submersible pumps and coffee machines)
- Multiple measurement of protective conductor connections (necessary for devices with several protective conductor connections)
- Deactivation of the insulation resistance measurement (required, for example, when testing PCs and other electronic data processing devices)
- Evaluation of, in particular, 3-phase extension cords in consideration of length and cross-section

#### Additional measures and tests:

- The test instruments are laid out as protection class II devices.
- Before each test, the mains system to which the SECUTEST (or the device under test) is connected is tested for correctly connected protective conductor, mains, voltage value within the mains and suitable mains configuration (warning for IT networks because leakage current may result in false assessments in this case).
- The device under test is checked for the following before each test:
  - Is there a short-circuit between L and N?
  - Does body contact exist between L and the housing?
  - Is the device under test connected to the test socket?
  - Is the test probe connected to the SECUTEST?
  - Is the device under test equipped with a protective conductor?
- During testing, the SECUTEST continuously monitors the flow of current and immediately disconnects the test socket from the mains if fault current of greater than approximately 15 mA occurs.



SECUTEST S2N+ 10  
with SECUTEST SI+

Type	Article
SECUTEST S2N+	M7010-V031
SECUTEST S2N+10	M7010-V032



## SECUTEST SIII+ / SECULIFE | ST

### Universal Test Instrument



SECUTEST SIII+  
with SECUTEST SI+

Universal test instrument for testing the electrical safety of electrical devices in accordance with safety legislation, medical device regulations and DGUV regulation 3, as well as testing for final inspection in production

#### AUTOMATIC TEST SEQUENCES PER:

- VDE 0701-0702, testing of electrical devices
- IEC 62353 (VDE 0751), testing of electrical medical devices
- KA01: IEC 60601, routine testing of electrical medical devices (optional/configurable)
- IEC 60335, routine testing of household appliances
- IEC 61010, routine testing of laboratory equipment
- IEC 60950, 60065, 62368-1, 62911, routine testing of IT equipment

#### EXPANDED FUNCTIONALITY:

- Menu-driven test sequences in compliance with the standards including automatic detection of protection classes I + II
- Automatic adaptation to either 110 V / 60 Hz or 230 V / 50 Hz mains power
- Convenient memory and report generating functions
- Expanded data storage and reports generating via optional, external memory
- Expandable with optional accessories for 3-phase devices
- Application-specific configuration

#### Plus the following with SECULIFE ST:

- Option for connecting up to 10 applied parts

#### OPTIONAL:

- Test sequence per IEC 60601 with SFC conditions

#### STANDARD MODELS AVAILABLE FROM STOCK:

The SECUTEST SIII+H (M7010-V013) and the SECULIFE ST (M693A) are equipped with the following features:

- **KB01:** internal memory for 125 test results (entry of ID number and designation via barcode/RFID)
- **KE01:** direct printing
- **KD01:** detection of probe at protective conductor
- **KA01:** routine testing of electrical medical devices per IEC 60601 (optional/configurable)

The SECULIFE ST HV (M693C) is equipped with the following features:

- **F02:** including high-voltage test up to 6000 V<sub>DC</sub> (at protection class II devices)
- **G01:** AC test current for 25 A protective conductor measurement

#### INCLUDED WITH THE TEST INSTRUMENT:

- Probe cable with test probe / alligator clip
- DAkkS calibration certificate

#### OPTIONAL ACCESSORIES BEGINNING ON PAGE 04 - 14

Designation	Basic Instrument = All 00 Features	M7010 M6930
<b>Connectors and plugs</b> for mains power, and socket for device under test	Germany	B00
	Germany, additionally with service socket	B01
	UK	B02
	France / Czech Republic	B03
	Denmark	B05
	China / Australia	B08
	Other countries Upon request	Switzerland
<b>User interface language</b>	Adapter set for international use (equipped with feature B01)	B11
	German	C00
	English	C01
	French	C02
	Italian	C03
	Spanish	C04
	Czech	C05
<b>HV test</b>	Dutch	C06
	Not included	F00
<b>AC test current</b> for protective conductor measurement	With HV test, setpoint: max. 4 kV AC – output	F02
	Max. test voltage: 6.126 kV DC	
	Without AC test current	
<b>Test Sequence</b> for IEC 60601	10 A	G00
	25 A	G01
	Included (recommended with J01)	G02
<b>Data memory</b> for up to 125 tests	Not included	KA00
	Included	KA01
<b>Detection of probe</b> at protective conductor	Not included	KB00
	Included (with SK5 probe, 5 m)	KB01
<b>Direct printing</b>	Not included	KD00
	Direct printing after each measurement for automatic test sequences	KD01
	Not included	KE00
	Direct printing after each measurement for automatic test sequences	KE01

Type	Article
SECUTEST SIII+	M7010
SECULIFE ST	M693A
SECULIFE ST HV	M693C...



## SECUSTAR | FM+

## Programmable Measuring and Test System



Programmable measuring and test system for user-controlled execution of legally required or company specified work procedures and directives, e.g. occupational safety legislation and medical device regulations

**FEATURES:**

- Suitable for use by trained persons
- Predefined test sequences for:
  - Electrical devices (IEC 62353/ DIN VDE 0701-0702)
  - Electrical medical devices (IEC 62353/DIN VDE 0751)
  - Arc welding equipment (IEC 60974-4)
- Can be easily supplemented with **freely programmable test steps and test sequences**
- Operation via color touch-screen
- **Mains-independent operation with rechargeable batteries**
- Data storage and data management for more than 3000 objects
- **Integrated deadlines management**
- Data interfaces: 4-socket USB hub for connecting PC, printer or sensor
- USB CF connection for data exchange, Ethernet connection for hook-up within the LAN
- **Catalogs for DUT data**

**INCLUDED WITH THE TEST INSTRUMENT:**

- Mains cable at the test instrument: via 16 A inlet plug – country-specific at the mains end
- Probe cable with test probe/alligator clip
- Compact flash card, type II

**STARTER SET (M702W)**

- SECUSTAR FM+
- Bagstar carrying pouch
- Barcode reader (Z751A)

**PROFISET (M702X)**

- SECUSTAR FM+
- Bagstar carrying pouch
- Barcode reader (Z751A)

**OPTIONAL ACCESSORIES**

- Package of 3 wands (Z753A): for data entry via the LCD touch-screen
- Package of 2 retaining clips (Z753B)
- DAkkS calibration certificate (Z752A)

Type	Article
SECUSTAR FM+	M761A
SECUSTAR Startset	M702W
SECUSTAR Profiset	M702X



## SECLIFE | SB

### Programmable Measuring and Test System for Electrical Medical Devices



#### TECHNICAL SAFETY TESTS AND WORK DIRECTIVES IN ACCORDANCE WITH:

- Medical device regulations
- Occupational safety legislation
- National and international standards
- Manufacturers' specifications
- Regulations and work sequences can be programmed as desired

#### FEATURES:

- Suitable for use by trained persons
- Predefined test sequences for:
  - Electric devices (IEC 62353 / DIN VDE 0701-0702)
  - Electrical medical devices (IEC 62353 / DIN VDE 0751)
  - Arc welding equipment (IEC 60974-4)
- Can be easily supplemented with **freely programmable test steps and test sequences**

- Operation via color touch-screen
- Mains-independent operation with rechargeable batteries
- Data storage and data management for more than 5000 objects
- **Integrated deadlines management**
- Data interfaces: 4-socket USB hub for connecting PC, printer or sensor
- USB CF connection for data exchange, Ethernet connection for hook-up within the LAN
- **Catalogs for DUT data**

#### INCLUDED WITH THE TEST INSTRUMENT:

- Factory calibration certificate

Type	Article
SECLIFE SB	M691A

## SECLIFE | SR

### PC Controlled Measuring Instrument for Electrical Testing of Medical Devices



#### Universal, PC Controlled Measuring Instrument

Used for testing the electrical safety of electrical medical devices after repair or modification, and for conducting periodic tests at regular intervals.

#### FEATURES:

- Streamlined, time-saving tests thanks to direct measurement start-up by pressing a key
- USB data port
- Connection of 10 applied parts (via 4 mm sockets)
- Supports all measuring methods for leakage current (direct, differential, equivalent)
- Connection option for 2<sup>nd</sup> test probe (PGS10 – Z745Y)

#### ETC data management software (included)

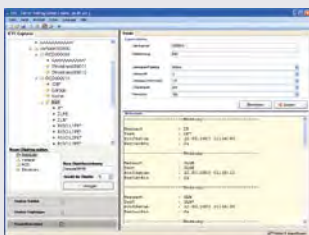
- Tests can be remote controlled with ETC software
- Convenient report generation (as PDF file, export to WORD or EXCEL)
- Test results displayed as a list by simply pressing a key
- Programmable test sequences

- Creates tree structure for devices under test (customer, building, room, floor, type etc.)
- Tree structure interchangeable via e-mail

#### INCLUDED WITH THE TEST INSTRUMENT:

- Mains cable (at the measuring instrument: via 16 A inlet plug – country-specific at the mains end)
- 1 probe cable with test probe
- 1 plug-on alligator clip
- 1 set of operating instructions
- 1 CD-ROM with description of remote operation

Type	Article
SECLIFE SR	M692A





## METRATESTER 5+

### Safety of Electrical Devices



Metratester 5+



Metratester 5-F-E

Compact instrument for testing the electrical safety of electrical equipment per DIN VDE 0701-0702.

#### FEATURES:

- Large digital LCD panel
- Mains connection testing with finger contact and indicator lamp
- Differential current measurement per DIN VDE 0701-0702
- All measured values appear clearly at large digital display
- Exceeded limit values are indicated optically and acoustically
- Dimensions (W x H x D): 190 x 140 x 95 mm, weight: approx. 1.3 kg
- Panel mount variant: **METRATESTER 5-F-E (M700T)**
- **Active and passive tests at separate test sockets**

Test	Measuring Range
Protective conductor resistance	0 ... 19.99 Ω
Insulation resistance	0 ... 19.99 MΩ
Equivalent leakage current	0 ... 19.99 mA ~
Absence of voltage	0 ... 1.999 mA ~
Residual current	0.01 ... 19.99 mA ~
Line voltage	207 V ... 253 V ~
Load current	0 ... 16.00 A ~

#### INCLUDED WITH THE TEST INSTRUMENT:

- Factory calibration certificate

Type	Article
METRATESTER 5+	M700D
METRATESTER 5-F-E	M700T

## METRATESTER 5+ | 3P

### Test Case

Test case with M700D for testing devices in accordance with DIN VDE 0701-0702 – can also be used as a workshop test panel per DIN VDE 0104

For testing the electrical safety of single and 3-phase electrical devices in accordance with the regulations:

The test case complies with "guidelines for equipment required for electrical installation operations" issued by the Federal Committee for Electrical Installations, ZVEH, WFE and electrical power utilities.

#### FEATURES:

- **Mains connection:** The test case can either be connected to an earthing contact outlet with the two included power cables, or to a 16 A CEE mains outlet.
- **Test types:** DIN VDE tests without mains operation: protective conductor resistance, insulation resistance, equivalent leakage current / DIN VDE tests with mains operation at all single and 3-phase devices: differential current, touch current. Function tests with measurement of current consumption and voltage in phases L1, L2 and L3. Protective conductor measurement is performed correctly in accordance with DIN VDE 0104.
- **Convenient testing:** All safety and function tests are executed in a practical fashion by switching mains voltage or the individual phases to the device under test with selector switches.

- **Rugged case design:** Test case consisting of an aluminum shell and a removable, lockable lid, ample space is provided for connection adapters and operating instructions.

- **Dimensions:** approx. 380 x 300 x 220 mm, weight: approx. 8 kg

#### SCOPE OF DELIVERY:

- Test case including test instrument
- Mains cable with earthing contact plug and coupling socket
- Mains cable with 5-pole CEE 16 A mains plug and coupling socket
- Optional accessories beginning on Page 04 - 14
- See training seminars: Page 09 - 2

Type	Article
METRATESTER 5+ 3P	M700K





## MINITEST | BASE

### Test Instrument for DIN VDE 0701-0702



Test instrument for **DIN VDE 0701-0702**, for testing and measurement of repaired or modified devices

#### FEATURES:

- Protective conductor resistance
- Insulation resistance
- Protective conductor current – differential current method
- Contact current – direct measurement method
- Indication of limit value violations by means of color LEDs
- The probe cable is protected by means of a fuse link.

#### SCOPE OF DELIVERY:

- Test instrument
- Probe cable

Type	Article
MINITEST BASE	M712C

## MINITEST | PRO

### Test Instrument for DIN VDE 0701-0702



Test instrument for **DIN VDE 0701-0702**, for testing and measurement of repaired or modified devices

#### FEATURES:

- Measured values appear at a large digital display.
- USB interface for data logging
- Extensive safety features
- RCCB in the plug on the mains cable
- ETC software as a free download from MyGMC

#### SCOPE OF DELIVERY:

Same as **BASE** plus:

- USB cable

Type	Article
MINITEST PRO	M712D

## MINITEST | MASTER MINITEST 3P | MASTER

### Test Instrument for DIN VDE 0701-0702



MASTER



3P MASTER

#### MINITEST MASTER (M712U)

Same as MINITEST PRO plus:

- Memory for 2000 tests with up to 10 measured values each

**SAME SCOPE OF DELIVERY** as **BASE** plus:

- USB cable

#### MINITEST 3P MASTER (M712X)

Same as MINITEST MASTER plus:

- CEE 16 A test socket and mains outlet, single and 3-phase
- CEE 32 A test socket and mains outlet, single and 3-phase

#### SCOPE OF DELIVERY:

Same as **MASTER** plus:

- Adapter: CEE 32 to earthing contact
- Adapter: CEE 32 to 16 x 3
- Adapter: CEE 32 to 16 x 1
- Adapter: CEE 32 to 32 x 1
- ETC software as a free download from MyGMC

Type	Article
MINITEST MASTER	M712U
MINITEST 3P MASTER	M712X



## SECUTEST 3PL

### Test Instrument for DIN VDE 0701-0702



Applications for all SECUTEST Instruments

#### Report Generating Functions

All of the values required for approval reports or device logbooks for electrical equipment (e.g. per ZVEH) can be measured. All measured data can be documented and archived thanks to the measurement and test report which can be printed from, or stored to a PC.

#### Test Case for Tests per DGUV Regulation 3 at Single and 3-Phase Devices and Extension Cords per DIN VDE 0701-0702

Test instrument for fast and safe periodic testing of electrical devices

#### Measurements per DIN VDE 0701-0702:

- Protective conductor resistance
- Protective conductor current
- Touch current

#### Measuring methods:

- Direct measurement, equivalent leakage current, differential current

#### Testing the electrical safety of extension cords

- Protective conductor resistance
- Insulation resistance
- Continuity, short-circuiting, polarity reversal

#### Function test with power analysis for single phase DUTs:

- Line voltage / differential current
- Current consumption / electrical energy
- Active and apparent power / power factor
- Duty cycle

#### INCLUDED WITH THE TEST INSTRUMENT:

- Probe cable with test probe and plug-on alligator clip
- Adapter cable for connection to 16 A, 3-phase systems / 16 A lighting networks (earthing contact)
- Test report

Type	Article
SECUTEST 3PL	M704B

PC evaluation software in Chapter 06 - Software

## SECUTEST 21F

### Workshop Test Panel



#### Workshop test panel for testing devices in accordance with DIN VDE 0701-0702

The SECUTEST 21F test panel has been designed for the setup of test stations at shops specialized in electrical work. It's used for measurement and testing of electrical devices after repair or modification, as well as for periodic testing, in accordance with DIN VDE 0701-0702. The test panel is designed for wall mounting. It's equipped with a mains switch with undervoltage trigger and lock. Load currents of up to 25 A and line voltages of up to 500 V can be measured. Compliance with DIN VDE 0104 also assures flawless protective conductor measurements.

- Dimensions: 532x792x179 mm
- Weight: approx. 24 kg

In accordance with the guidelines for "workshop equipment for electrical installation operations" issued by the ZVEH / VDEW

#### OPTIONAL ACCESSORIES:

VL2E test adapter: testing of protective conductor and insulation resistance at devices and extension cords

Type	Article
SECUTEST 21F	M601A

## SECUTEST | WP

### Workshop Test Panel



#### The workshop test panel for periodic testing is intended for measuring and testing single and 3-phase electrical devices and extension cords.

The test panel is mounted to the wall and connected to the mains via a permanently laid cable and pre-fusing with 3 x 32 A. Performance of measurements and tests is quick and easy.

Integrated online instructions inform the user regarding all required connections, necessary work steps, operator errors, measurement results and more in all measuring modes. Information and test results appear at the dot matrix LCD in plain text.

Online help can be queried and displayed at the LCD for all measuring and test functions, and for almost all settings.

**Testing of protective conductor resistance and insulation resistance** is required by these regulations depending upon the device under test and its application.

Type	Article
SECUTEST WP	M704C



## AT3-III-E

### Adapter



#### Adapter for Active and Passive Testing of 3-Phase Current Consumers and Extension Cords in Combination with Safety Testers

##### FEATURES:

- Testing of single and 3-phase consumers, and extension cords in combination with external test instruments
- Additional protection during testing of defective devices with integrated residual current monitoring and shutdown
- Function test for automatic shutdown by pressing a self-test button
- Prevention of short-circuits and blown mains fuses during testing thanks to pre-testing stage

- Automatic adaptation to the program selected at the test instrument with transfer of measured values
- In combination with SECUTEST: testing of protective conductor resistance, insulation resistance, equivalent leakage current, dielectric strength, differential current, touch current
- Dimensions: 405x300x220 mm (with lid), weight: approx. 6.7 kg

Type	Article
AT3-III-E	Z745S

## AT3-IIS / AT3-IIS32

### Adapter



AT3-IIS



AT3-IIS32

#### Adapter for active and passive testing of 3-phase current consumers in combination with SECUTEST safety testers

The safety tester is used in combination with SECUTEST test instruments for testing 3-phase devices after repair, as well as for periodic testing (DIN VDE 0701-0702).

It allows for fully automated or manual testing in accordance with the menu-driven test sequences included with the test instruments, with transmission of test results to, and analysis at, SECUTEST test instruments.

##### TEST TYPES:

**DIN VDE tests with mains operation (active)**  
Differential current, touch current

#### DIN VDE tests without mains operation (passive)

- Protective conductor resistance, insulation resistance, equivalent leakage current
- **AT3-IIS: article: Z745T**  
**Equipped** with 5-pole CEE 32 A (max. 20 A) and CEE 16 A  
**Dimensions:** 290x120x105 mm  
Weight: 2.4 kg
- **AT3-IIS32: article: Z745X**  
**Equipped** with 5-pole CEE 32 A (max. 40 A) and CEE 16 A, single-phase earthing contact outlet  
**Dimensions:** 285x220x128 mm,  
weight: 4.15 kg

Type	Article
AT3-IIS	Z745T
AT3-II S32	Z745X

## AT16-DI / AT32-DI

### Adapter



#### 16 or 32 A 3-Phase Current Adapter

CEE adapter for quick, efficient testing of devices which are equipped with 5-pole 16 A / 6h or 32 A / 6h CEE plugs.

The adapter is connected to a test instrument designed for testing portable devices in accordance with DIN VDE 0701-0702 or DIN VDE 0750/IEC 601, which is only equipped with an earthing contact outlet for connecting the device under test, and is capable of directly measuring protective conductor current.

The following tests can be performed on devices with CEE plugs with the help of the adapter:

- Testing of protective conductor continuity
- Insulation test
- Equivalent leakage current measurement
- Differential current measurement, L1-L2-L3-N
- Function test

Suitable for the following instruments:  
Secustar FM, Seculife SB and Secutest S2N+W, SECUTEST BASE / PRO

Type	Article
AT16-DI	Z750A
AT32-DI	Z750B





## VL2E

### Adapter



#### Adapter for Passive Testing of Protective Conductor and Insulation Resistance at Devices and Extension Cords

The test adapter is intended for the performance of measurements and tests at electrical devices and extension cords with CEE plug connectors in combination with test instruments in accordance with the following standards: testing after repairs or periodic testing per DIN VDE 0701-0702.

The following quantities can be tested with the adapter in combination with test instruments which are intended for the performance of the respective tests:

#### At electrical devices:

- Protective conductor resistance
- Insulation resistance (measurement of L1, L2, L3 and N short-circuited to PE)
- Equivalent leakage current

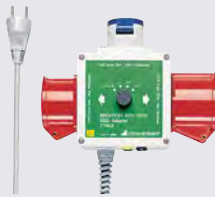
#### Plus the following at extension cords:

- Easy function test for single and 3-phase extension cords including testing for conductor continuity, short-circuiting and polarity reversal (clockwise rotation) with rotary selector switch using an insulation resistance measurement
- When performing tests, the adapter's connector cable is plugged into the test socket at the test instrument. The test instrument's probe cable is additionally plugged into the connector socket at the adapter when testing extension cords.

Type	Article
VL2E	Z745W

## CEE ADAPTER Z745A

### Adapter for 3-Phase Consumers



In combination with a test instrument for testing electrical devices, the Z745A CEE adapter can be used for quick and efficient testing of devices which are equipped with a CEE plug.

#### FEATURES:

- CEE attachment outlets:  
16 A/3 pole  
16 A/5 pole  
32 A/5 pole

- Safety outlets for 3-phase devices without permanently attached plug
- Protective conductor continuity test and insulation test for each phase, and combined phases, with rotary switch

Type	Article
CEE ADAPTER	Z745A

## SECU-CAL 10

### Calibration Adapter



#### Calibration Adapter for All Device Testing Instruments

#### FEATURES:

The following measured values can be calibrated with the adapter:

- Insulation resistance
- Equivalent leakage current

- Residual current
- Touch current
- Protective conductor resistance (test current: max. 1 A)

Type	Article
SECU-cal 10	Z715A

## SECULOAD N

### Test Adapter



#### Test Adapter for Testing Welding Units

#### FEATURES:

- Peak-value rectifier per IEC 60974-4 (arc welding equipment)

Type	Article
SECULOAD N	Z745R



## EL1 / PRO-CH

### Adapter



#### Adapter for Testing Single-Phase Extension Cords

- Connector cable to the test instrument with handle / socket for plug inserts
- Pro-Schuko plug insert
- Plug insert for non-heating devices
- EN60320 C13 to EN60320 C6 plug adapter (non-heating devices, 10 A to 2.5 A IBM plug)
- Additional country-specific inserts available as well. Not usable for high-voltage test!

#### PRO-CH plug insert

Plug insert for using the EL1 adapter in Switzerland

Type	Article
EL1	Z723A
PRO-CH	GTZ3225000R0001

## CEE16 / CEE32

### Adapter Cable



Adapter cable, red CEE 5-pole 16 A plug to red CEE 5-pole 32 A coupling, 0.5 m, 5 x 1.5 sq. mm

Type	Article
CEE16/CEE32 adapter cable	Z750F

## KS13

### Cable Set



#### Cable Set for Connecting Test Instruments to the Mains

Cable set for connecting test instruments to the mains without earthing contact sockets, and for connecting DUTs – consisting of:

- Coupling socket with 3 permanently connected cables

- 3 measurement cables, 3 plug-on pick-up clips
- 3 plug-on test probes

Type	Article
KS13	GTY3624065P01

## SK2 / SK5

### Probe Cable for Protective Conductor Measurement



**SK2:** Probe including test probe and 2 meter probe cable (not coiled), suitable for high-voltage testing

**SK2W:** Probe cable with test probe and 2 meter probe cable (coil cable) suitable for high-voltage testing

**SK5:** 5 meter probe cable for protective conductor measurement

**SK5-SW:** 5 meter probe cable for protective conductor measurement (cable plus software for SECUTEST SIII+ and SECUTEST S2N+W)

- Automatic recognition of changing measuring points as software upgrade
- Go/no-go indication display

Type	Article
SK2	Z745D
SK2W	Z745N
SK5	Z745O
SK5-SW	Z745K

## RS 232 – USB CONVERTER

### Interface Converter



The interface converter is used to connect test instruments and multimeters with appropriate adapters including an RS 232 port to PCs which are equipped with USB ports only.

Type	Article
RS 232 – USB converter	Z501L



## CLAMPS

### Current Sensor



**Current clamp sensor: 1 mA ...15 / ... 150A AC, switchable**

- 1 mA ... 15A AC, 1 mV/mA
- 1 mA ... 150A AC, 1 mV/A

#### SCOPE OF DELIVERY:

- Current clamp sensor including permanently attached safety cable with connector plug

Type	Article
WZ12C	Z219C

Measuring Range	CAT @ V	Wire Cross-Section	Transmission Factor	Frequency Range	Intrinsic Uncertainty ± (% rdg. + mA)
1 mA... 15 AAC / 1A... 150AAC	III @ 300	15 mm dia.	1 mV/mA / 1 mV/A	45... 65... 500 Hz	2% + 0.15 mA / 2% + 0.1 A

## BRUSH PROBE

### Brush Probe



**The brush probe is suitable for contacting exposed conductive parts which rotate or vibrate etc. during operation.**

The brush is plugged onto the test probe.

- Leakage current measurement (touch current)
- Protective conductor resistance measurement

Type	Article
Brush probe	Z745G

## PA4

### Patient Connector Cable



Adapter cable for SECUTEST, SECULIFE ST for adapting the 2 mm connector sockets at the SECUTEST / SECULIFE ST to 4 mm sockets and plugs, 1.5 m long with 12 cables, each with 4 mm plug

Type	Article
PA4	Z745L

## TEMPERATURE SENSORS

### Standard Temperature Sensor



**Standard PT 100 Temperature Sensor for Surface and Immersion Measurements**

Type	Article
Z3409	GTZ3409000R0001

Technical Data	
Sensor element	Pt 100
Length of sensor element / sensor	130 / 1000 mm
Temperature range, °C	-40 ... +600
Accuracy per DIN EN 60751 / IEC 751	Class A
Intrinsic uncertainty at 0 °C / 600 °C	0.15 K
Transient recovery, T90 water/air	5s / 30s
Lead/insulation	Strands: 2 ea. 0.35 sq. mm / PVC



## SECUTEST | SI+ / PSI

### Memory and Input Module



SECUTEST SI+



SECUTEST PSI

#### SECUTEST SI+ – memory and input module

Test results from the test instruments are transmitted to the SI+ module directly via the interface. Test results are saved on-site as clear-cut, reliably documented measurement and test reports with date and time. Stored data can be transferred to a PC at a later point in time independent of the test instrument.

#### SECUTEST PSI – Printer-Memory and Input Module

Test results are transmitted to the PSI module, which is integrated into the instrument's lid, via a ribbon cable and are stored automatically. All measured values for 400 test reports can be stored to memory. Test results can be printed out on-site in the form of documented reports which can be furnished with date, time and text entered at the keypad.

- Dimensions: 240 x 81 x 40 mm, weight: approx. 0.8 kg

- Batteries: four 1.5 V IEC LR 6 (AA)

#### SECUTEST PSI CONSUMABLE MATERIALS:

- PS-10P = pack of 10 six meter recording charts
- Z3210 = 10 ribbon cartridges

#### INCLUDED WITH THE SECUTEST PSI:

- PSI module
- 2 recording charts / 1 ribbon cartridge
- Interface description
- **Compatible:** SECUTEST S2N+ or S2N+10 and SECUTEST SIII+ or SECULIFE ST

Type	Article
SECUTEST SI+	M702G
SECUTEST PSI	GTM5016000R0001
PS-10P	GTZ3229000R0001
Z3210	GTZ3210000R0001

## SECUSTORE

### Memory Adapter



#### Memory adapter for use with SECUTEST... testers

- **Data storage:** measured values for approx. 1000 test reports. The flash memory module allows for battery-independent data storage.
- **Y-plug:** simultaneous connection of a barcode/Rfid scanner or a keyboard adapter
- **Compatible:** SECUTEST S2N+ or S2N+10 and SECUTEST SIII+ or SECULIFE ST

Type	Article
SECUSTORE	Z745U

## BARCODE PRINTER / REPORT PRINTER

### Barcode and Label Printer for Connection to a PC, Including Software, Report Printer for Connection to the USB Master Port at the Test Instrument



Z721D Barcode Printer



Z721S Report Printer

For the identification of equipment with barcode labels

#### FEATURES:

- Prints smudge-proof, scratch resistant labels in all common sizes
- Ideal in combination with Z720A and Z751A barcode scanners
- MS Windows software

#### REPORT PRINTER (Z721S)

Thermal printer for connection to the USB master port at the SECUTEST BASE / PRO test instrument and for printing test reports, including manual on CD, lithium battery, power pack and mains cable, USB cable and 1 roll of thermal paper

#### Label set

- Z722D: quantity x width: 3 ea. 24 mm, 1 ea. 18 mm, 1 ea. 9 mm, 8 m long
- Z722E: quantity x width: 5 ea. 18 mm, 8 m long

#### SCOPE OF DELIVERY:

Barcode printer / label set

Type	Article
Barcode printer	Z721D
Label set	Z722D
Label set	Z722E
Report printer	Z721S
Thermal paper	Z722S



## BARCODE READER/SCANNER

### Identification Accessories



#### Z720A Barcode Scanner for Test Instruments with RS 232 Interface

For identifying devices and system components. Devices and system components can be logged by our test instruments, and acquired measured values can be allocated to them with the scanner. See our barcode and label printers for water-insoluble labels as well.

- **Scanning of 2D codes (e.g. QR codes)**
- Scanning of barcodes from considerable distances
- Variable barcode lengths
- Improved reading accuracy
- The barcode scanner is configured for use with the following barcodes: EAN13, CODE 39 and CODE 128 (other codes upon request).

**Z502F** barcode reader same as **Z720A** but with coil cable

#### Z751A barcode scanner for test instruments with USB port

For identifying devices and system components. Devices and system components can be logged by our test instruments, and acquired measured values can be allocated to them with the scanner.

- Trouble-free scanning of all common barcode types

Type	Article
Z720A (barcode scanner)	Z720A*
Barcode Profiscanner RS 232	Z502F*
Z751A (barcode scanner)	Z751A

\* The SECUTEST (P)SI+ module must be retrofitted for connection to a SECUTEST (P)SI+ module manufactured during or before 2015 (up to serial number AZ.). Please contact our service department to this end at [www.gmci-service.com](http://www.gmci-service.com).

## SCANBASE/SCANWRITE | RFID

### RFID Reader/Scanner



**RFID reader/scanner, for test instruments with USB or RS 232 port** The RFID identification system is used to mark and identify tools and equipment. ID numbers can be written to RFID tags via a PC with the SCANWRITE.

The SCANWRITE and other SCANBASE RFID reading devices read out the code and forward it to our test instruments, in order to be able to allocate measured values and test results to the device under test in an unequivocal fashion.

Type	Article	Frequency	Standard	Connection
SCANBASE RFID (RFID reader/writer, USB, 13.56 MHz)	Z751E	13.56 MHz	ISO 15693	USB
SCANBASE RFID RFID reader/writer RS 232	Z751G	13.56 MHz	ISO 15693	RS 232

**Accessories:** Z751D, E and G RFID readers are preprogrammed to read the following RFID tags:

Type	Article	Frequency	Standard	Type	Qty.
RFID tag, ISO15693, 24 x 18 mm	Z751R	13.56 MHz	ISO 15693	22 mm, self-adhesive	500
RFID tag, ISO15693, 30 mm / 3 mm	Z751S	13.56 MHz	ISO 15693	30 mm with 3 mm hole	500
RFID tag, ISO15693, pigeon ring	Z751T	13.56 MHz	ISO 15693	Pigeon ring, 7.5 mm	250
RFID tag (125 kHz), shape as requested	Z751U	125 kHz	–	20 mm	100

## POUCHES, CASES

### Accessories



F2000



F2020



K2010



Z740B



BAGSTAR



SORTIMO BOXX

#### F2000: universal carrying pouch

Dimensions: 380 x 310 x 200 mm

#### F2020: universal carrying pouch, large

Dimensions: 430 x 310 x 300 mm

#### K2010: aluminum case

Dimensions: 645 x 535 x 160 mm

#### Z740B: hard case for testers and accessories

Dimensions: 394 x 294 x 106 mm

#### BAGSTAR: ever-ready case

**SORTIMO BOXX GM:** plastic system case

#### Foam SORTIMO L-BOXX

Foam insert for SORTIMO L-BOXX GM with compartment for SECUTEST BASE / PRO

Type	Article
F2000	Z700D
F2020	Z700F
K2010	K2010
Z740B	Z740B
BAGSTAR	Z700E
SORTIMO L-BOXX GM	Z503D
Foam SORTIMO L-BOXX	Z701D



## OVERVIEW

## Test Instrument Accessories

Type	Article Number	MINITEST						SECUTEST					Secustar FM+ SECULIFE SB	SECULIFE ST	SECULIFE SR
		BASE	PRO	Master	3P Master	METRATESTER 5 +	METRATESTER 5 + 3P	BASE	PRO	SIII +	S2N+	3PL			
<b>General Accessories</b>															
SECUTEST SI+	M702G	-	-	-	-	-	-	-	-	■	■	-	-	■	-
SECUTEST PSI	GTM5016000R0001	-	-	-	-	-	-	-	-	■	■	-	-	■	-
RS 232 – USB converter	Z501L	-	-	-	-	-	-	-	-	■	■	■	-	■	-
SECUSTORE	Z745U	-	-	-	-	-	-	-	-	■	■	■	-	■	-
AT3-IIIE	Z745S	-	-	-	-	-	-	■*	■	■	■	-	-	-	-
AT3-IIS	Z745T	-	-	-	-	-	-	■*	■	■	■	-	-	-	-
AT3-IIS32	Z745X	-	-	-	-	-	-	■*	■	■	■	-	-	-	-
AT16-DI	Z750A	-	-	-	-	-	-	■	■	-	-	-	■	■	■
AT32-DI	Z750B	-	-	-	-	-	-	■	■	-	-	-	■	■	■
SECU-cal 10	Z715A	■	■	■	■	■	■	■	■	■	■	■	■	■	■
VL2E	Z745W	■	■	■	-	■	■	■	■	■	■	-	■	■	■
EL1	Z723A	-	-	-	-	-	-	■	■	■	■	-	■	■	■
KS13	GTY3624065P01	■	■	■	■	■	■	■	■	■	■	■	■	■	■
SECULOAD-N	Z745R	-	-	-	-	-	-	■	■	■	■	■	■	■	-
CEE adapter	Z745A	■	■	■	-	■	-	■	■	■	■	-	■	■	■
SK2	Z745D	-	-	-	-	-	-	■	■	■	■	■	■	■	■
SK5	Z745O	-	-	-	-	-	-	■	■	■	■	■	■	■	■
WZ12C current clamp sensor	Z219C	-	-	-	-	-	-	-	■	■	■	■	■	■	■
Brush probe	Z745G	■	■	■	■	-	-	■	■	■	■	■	■	■	■
PA4 patient connector cable	Z745L	-	-	-	-	-	-	-	-	-	-	-	-	■	-
Z3409 temperature sensor	GTZ3409000R0001	-	-	-	-	-	-	-	-	■	■	-	-	■	-
<b>Carrying Pouches</b>															
F2000 universal carrying pouch	Z700D	■	■	■	■	■	■	■	■	■	■	■	■	■	■
F2020 large universal carrying pouch	Z700F	■	■	■	■	■	■	■	■	■	■	■	■	■	■
K2010 aluminum case	K2010	-	-	-	-	-	-	-	-	■	■	-	-	-	-
Z740B hard case	Z740B	■	■	■	-	-	-	-	-	-	-	-	-	-	-
BAGSTAR ever-ready case	Z700E	-	-	-	-	-	-	-	-	-	-	-	■	■	■
Plastic system case SORTIMO L-BOXX GM	Z503D	-	-	-	-	-	-	■	■	-	-	-	-	-	-
Foam insert for SORTIMO L-BOXX GM SECUTEST BASE(10)/PRO	Z701D	-	-	-	-	-	-	■	■	-	-	-	-	-	-
<b>SCANBASE / SCANWRITER RFID</b>															
SCANBASE RFID USB	Z751E	-	-	-	-	-	-	-	■	-	-	-	■	-	-
SCANBASE RFID RS232	Z751G	-	-	■	■	-	-	-	-	■	■	■	-	■	-
<b>Barcode Readers / Barcode Scanners / Barcode Printers / Report Printers</b>															
Z720A (barcode scanner)	Z720A	-	-	■	■	-	-	-	-	■	■	■	-	■	-
Barcode Profiscanner RS 232	Z502F	-	-	■	■	-	-	-	-	■	■	■	-	■	-
Z751A (barcode scanner)	Z751A	-	-	-	-	-	-	■	■	-	-	-	■	-	-
Report printer	Z721S	-	-	-	-	-	-	■	■	-	-	-	-	-	-
Barcode printer	Z721D	-	-	-	-	-	-	■	■	-	-	-	-	-	-

\* Only direct measurement of protective conductor current

Laboratory power supplies from GMC-I Messtechnik, known as GOSSEN KONSTANTERS, combine modern circuit technology with a broad range of functions and absolute reliability.

Our KONSTANTERS can be ideally incorporated into demanding applications in the field of research and development, as well as into production and (continuous) test systems.

Due to their exceptionally short response times, our KONSTANTERS are especially well suited for generating complex test signals, or for superimposing low-frequency signals to the output via analog control inputs.

Data storage provided by SSP and SYSKON models makes it possible to save standardized or individualized test pulses, and to run the respective sequences automatically.

Depending upon the device, available interfaces include analog, RS 232, IEEE 488 (GPIB), USB and Ethernet.

In addition to power supply technology, GOSSEN METRAWATT also offers a range of electronic loads which are distinguished by short response times, programmability and an extensive scope of functions.

## CONTENTS

---

### LABORATORY POWER SUPPLIES

- 05 - 2 Laboratory Power Supplies "Konstanters": Overview
- 05 - 3 Programmable Electronic Loads: 150 W ... 400 W
- 05 - 7 Programmable Laboratory Power Supplies: 500 W ... 3000 W
- 05 - 6 Programmable Laboratory Power Supplies: 120 W ... 320 W
- 05 - 7 Programmable Laboratory Power Supplies: 500 W ... 3000 W
- 05 - 8 Computer Controlled Laboratory Power Supply: 24 W / 49 W / 120 W
- 05 - 9 Computer Controlled Laboratory Power Supply: 90 W ... 800 W
- 05 - 10 Overview of Laboratory Power Supplies
- 05 - 12 Accessories of Laboratory Power Supplies / OEM Product Overview



## ELECTRONIC LOADS – SPL / SSL



SPL Series, 200 ... 400 W  
PAGE 05 - 3



SSL 32EL Series, 150 ... 300 W  
PAGE 05 - 3

## SYSKON P SERIES



SYSKON P Series, 500 ... 4500 W  
PAGE 05 - 2

## SSP 32N KONSTANTERS SLP 32N KONSTANTERS



SSP 32N KONSTANTERS, 120 ... 320 W  
PAGE 05 - 6



SLP 32N KONSTANTERS, 120 ... 320 W  
PAGE 05 - 6

## SSP 62N / 64N KONSTANTERS



SSP 62N / 64N KONSTANTERS, 500 ... 3000 W  
PAGE 05 - 7

## MSP 64D KONSTANTERS



MSP 64D KONSTANTERS, 24 ... 120 W  
PAGE 05 - 8

## LABKON P SERIES

## LSP 32K KONSTANTERS



LABKON P SERIES, 500 ... 800 W  
PAGE 05 - 2



LSP 32K KONSTANTERS, 90 ... 108 W  
PAGE 05 - 9





## SPL Series

### Single-Channel, Programmable Electronic Loads



Series SPL devices (single-channel programmable load) are programmable electronic loads with outstanding dynamic control characteristics. They're used for loading direct voltage/current sources with constant current, resistance, voltage or power in an adjustable fashion. Their range of applications includes static and dynamic testing of power packs, batteries, PV modules, fuel cells, inductances etc.

**FEATURES:**

- 4 operating modes: CC, CV, CR and CP
- Adjustable current edges: 0.1 mA to 4 A per  $\mu$ s
- 3 transient functions
- The load can be activated as of an adjustable voltage level
- Short-circuit and battery discharging functions
- Sense terminal + trigger input
- Memory for 7 sequences with up to 50 steps each (at least 10  $\mu$ s per step)

- Low load voltage: < 0.6 V at max. current
- Load input on/off switching function
- Multifunctional, illuminated LCD panel
- Extensive protective functions: OV, OC, OP, OT, RV
- PC control via RS 232 port or optional IEEE 488 interface, or USB port
- SCPI command set

**SCOPE OF DELIVERY:**

- Mains power cable with earthing contact plug
- Operating instructions and SCPI Command Guide on CD-ROM
- RS 232 cable

**OPTIONAL ACCESSORIES:**

- IEEE 488 interface (**K890A**)
- USB port (**K891A**)
- 19" installation set (**Z990A**)
- Factory calibration certificate

Type	Article	Power	Voltage	Current	Resistance	Dimensions W x H x D (mm)		Weight (approx. kg)
		P <sub>Set</sub> [W]	U <sub>Set</sub> [V]	I <sub>Set</sub> [A]	R <sub>Set</sub> [ $\Omega$ ]	Benchtop Instrument	19" Rack	
SPL 250-30	K852A	0.001 ... 250.00	0.001 ... 80.000	0.0001 ... 30.000	0.0200 ... 2000	226 x 110 x 414	½19" x 2 standard height units x 350 + 45 mm	5.8
SPL 400-40	K853A	0.001 ... 400.00	0.001 ... 80.000	0.0001 ... 40.000	0.0200 ... 2000			
SPL 200-20	K854A	0.001 ... 200.00	0.001 ... 200.00	0.0001 ... 20.000	0.0666 ... 6660			
SPL 350-30	K855A	0.001 ... 350.00	0.001 ... 200.00	0.0001 ... 30.000	0.0666 ... 6660			

## SSL Series

### Single-Channel, Programmable Electronic Loads



Series SSL devices (single-channel system load) are programmable electronic loads with a maximum sink power of 150 or 300 W. They're used for loading direct voltage sources with constant current, resistance or power in an adjustable fashion. Their range of applications includes testing power packs, batteries, PV modules, fuel cells etc.

**FEATURES:**

- 3 operating modes: CC, CR and CP
- Setting selected by means of rotary switch and keypad
- PC control via optional interface adapter
- High resolution measurement of U, I and P

- Multifunctional, illuminated LCD panel
- Memory for 10 setting values with time regulated sequence control (at least 1 second per step)
- Extensive protective functions: OV, OC, OP, OT, RV
- Load on/off switching function

**SCOPE OF DELIVERY:**

- Mains power cable with earthing contact plug
- Operating instructions on CD-ROM

**OPTIONAL ACCESSORIES:**

- Interface adapter for USB (**K910B**)
- Interface adapter for RS 232 (**K910A**)
- Factory calibration certificate

See Chapter 06 - Software.

Type	Article	Power	Voltage	Current	Resistance	Dimensions W x H x D (mm)		Weight (approx. kg)
		P <sub>Set</sub> [W]	U <sub>Set</sub> [V]	I <sub>Set</sub> [A]	R <sub>Set</sub> [ $\Omega$ ]	Benchtop Instrument	19" Rack	
32 EL 150 R 30	K850A	0.1 ... 150.0	0.001 ... 360.0	0.001 ... 30.00	0.01 ... 500.0	215 x 100 x 280	½19" x 2 s.h.u. <sup>*)</sup> x 243 + 45 mm	5.0
32 EL 300 R 30	K851A	0.1 ... 300.0	0.001 ... 360.0	0.001 ... 30.00	0.01 ... 500.0			

\*) s.h.u. = standard height units



## SYSKON P Series

### Single-Channel, Programmable Laboratory Power Supplies



SYSKON P series KONSTANTERs (SYSTEM KONSTANTER) are single-channel, programmable laboratory power supplies for demanding professional use in R&D, production and test systems.

#### FEATURES:

**Digital interfaces:** USB, RS 232, GPIB (optional)

**Analog interfaces:** 2 trigger inputs, 3 signal outputs, control voltage inputs (5 V) for voltage and current, monitor voltage outputs (10 V) for voltage and current, sense terminals for auto-sensing operation at the power consumer

**Display:** 2 x 5-place LED display

**Memory:** 1700 memory locations for sequences  
15 memory locations for basic settings

**Power output:** auto-ranging, unipolar

**Sink:** dynamic up to 195 W continuous power

#### FUNCTIONALITY:

- Output power: 500, 800, 1500, 3000 and 4500 W
- Very short response times [as of < 2 ms]
- Very high setting resolution [1 mV, 1 mA, 1 ms]
- High setting accuracy [as of 0.05 % + 30 mV]
- High measuring accuracy [as of 0.05 % + 30 mV]
- Extensive protective functions [overvoltage, overcurrent, overtemperature, limits]
- Flexible programmability [large memory module, import/export of stored sequences and settings]
- Power factor correction for sinusoidal current consumption
- Sensing terminals for auto-sensing operation at the power consumer
- Load resistance display
- Min-Max values display
- Master-slave connection (series and parallel connection)

#### CORE APPLICATIONS

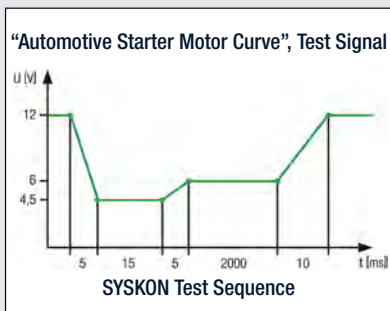
- Testing of electrical and electronic components
- Execution of electrical test pulses, e.g. for automotive applications
- Execution of long-term testing
- Incorporation into test systems (with analog or digital control)
- Power supply for sensitive devices, e.g. laser controllers

#### SCOPE OF DELIVERY:

- CD-ROM with user and driver software, operating instructions (D + EN), data sheet (D + EN)
- Clear-cut user software (soft front-panel)
- Mains cable (P500, P800, P1500)
- USB cable (90° angle)
- Installation set for 19" rack mounting
- DAkkS calibration certificate

#### OPTIONAL ACCESSORIES:

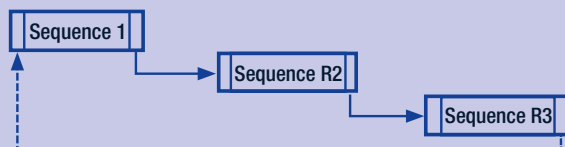
- IEEE 488 interface (**K384A**)
- 3-phase mains power cable for SYSKON P3000 and P4500 (**K991B**)



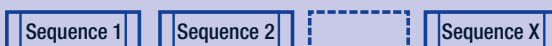
See Chapter 06 - Software

- **Sequence memory:**  
1700 locations for sequence functions

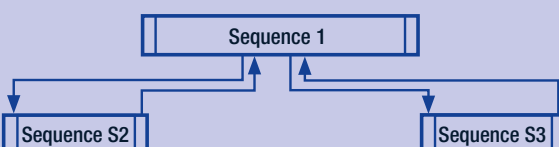
#### ■ Sequence stringing



- **Setup memory:** 15 memory locations for complete configurations



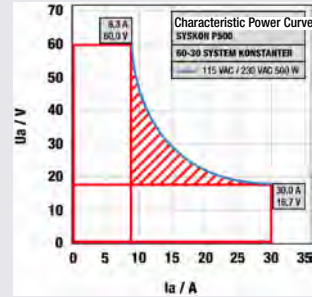
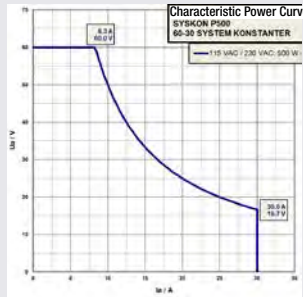
#### ■ Invocation of sub-sequences from primary sequences





## SYSKON | P500

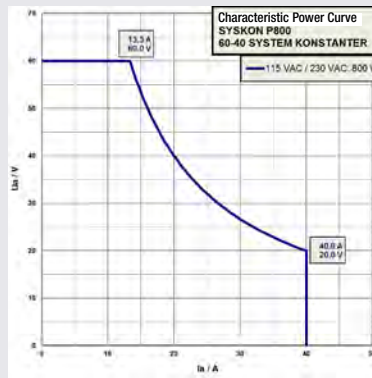
### 500 W Output Power



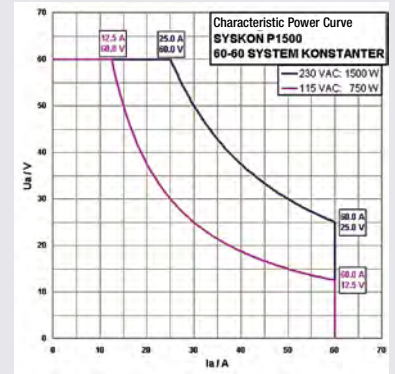
Auto-Range Curve  
Relative to  
Square Waves

## SYSKON | P800

### 800 W Output Power



### 1500 W Output Power

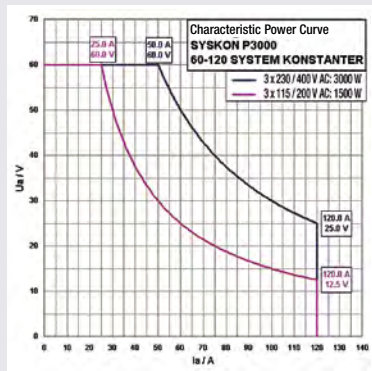


## SYSKON | P1500

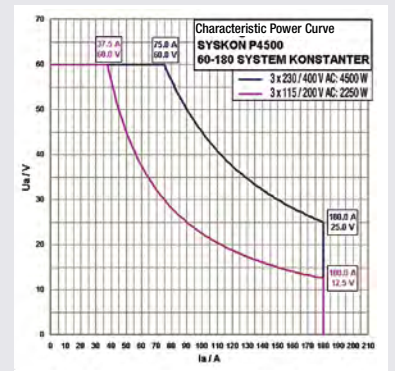


## SYSKON | P3000

### 3000 W Output Power



### 4500 W Output Power



## SYSKON | P4500



See Chapter 06 - Software

### TECHNICAL DATA

Type	Article
SYSKON P500	K346A
SYSKON P800	K347A
SYSKON P1500	K353A
SYSKON P3000	K363A
SYSKON P4500	K364A
IEEE 488 interface	K384A

Type	Power P <sub>nom</sub> [W]	Voltage U <sub>Set</sub> [V]	Current I <sub>Set</sub> [A]	Dimensions (W x H x D in mm)		Weight (approx. kg)
				Benchtop Instrument	19" Rack	
SYSKON P500	500	0...60	0...30	447 x 102 x 541	2 s.h.u. <sup>*)</sup> x 501	10
SYSKON P800	800	0...60	0...40	447 x 102 x 541	2 s.h.u. <sup>*)</sup> x 501	10
SYSKON P1500	1500	0...60	0...60	447 x 102 x 541	2 s.h.u. <sup>*)</sup> x 501	10
SYSKON P3000	3000	0...60	0...120	447 x 191 x 541	4 s.h.u. <sup>*)</sup> x 501	16
SYSKON P4500	4500	0...60	0...180	447 x 191 x 541	4 s.h.u. <sup>*)</sup> x 501	20

<sup>\*)</sup> s.h.u. = standard height units

Accessories on Page 05 - 12

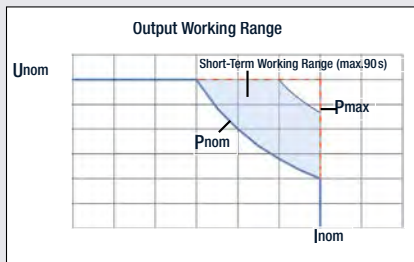


## SSP / SLP 32N 120 ... 320

### Single-Channel, Programmable Laboratory Power Supplies



SSP32N



SSP 32N Models, 120/240 W



SSP 32N Models, 320 W



SLP32N

SSP 32N KONSTANTER 120, 240 and 320 devices (single output system power supplies) are single-channel programmable laboratory power supplies for universal use in R&D, production and testing.

BET circuit technology (bidirectional energy transformation) allows for rise and decay times of less than 1 ms almost entirely independent of load (< 4 ms with 80 V device).

#### FEATURES:

**Analog interfaces:** trigger input, signal outputs, control voltage inputs (5 V) for voltage and current, monitor voltage outputs (10 V) for voltage and current, sense terminals for auto-sensing operation at the power consumer

**Display:** 2 x 4-place LED display

**Power output:** auto-ranging + increased output power for brief intermittent periods

**Sink:** dynamic up to 15 W

**Memory:** 242 memory locations for sequences, 10 memory locations for basic settings (SSP 32N)

**Digital interfaces:** RS 232, GPIB (optional for SSP 32N)

SLP 32N KONSTANTERs are equipped with the same nominal output values and outstanding control characteristics as the SSP 32N series.

However, in this case the output parameters are set in the traditional manner with a ten-turn potentiometer.

But an analog interface for remote control and coupling purposes (also included with series SSP 32N devices) is included here as well.

#### FUNCTIONALITY:

- Output power: 120 W, 240 W and 320 W
- Very short response times [as of 1 ms]
- High setting resolution [as of 5 mV, as of 1 mA]
- High setting accuracy [as of 0.15% + 30 mV]
- High measuring accuracy [as of 0.05% + 20 mV]
- Master-slave connection
- Extensive protective functions [overvoltage, current regulation, overtemperature, limit]
- Sensing terminals for auto-sensing operation at the power consumer
- Flexible programmability – large memory module, import/export of stored sequences – (SSP 32N)
- Min-Max values display (SSP 32N)

#### CORE APPLICATIONS:

- Testing of electrical and electronic components
- Execution of electrical test pulses (e.g. for automotive applications)
- Execution of long-term testing
- Incorporation into test systems

#### SCOPE OF DELIVERY:

- Mains power cable with earthing contact plug
- Operating Instructions

#### OPTIONAL ACCESSORIES:

- IEEE 488 interface (SSP32N) (**K380A**)
- Installation sets for 19" rack mounting (**K990A**), (**K990B**)
- Mains power cable for connecting two 32N devices (**K991A**)
- Factory calibration certificate

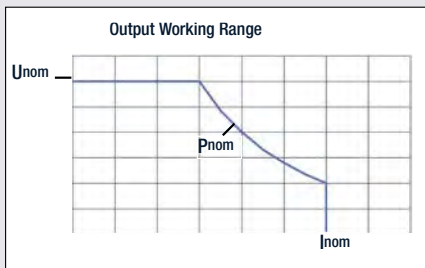
See Chapter 06 - Software.

Type	Article	Power		Voltage	Current	Dimensions (W x H x D in mm)		Weight (approx. kg)	
		P <sub>nom</sub>	P <sub>max</sub>	U <sub>nom</sub>	I <sub>nom</sub>	Benchtop Instrument	19" Rack		
		[W]	[W]	[V]	[A]				
SLP 120 W SSP 120 W	32 N 20 RU 10 P	K220A / K320A	120	200	0 ... 20	0 ... 10	221.5 x 102.0 x 397.5	½ 19" x 2 standard height units x 400	2.9
	32 N 40 RU 6 P	K221A / K321A	120	240	0 ... 40	0 ... 6			
	32 N 80 RU 3 P	K222A / K322A	120	240	0 ... 80	0 ... 3			
SLP 240 W SSP 240 W	32 N 20 RU 20 P	K230A / K330A	240	320	0 ... 20	0 ... 20	221.5 x 102.0 x 397.5	½ 19" x 2 standard height units x 400	2.9
	32 N 40 RU 12 P	K231A / K331A	240	360	0 ... 40	0 ... 12			
	32 N 80 RU 6 P	K232A / K332A	240	360	0 ... 80	0 ... 6			
SLP 320 W SSP 320 W	32 N 32 RU 18 P	K234A / K334A	320	430	0 ... 32	0 ... 18	221.5 x 102.0 x 397.5	½ 19" x 2 standard height units x 400	3.4
IEEE 488 interface for SSP 32N	K380A								0.1

Accessories on Page 05 - 12



## SSP 62N/64N 500 ... 3000 Single-Channel, Programmable Laboratory Power Supplies



SSP 62N Models  
500 and 1000W



SSP 64N Models  
2000 and 3000W

SSP KONSTANTER 500, 1000, 2000 and 3000 devices (single output system power supplies) are single-channel, programmable laboratory power supply for universal use in R&D, production and testing.

### FEATURES:

**Digital interfaces:** RS 232 (optional), RS 232/GPIB (optional)

**Analog interfaces:** trigger input, signal outputs, control voltage inputs (5 V) for voltage and current, monitor voltage outputs (10 V) for voltage and current, sense terminals for auto-sensing operation at the power consumer

**Display:** 2 x 4-place LED display

**Memory:** 242 memory locations for sequences, 10 memory locations for basic settings

**Power output:** auto-ranging – increased output power for brief intermittent periods

**Sink:** dynamic up to 75 W

### FUNCTIONALITY:

- Output power: 500 W, 1000 W, 2000 W and 3000 W
- Short response times [as of 6 ms]
- High setting resolution [16.7 mV, 3.125 mA, 10 ms]
- High setting accuracy [as of 0.1% + 17 mV]
- High measuring accuracy [as of 0.05% + 20 mV]
- Extensive protective functions [overvoltage, current regulation, overtemperature, limit]
- Flexible programmability [large memory module, import/export of stored sequences]
- Sensing terminals for auto-sensing operation at the power consumer
- Min-Max values display
- Master-slave connection

### CORE APPLICATIONS:

- Testing of electrical and electronic components
- Execution of electrical test pulses
- Execution of long-term testing
- Incorporation into test systems (with analog or digital control)

### SCOPE OF DELIVERY:

- Mains power cable (62N series)
- Installation set for 19" rack mounting
- Operating instructions (printed)

### OPTIONAL ACCESSORIES:

- IEEE 488 + RS 232 interface (**K382A**)
- RS 232 port (**K383A**)
- 3-phase mains power cable for SSP 64N models (**K991B**)
- Factory calibration certificate

■ Sequence memory: 245 locations for sequence functions

Sequence 1 | Sequence 2 | Sequence X

See Chapter 06 - Software

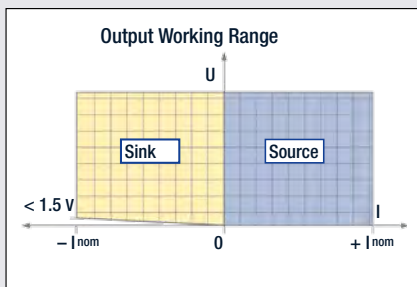
Type	Article	Power	Voltage	Current	Dimensions (W x H x D in mm)		Weight (approx. kg)	
		$P_{nom}$ [W]	$U_{nom}$ [V]	$I_{nom}$ [A]	Benchtop Instrument	19" Rack		
500 W	62 N 80 RU 12.5 P	K341A	500	0...80	0...12.5	449 x 101 x 500	2 standard height units x 500	12
1000 W	62 N 52 RU 50 P	K345A	1000	0...52	0...50	449 x 101 x 500	2 standard height units x 500	13
	62 N 80 RU 25 P	K343A	1000	0...80	0...25			
2000 W	64 N 52 RU 100 P	K352A	2000	0...52	0...100	449 x 190 x 500	4 standard height units x 500	22
3000 W	64 N 80 RU 75 P	K361A	3000	0...80	0...75	449 x 190 x 500	4 standard height units x 500	28
IEEE 488 + RS 232 interface		K382A	-			-	-	-
RS 232 port		K383A	-			-	-	-

Accessories on Page 05 - 12



## MSP 64D-KONSTANTER

### Modular, Computer Controlled Laboratory Power Supply



The MSP KONSTANTER (multi-output system power supply) is a modular, manually operated and computer controlled DC power supply. It offers extensive flexibility, ease of operation and economy for universal use in R&D, production and testing.

The basic instrument accepts up to four single or 2-channel plug-in power supply modules, and one control module. The control module allows for manual operation of all 8 channels. The outputs have a 2-quadrant operating range (source and sink). Source and sink functions are possible for constant voltage as well as constant current operation. Parallel or series connection, as well as bridging for the generation of bipolar voltages, is also possible.

#### FEATURES:

**Digital interfaces:** RS 232, GPIB

**Display:** multifunction display

**Memory:** 10 memory locations for basic settings

**Power output:** source/sink mode

#### FUNCTIONALITY:

- Output power: 2 x 24 W, 49 W, 120 W – combinable
- Up to 8 channels [can be grouped]
- Very high setting resolution [as of 2 mV, 0.2 mA]
- High setting accuracy [as of 0.05% + 4 mV]
- High measuring accuracy [as of 0.05% + 4 mV]
- Extensive protective functions [overvoltage, current regulation, overtemperature, limit]
- Programmability [basic settings memory]
- Source/sink mode [automatic]
- Bridge circuits
- Sensing terminals for auto-sensing operation at the power consumer
- Min-Max values display

#### CORE APPLICATIONS:

- Testing of electrical and electronic components
- Execution of long-term testing
- Incorporation into test systems (with digital control)
- Charging and discharging tests (e.g. batteries)

#### SCOPE OF DELIVERY:

- Mains power cable with earthing contact plug
- 5 blanking plates for unused module slots
- Installation set for 19" rack mounting
- Operating instructions (printed)

Modules and control unit not included

#### OPTIONAL ACCESSORIES:

- Factory calibration certificate

See Chapter 06 - Software.

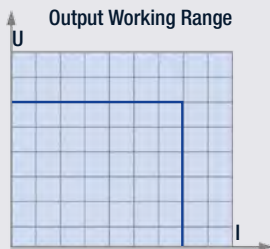
Type	Article	Power	Voltage	Current	Dimensions W x H x D (mm)		Weight (approx. kg)	
		$P_{nom}$ [W]	$U_{set}$ [V]	$I_{set}$ [A]	Benchtop Instrument	19" Rack		
MSP basic device, 64 N 80 RU 75 P	K370A				448 x 177 x 390	4 standard height units x 440	6.6	
MSP control module	K371A				–	–	0.7	
ES31	ES 31 K 2x8 R 3 P	K372A	2x24	2x0...8	2x0...±3	60.5 x 172.5	–	3.3
	ES 31 K 2x16 R 1.5 P	K372B	2x24	2x0...16	2x0...±1.5	60.5 x 172.5	–	3.3
	ES 31 K 2x40 R 0.6 P	K372C	2x24	2x0...40	2x0...±0.6	60.5 x 172.5	–	3.3
	ES 31 K 7 R 7 P	K372D	1x49	0...7	0...±7	60.5 x 172.5	–	3.3
ES32	ES 32 K 30 R 4 P	K373A	1x120	0...30	0...±4	121.4 x 172.5	–	6.8
	ES 32 K 80 R 1.5 P	K373B	1x120	0...80	0...±1.5	121.4 x 172.5	–	6.8

Accessories on Page 05 - 12



## LABKON P-SERIE

### Single-Channel, Computer Controlled Laboratory Power Supplies



**LABKON P series devices (LABoratory KONstanter) offer convenient controls, a rugged design with minimal noise emission and high levels of accuracy.**

The devices provide an ideal, reliable solution for many applications at the industrial level and for laboratory use.

#### FEATURES:

- CV and CC operating modes, automatic switching
- Several groups of parameters (device settings) can be saved and retrieved.
- Floating power output / no grounding
- Output can be switched on and off
- Supports SCPI (standard commands for programmable instruments)
- Protective devices, amongst others overvoltage protection

- Auto-sensing mode
- Benchtop instrument, also suitable for mounting to a 19" rack
- RS 232 port, optional GPIB and USB
- Calibration (adjustment) function

#### SCOPE OF DELIVERY:

- Benchtop Instrument
- Rubber protector
- Mains cable (earthing contact)
- Safety precautions
- Operating instructions (German and English) on CD-ROM

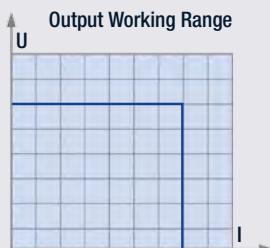
#### OPTIONAL ACCESSORIES:

- IEEE 488 interface (**K890A**)
- USB port (**K891A**)
- 19" installation set (**Z990A**)
- Factory calibration certificate

Type	Article	Power	Voltage	Current	Dimensions W x H x D (mm) Benchtop Instrument	Weight (approx. kg)	
		P <sub>nom</sub> [W]	U <sub>Set</sub> [V]	I <sub>Set</sub> [A]			
500 W	LABKON P500 35/14.5	K148A	500	0 ... 35	0 ... 14.5	226 x 110 x 414 With rubber protector  213 x 104 x 391 Without rubber protector	5.5
	LABKON P500 80/6.5	K149A	500	0 ... 80	0 ... 6.5		
	LABKON P500 120/4.2	K150A	500	0 ... 120	0 ... 4.2		
800 W	LABKON P800 35/22.5	K158A	800	0 ... 35	0 ... 22.5		
	LABKON P800 80/10	K159A	800	0 ... 80	0 ... 10		
	LABKON P800 120/6.5	K160A	800	0 ... 120	0 ... 6.5		

## LSP 32K-KONSTANTER

### Single-Channel, Computer Controlled Laboratory Power Supplies



**Series LSP 32K KONSTANTERs (laboratory and system power supply) are linear controlled power supplies for use in R&D, production, service and training applications.**

The devices are distinguished by outstanding ease of operation, excellent regulating accuracy and minimal residual ripple.

#### FEATURES:

- Process controlled
- Serial device interface
- Output can be switched on and off
- Voltage and current regulating
- Rotary encoder for adjusting U<sub>Set</sub> and I<sub>Set</sub>

- Adjustment is also possible with keys
- Multifunctional LCD panel
- Setup memory for 10 device settings
- Protective functions
- Benchtop instrument, suitable for mounting to a 19" rack

#### SCOPE OF DELIVERY:

- Mains power cable with earthing contact plug
- Operating instructions on CD-ROM

#### OPTIONAL ACCESSORIES:

- Interface adapter for USB (**K910B**)
- Interface adapter for RS 232 (**K910A**)
- Factory calibration certificate

See Chapter 06 - Software.

Type	Article	Power	Voltage	Current	Dimensions (W x H x D in mm)		Weight (approx. kg)	
		P <sub>nom</sub> [W]	U <sub>Set</sub> [V]	I <sub>Set</sub> [A]	Benchtop Instrument	19" Rack		
LSP 32K	32 K 18 R 5	K110A	90	0 ... 18	0 ... 5	215 x 100 x 280	½19" x 2 standard height units x 243 + 45 mm	6.0
	32 K 36 R 3	K111A	108	0 ... 36	0 ... 3			
	32 K 72 R 1.5	K112A	108	0 ... 72	0 ... 1.5			

Accessories on Page 05 - 12



## OVERVIEW

## Technical Specifications

Type	Article	Max. Power		Setting Range		Response Times (at nominal load)		Setting Resolution			Setting Accuracy		Settling Time for U with Sudden Load Variation 20% ... 100% I <sub>nom</sub>	
		Dura- tion [W]	< 90 s [W]	U <sub>Set</sub> [V]	I <sub>Set</sub> [A]	0 V → U <sub>nom</sub> (ms)	U <sub>nom</sub> → 1 V (ms)	U <sub>Set</sub> (mV)	I <sub>Set</sub> (mA)	t <sub>Set</sub> (ms)	U <sub>Set</sub> ± (% + mV)	I <sub>Set</sub> ± (% + mA)	Tolerance (mV)	Time (ms)
<b>Programmable Laboratory Power Supplies</b>														
SYSKON P500-60-30	K346A	500	–	0...60	0...30	2	20	1	1	1	0.05+30	0.05+90	120	0.6
SYSKON P800-60-40	K347A	800	–	0...60	0...40	2	15	1	1	1	0.05+30	0.05+90	120	0.5
SYSKON P1500-60-60	K353A	1500	–	0...60	0...60	2	11	1	1	1	0.05+30	0.05+90	120	0.4
SYSKON P3000-60-120	K363A	3000	–	0...60	0...120	15	11	1	1	1	0.07+48	0.10+135	120	1.2
SYSKON P4500-60-180	K364A	4500	–	0...60	0...180	19	11	1	1	1	0.10+48	0.15+180	120	1.6
SSP 32 N 20 RU 10 P	K320A	120	(200)	0...20	0...10	1	1	5	2.5	10	0.15+30	0.4+35	40	0.2
SLP 32 N 20 R 10	K220A									–				
SSP 32 N 40 RU 6 P	K321A	120	(240)	0...40	0...6	1	1	10	2	10	0.15+40	0.5+20	80	0.2
SLP 32 N 40 R 6	K221A									–				
SSP 32 N 80 RU 3 P	K322A	120	(240)	0...80	0...3	4	4	20	1	10	0.15+80	0.5+10	160	0.2
SLP 32 N 80 R 3	K222A									–				
SSP 32 N 20 RU 20 P	K330A	240	(320)	0...20	0...20	1	1	5	5	10	0.15+40	0.5+70	40	0.6
SLP 32 N 20 R 20	K230A									–				
SSP 32 N 40 RU 12 P	K331A	240	(360)	0...40	0...12	1	1	10	3.33	10	0.15+45	0.5+45	80	0.3
SLP 32 N 40 R 12	K231A									–				
SSP 32 N 80 RU 6 P	K332A	240	(360)	0...80	0...6	4	4	20	2	10	0.15+80	0.5+25	160	0.2
SLP 32 N 80 R 6	K232A									–				
SSP 32 N 32 RU 18 P	K334A	320	(430)	0...32	0...18	1	1	10	5	10	0.15+50	0.5+70	64	0.5
SLP 32 N 32 R 18	K234A									–				
SSP 62 N 80 RU 12.5 P	K341A	500	–	0...80	0...12.5	15	15	20	3.125	10	0.1+20	0.2+15	160	0.7
SSP 62 N 52 RU 50 P	K345A	1000	–	0...52	0...50	12.5	12.5	16.7	12.5	10	0.1+17	0.2+50	80	0.3
SSP 62 N 80 RU 25 P	K343A	1000	–	0...80	0...25	10	15	20	6.25	10	0.1+20	0.2+25	160	0.4
SSP 64 N 52 RU 100 P	K352A	2000	–	0...52	0...100	12.5	12.5	16.7	25	10	0.1+17	0.25+100	80	0.3
SSP 64 N 80 RU 75 P	K361A	3000	–	0...80	0...75	10	15	20	20	10	0.1+20	0.3+80	160	0.4
LABKON P500 35/14.5	K148A	500	–	0...35	0...14.5	50	50	1	1	–	0.15+5	0.5+6	n.a.	n.a.
LABKON P500 80/6.5	K149A	500	–	0...80	0...6.5	50	50	1	1	–	0.03+10	0.5+3	n.a.	n.a.
LABKON P500 120/4.2	K150A	500	–	0...120	0...4.2	60	60	As of 1	1	–	0.03+15	0.5+10	n.a.	n.a.
LABKON P800 35/22.5	K158A	800	–	0...35	0...22.5	50	50	1	1	–	0.03+8	0.5+6	n.a.	n.a.
LABKON P800 80/10	K159A	800	–	0...80	0...10	50	50	1	1	–	0.03+10	0.5+5	n.a.	n.a.
LABKON P800 120/6.5	K160A	800	–	0...120	0...6.5	60	60	As of 1	1	–	0.03+15	0.5+12	n.a.	n.a.
LSP 32 K 18 R 5	K110A	90	–	0...18	0...5	200	1500	10	1	–	0.1+20	0.2+20	70	50
LSP 32 K 36 R 3	K111A	108	–	0...36	0...3	200	1500	10	1	–	0.1+20	0.2+20	70	50
LSP 32 K 72 R 1.5	K112A	108	–	0...72	0...1.5	200	3000	20	1	–	0.1+20	0.2+20	70	50
<b>MSP Plug-In Modules</b>														
ES 31 K 7 R 7 P	K372D	49	–	0...7	0...±7	0.5	0.5	2	2	–	0.05+4	0.1+4	20	0.2
ES 32 K 30 R 4 P	K373A	120	–	0...30	0...±4	2	3	8	1	–	0.05+16	0.1+2	60	0.2
ES 32 K 80 R 1.5 P	K373B	120	–	0...80	0...±1.5	2	3	20	0.5	–	0.05+40	0.1+1	160	0.2
ES 31 K 2x8 R 3 P	K372A	2x24	–	2x0...8	2x0...±3	0.5	0.5	2	2	–	0.05+4	0.1+2	20	0.2
ES 31 K 2x16 R 1.5 P	K372B	2x24	–	2x0...16	2x0...±1.5	0.5	0.5	4	0.5	–	0.05+8	0.1+1	40	0.2
ES 31 K 2x40 R 0.6 P	K372C	2x24	–	2x0...40	2x0...±0.6	1	1	10	0.2	–	0.05+20	0.1+0.5	80	0.2

■ Standard equipment ◆ Optional





# OVERVIEW

## Technical Specifications

Residual Ripple		Interfaces				Programmable Sequences	Number of Basic Setting Memory Locations	Number of Sequence Memory Locations	Sink Mode	Overvoltage Protection	Overcurrent Protection	Auto-Ranging Output	Output On/Off	Front Panel Output	Rear Panel Output	Sense Terminals	SELV (safety extra-low voltage)							
U (mV <sub>TRMS</sub> )	I [mA <sub>TRMS</sub> ]	Analog	RS 232	USB	IEEE 488																			
6	50	■	■	■	◆	■	15	1700	Dyn.	■	■	■	■	-	■	■	-							
6	50	■	■	■	◆	■	15	1700	Dyn.	■	■	■	■	-	■	■	-							
6	50	■	■	■	◆	■	15	1700	Dyn.	■	■	■	■	-	■	■	-							
10	70	■	■	■	◆	■	15	1700	Dyn.	■	■	■	■	-	■	■	-							
15	100	■	■	■	◆	■	15	1700	Dyn.	■	■	■	■	-	■	■	-							
10	25	■	■	-	◆	■	10	242	Dyn.	■	■	■	■	■	■	■	■							
10	20	■	■	-	◆	■	10	242	Dyn.	■	■	■	■	■	■	■	■							
10	10	■	■	-	◆	■	10	242	Dyn.	■	■	■	■	■	■	■	-							
15	50	■	■	-	◆	■	10	242	Dyn.	■	■	■	■	■	■	■	■							
15	25	■	■	-	◆	■	10	242	Dyn.	■	■	■	■	■	■	■	■							
15	20	■	■	-	◆	■	10	242	Dyn.	■	■	■	■	■	■	■	-							
30	50	■	■	-	◆	■	10	242	Dyn.	■	■	■	■	■	■	■	■							
10	15	■	◆	-	◆	■	10	245	Dyn.	■	■	■	■	-	■	■	-							
10	25	■	◆	-	◆	■	10	245	Dyn.	■	■	■	■	-	■	■	-							
15	20	■	◆	-	◆	■	10	245	Dyn.	■	■	■	■	-	■	■	-							
10	80	■	◆	-	◆	■	10	245	Dyn.	■	■	■	■	-	■	■	-							
15	60	■	◆	-	◆	■	10	245	Dyn.	■	■	■	■	-	■	■	-							
5	8	-	■	◆	◆	-	10	-	-	■	■	-	■	■	-	■	■							
8	6	-	■	◆	◆	-	10	-	-	■	■	-	■	■	-	■	-							
15	6	-	■	◆	◆	-	10	-	-	■	■	-	■	■	-	■	-							
10	8	-	■	◆	◆	-	10	-	-	■	■	-	■	■	-	■	■							
16	6	-	■	◆	◆	-	10	-	-	■	■	-	■	■	-	■	-							
16	10	-	■	◆	◆	-	10	-	-	■	■	-	■	■	-	■	-							
2	5	-	◆	◆	-	-	-	-	-	■	■	-	■	■	-	-	■							
2	4	-	◆	◆	-	-	-	-	-	■	■	-	■	■	-	-	■							
2	3	-	◆	◆	-	-	-	-	-	■	■	-	■	■	-	-	-							
1	3	-	Via basic instrument	-	-	-	-	-	-	■	■	■	-	■	■	-	■	■						
3	3	-								■	■	■	-	■	■	-	■	■	-	■	■	-	■	■
3	2	-								■	■	■	-	■	■	-	■	■	-	■	■	-	■	-
1	3	-								■	■	■	-	■	■	-	■	■	-	■	■	-	■	■
1	2	-								■	■	■	-	■	■	-	■	■	-	■	■	-	■	■
3	2	-								■	■	■	-	■	■	-	■	■	-	■	■	-	■	■

■ Standard equipment ◆ Optional



## ACCESSORIES

### Laboratory Power Supply



2x32N mounting kit



Mains Jumper Cable



RS 232 Interface Cable



Interface Adapter

Type	Article	Designation	Usable for
Mounting kit	K990A	Mounting kit 1x32N for KONSTANTER SSP/SLP 32N	SSP 32N, SLP 32N
Mounting kit	K990B	Mounting kit 2x32N for KONSTANTER SSP/SLP 32N	SSP 32N, SLP 32N
Mounting kit	Z990A	Mounting kit for SPL and LABKON P series	SPL series, LABKON P series
Mains jumper cable	K991A	Mains jumper cable, 0.4 m, for SLP32N and SSP32N	SSP 32N
Mains power cable	K991B	3-phase mains power cable, 3 m, for SSP64N and SYSKON	SSP 64N, SYSKON P3000/P4500
RS 232 cable	GTZ3241000 R0001	RS 232 interface cable, 2 m	SSP 32N, SSP 62N/64N, MSP 64D, SYSKON, SPL, LABKON
RS232 adapter	K910A	Interface adapter, RS 232 / LSP, SSL	LSP 32K, SSL 32EL
USB adapter	K910B	Interface adapter, USB / LSP, SSL	LSP 32K, SSL 32EL
IEEE 488 interface	K890A	Optional IEEE 488 interface for SPL and LABKON P series	SPL series, LABKON P series
USB port	K891A	Optional USB port for SPL and LABKON P series	SPL series, LABKON P series
RS 232 – USB converter	Z501L	Adapter cable for connecting instruments with an RS 232 port to the USB port at a PC	
RS 232 network adapter	Z901E	Ethernet adapter for incorporating instruments with an RS 232 port into a network	

## OEM POWER SUPPLIES

### Panel Mount Power Supplies



#### OEM power supplies for special applications, or in accordance with customer specifications.

In addition to our standard power supply ranges (laboratory KONSTANTERs), we also fabricate power supplies for special applications, or in accordance with customer specifications, for example:

- Fixed voltage switched-mode power supplies as European plug-in module or in cartridge format
- 24 to 12 V DC-DC converters for commercial vehicles
- Customer-specific power supplies



#### The photos show examples of our OEM power supplies.



Data transfer, display, management and documentation – our software does it all.

Standards and regulations apply to all electrical systems and equipment.

Time required for well-organized safety tests is minimized through the use of ultra-modern test software.

GOSSEN METRAWATT can provide you with a complete spectrum of software.

## CONTENTS

---

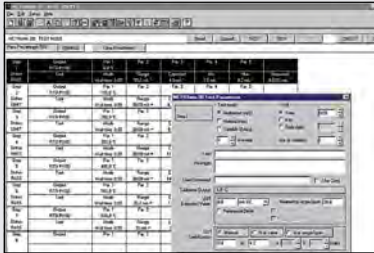
### SOFTWARE

- 06 - 2 Software – Multimeters
- 06 - 4 Software – Laboratory Power Supplies and Electronic Loads
- 06 - 5 Software – Mains Quality
- 06 - 6 Software – Test Instruments Overview
- 06 - 7 Software – ETC, GMST
- 06 - 8 Software – Test Instruments PC.doc



## METRAwin 90-2

### Calibration Software



#### Calibration Software for Controlling Process Calibrators

The handheld calibrator with multimeter is transformed into a professional, PC-based calibration system for measuring transducers, indicators, recording instruments etc. with the help of METRAwin 90-2 and an interface cable.

Calibration procedures are created with METRAwin software. Specified analog values are transmitted via the IR adapter from the PC to the calibrator and are fed to the device to be calibrated from the analog output at the calibrator.

The analog output value from the device to be calibrated is then measured by the multimeter, and is returned to the PC for evaluation via the interface. If the measurement results remain within the specified tolerances, each consecutive calibration step is initialized automatically until the entire procedure has been run.

Calibration data can be imported into other Windows applications (e.g. WORD or EXCEL).

Type	Article
METRAwin 90-2	Z211A
Update 90-2	Z211E

## MET/CAL<sup>®</sup> PROCEDURES

### Calibration and Adjustment

Calibration institutes all over the world use predominantly Fluke multifunction calibrators in order to calibrate and adjust digital multimeters.

This can be automated to a great extent with corresponding procedures for Fluke's MET/CAL<sup>®</sup> calibration management software.

**MET/CAL<sup>®</sup> procedures for Fluke's type 5520 A calibrator with MET/CAL version 7.2 for adjustment**

**MET/CAL<sup>®</sup> procedures for Fluke's type 5520 A calibrator with MET/CAL version 7.2 for calibration**

Type	Article
METRAport 40S, adjust	Z234A
METRAHIT EBASE, adjust	Z234C
METRAHIT ESPECIAL, adjust	Z234G
METRAHIT ETECH, adjust	Z234E
METRAHIT EXTRA, adjust	Z234I
METRAport 40S, calibrate	Z234B
METRAHIT EBASE, calibrate	Z234D
METRAHIT ESPECIAL, calibrate	Z234H
METRAHIT ETECH, calibrate	Z234F
METRAHIT EXTRA, calibrate	Z234J

## METRAwin 90-F /-FJ

### Closed loop Calibration (F) and Adjustment System (FJ)



#### Closed loop calibration system for METRAHIT multimeters with METRAwin 90-F/FJ, a PC with IEEE 488 interface and a Fluke 5500A, 5520A or 5700A calibrator

Calibration of analog and digital multimeters, recorders and power meters, power measuring transducers, amplifier modules, transducers etc.

- Automated calibration of METRAHIT multimeters with IR interface
- Generation, testing and documentation of calibration procedures with METRAwin 90-F
- Specified values from the PC via IEEE 488 to the calibrator → analog signal to the device to be calibrated
- Measured values from the METRAHIT multimeter via IR-USB adapter to the PC automatically
- Measurement of analog measuring transducers with a multimeter including automatic transfer to the PC
- If the measured value is within tolerance, the calibration procedure advances automatically to its next step.
- Adjustment of the METRAHIT 22-29S / M via IR interface with METRAwin 90-FJ
- Calibration signal correction by means of key entry or via the interface
- Printouts as standard calibration report, or as a user-specific certificate
- Dynamic data exchange with Microsoft Excel and Word
- Documentation with measuring uncertainty (DKD 3 / TUR) and data for certificates in accordance with EN ISO 9000

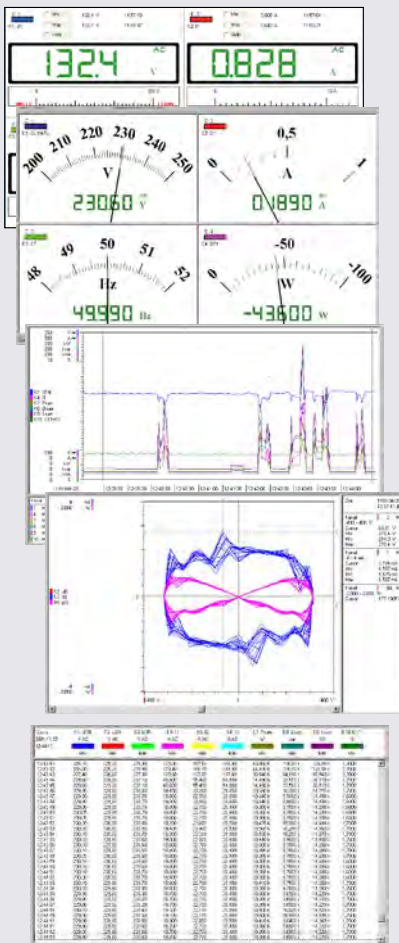
Type	Article
METRAwin 90-F	Z211C
METRAwin 90-FJ	Z211F





## METRAWIN 10/METRAHIT

### Parameters Configuring and Analysis Software for METRAHIT Multimeters



METRAWin 10/METRAHIT is a measurement data logging program for recording, visualizing, evaluating and documenting measured values from METRAHIT multimeters with reference to time.

METRAWin 10/METRAHit supports the following multimeters (see complete list below):

- METRAHIT Starline series (X-TRA, E and S series) in combination with USB-X-TRA interface adapter (max. 6 channels, max. 1 measurement per sec., memory: up to 2000 measurement per sec. depending on device and function).
- METRAHIT 30M in combination with USB-Hit (single-channel only, max. 10 measurements per sec.) or BD232 interface adapter (max. 4 channels).
- METRAHIT 22S-29S/22M/26M/1 in combination with USB-Hit (single-channel only, max. 20 measurements per sec.) or BD232 interface adapter, or SI232-II or SI232 memory adapter (max. 6 channels, max. 20 measurements per sec.).
- METRAHIT 12S-18S/I/T/U/ONE Plus in combination with RS 232 interface adapter (single-channel only) or SI232-II or SI232 memory adapter (max. 6 channels, max. 20 measurements per sec.).

German, English, French, Spanish, Italian or Slovakian can be selected as the user interface language.

The software runs under Windows XP, 7, 8 and 10.

The full version is purchased with site licensing.

A test version can be downloaded from our website

Depending upon device type, one or several of the following operating modes are possible:

- Device configuration
- Online recording of measurement data
- Read-in and display of offline data recorded to device memory

Measurement data can be displayed and analyzed in various formats:

- **Analog/digital instrument (online)**, max. 4 channels, with limit monitor
- **Yt diagram**, max. 6 channels, scroll and zoom functions, absolute/relative time axis, automatic/manual Y scale, 2 cursors
- **XY diagram**, max. 4 channels, automatic/manual Y scale, 2 cursors
- **Data logger table**, max. 12 channels, data export to ASCII file or via the clipboard to other Windows programs e.g. MS Excel

Amongst other possibilities, a **continuous line recorder** printing option is available for documenting measurements. Up to 10 channels can be printed out continuously as a Yt line graph at a color printer with this function.

- **Arithmetic functions**

Measurement data from different channels can be linked and processed with high performance arithmetic functions.

Type	Article
METRAWin 10/ METRAHit	GTZ324000R0001

## OVERVIEW

### Software

Type	MULTIMETER METRAHIT																	ME-TRAport		Calibrator						
	EBASE	ETECH	X-TRA/EXTRA	SECULIFE HIT	ESPECIAL	OUTDOOR	T-COM/plus	ISO/ISO@Aero COIL	ENERGY	ULTRA	2 plus	WORLD	ONE Plus	22S/M	23/24/25S	26S/M	29S	30M	12-18 S/I/T/U	27M/I	27H+E CAR	32S/XS	40S	METRACAL MC	CAL	28C/28C Light

#### Software

METRAWin10/Hit	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
METRAWin 90-2	-	-	■	-	-	-	-	■	■	-	-	-	■	■	■	■	■	■	-	-	-	-	-	■	■	■	■	
METRAWin 90 F	■	■	■	■	■	-	-	-	-	-	-	-	■	■	■	■	■	■	■	-	-	-	-	-	-	-	-	-
METRAWin 90 FJ	-	-	-	-	-	-	-	-	-	-	-	-	■	■	■	■	■	■	-	-	-	-	-	-	-	-	-	-
LabVIEW drivers *	■	■	■	■	■	■	■	■	■	-	-	-	-	-	-	-	-	-	-	-	-	-	■	■	-	-	-	

\*A great variety of PC-aided control and test applications can be set up with the LabVIEW software package from National Instruments, the world's leading measurement data logging and analysis software. The drivers allows for the following functions with LabVIEW and VISA: read-out of momentary (live) measured values and units of measure, as well as measurement data files for supported DMMs and calibrators, and complete control of the METRACAL MC calibrator.

LabVIEW drivers are available as free downloads from the Internet.



OVERVIEW

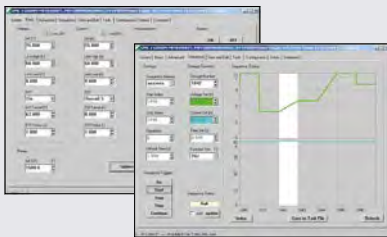
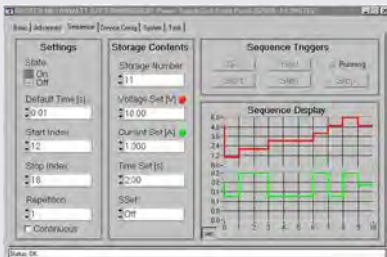
KONSTANTER Series Software

Software	SYSKON P	SSP 32N	SSP 62N/64N	MSP 64D	LSP 32K	SSL 32EL	SPL
Device driver for NI LabVIEW	■	■	■	■	–	–	■
Device driver for NI LabWindows/CVI	■	■	■	■	–	–	–
Device driver for NI Agilent VEE	■	■	■	■	–	–	–
SYSKON Soft Front-Panel	■	–	–	–	–	–	–
SSP Soft Front-Panel	–	■	■	–	–	–	–
POWER Management System	–	–	–	–	■	–	–
ELOAD Management System	–	–	–	–	–	■	–

SOFTWARE

Device Drivers, Soft Front-Panel, Management System

Free Download



Device drivers for NI LabVIEW, NI LabWindows/CVI and Agilent VEE

Device drivers for simple integration of our programmable laboratory power supplies and electronic loads into automated measuring and test systems which are controlled by the specified software packages are available for download from our website free of charge.

SSP Soft Front-Panel – PC user interface for SSP KONSTANTER

All SSP KONSTANTER functions can be controlled and displayed at a PC with this Windows software. Additional devices can be individually operated by starting the SFP more than once.

- For the RS 232 and the IEEE 488 (GPIB) interface
- Runs under Windows XP, Vista, 7 and 10
- Automatic search for SSP devices at all available interfaces
- Menu language: English

Prerequisite: NI-VISA driver and additional NI-488.2 driver (National Instruments) must be installed for control via GPIB.

SYSKON Soft Front-Panel – PC User Interface for SYSKON P Series

All SYSKON functions can be controlled and displayed at a PC with this Windows software. Several devices can be individually operated by starting the SFP more than once.

- For USB, RS 232 and IEEE 488 (GPIB) interface
- Runs under Windows XP, Vista, 7 and 10
- Automatic search for Syskon devices at all available interfaces
- Menu language: English

POWER Management System – PC user interface for LSP-KONSTANTER 32K

Series 32K LSP Konstanter functions can be interactively controlled and displayed at a PC with this Windows software.

- For USB and RS 232 port
- Runs under Windows XP, Vista, 7 and 10
- Menu language: English

Prerequisite: K910A or K910B interface adapter

ELOAD Management System – PC user interface for SSL/SPL electronic loads

Series SSL/SPL electronic load functions can be interactively controlled and displayed at a PC with this Windows software.

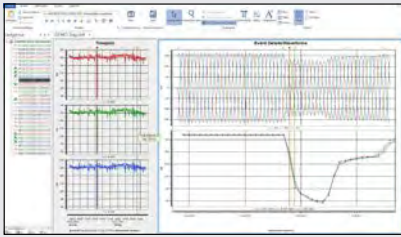
- For USB, IEEE 488 (GPIB) and RS 232 ports
- Runs under Windows XP, Vista, 7 and 10
- Menu language: English

Prerequisite: K910A or K910B interface adapter

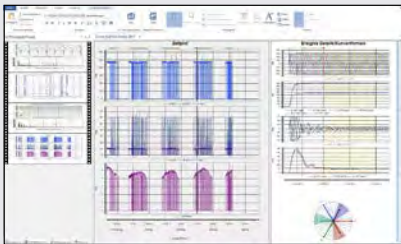


## DRANVIEW 7 SOFTWARE

### MAVOWATT 20 / 30 / 230 / 340 / 270



Fault Recording with Detail View



Measurement of Inrush Current

Thanks to simple handling and automatic report functions, DranView even makes it possible for normal users to quickly and easily view and analyze mains monitoring data.

DranView supports more than 12 languages and is being used successfully by thousands of customers all over the world. DranView is available in two different versions, namely Pro and Enterprise. Data collected by MAVOWATT 20, 30, 230, 240 and 270 mains disturbance and power analyzers can be evaluated and documented with this extremely versatile and convenient PC software.

#### FEATURES:

- Intuitive, easy to handle user interface
- Rotatable axes in graphics, simple zooming and dragging of diagrams

- Time, waveform, amplitude duration and DFT diagrams
- Rescue kit (data repair)
- Automatic or user-specific report generator depending on measurement type
- Separate scaling of harmonics for voltage, current and power
- Data can be exported to ASCII, XLS and XLSX formats

#### SCOPE OF DELIVERY:

- DranView Professional including USB hardware dongle
- DranView Enterprise including USB hardware dongle

Designation	Type	Article
<b>DranView 6</b>		
Software upgrade DVP-6 TO DVE-6 from DranView 6 Professional to DranView 6 Enterprise	DVP-T0-DVE	Z818J
<b>DranView 7</b>		
DranView 7 Professional including USB hardware dongle for MAVOWATT 20	DVP-7-MW20	Z828C
DranView 7 Professional version including USB hardware dongle for MAVOWATT 20/30/40/70/230/240/270-400	DV7 Professional	Z818Z
DranView 7 Enterprise version including USB hardware dongle for MAVOWATT 20/30/40/70/230/240/270-400	DV7 Enterprise	Z818X
<b>DranView 7 upgrade</b>		
Software upgrade from DranView 6 to DranView 7 (Professional or Enterprise)	DV6 TO DV7	Z828A
Software upgrade DVP-7 TO DVE-7 from DranView 7 Professional to DranView 7 Enterprise	DVP-7 TO DVE-7	Z828B
Software upgrade from DranView 7 Professional for MAVOWATT 20 to DranView 7 Professional for MAVOWATT 20/30/40/70/230/240/270-400	DVP-7-MW20 TO DVP-7	Z828D



## OVERVIEW

### Device, Report Generating and Database Software for MS Windows

Type	PROFITEST					SECUTEST							SECUSTAR FM+	SECULIFE			MINITEST			METRISO C	METRISO XTRA	GEOHM C	METRA	
	C	Master Series	SI-BC, PSI-BC	INTRO	204+	BASE	BASE 10	PRO	SIII +	S2N +	PSI, SI, SI+	3PL		SECULIFE ST	SECULIFE SB	SECULIFE SR	PRO	MASTER	3P MASTER				Machine 439 / 5.4	Machine 204 / 2.5
Software																								
ETC	-	■	-	■	■	■		■*	■*	■	■*	-	■*	-	■	■	■	-	■	-	-			
Report Manager Prof.	-	■	■	-	-	-		■*	■*	■	■*	-	■*	-	-	-	-	-	-	-	-			
PC.doc-Word / Excel	■	■	■	■	■	■		■	■	■	■	■	■	■	-	■	■	■	■	-	■			
GMST	-	■	-	-	-	■		■*	■*	■	■*	-	■*	-	■	-	-	-	-	-	-			

\* With SECUTEST SI+

## OVERVIEW

### Report Generating and Database Software for MS Windows

Software	ETC	Report Manager Prof.	PC.doc-Word / Excel	GMST
Article Number	Free Download	Z611N	Z714B	Z712C
User interface language	18 languages, e.g. D, GB, F, E ...	D	D, GB, F, FIN, PL	D, GB, PL, R
Software requirements	-	-	Requires MS Word/Excel (32 bit)	-
Form for test reports	■ (PDF)	■ (PDF)	■ (Word)	■ (PDF)
Forms generator	-	-	Word	-
Predefined checklists	■	-	■	■
User-specific checklists	-	-	-	-
Filter functions / selection	-	■	-	■
Document management / viewer	-	-	-	■
Deadline administration	-	■	-	■
Data import	File / tester	Tester	File / tester	File / tester
Data export	File / tester	-	SECUTEST PRO SECUTEST BASE (10)*	SECUTEST PRO SECUTEST BASE (10)*
Remote control	SECULIFE SR	-	-	SECULIFE SR
Hazard analysis	-	-	-	-
Catalog function	-	■	-	-
Cost management	-	-	-	-
Network compatible	-	-	-	■
Barcode generation	■ Lists	-	-	■
Client options Outdoor function	-	-	-	-
Statistics	-	-	Error statistics, defects statistics	-

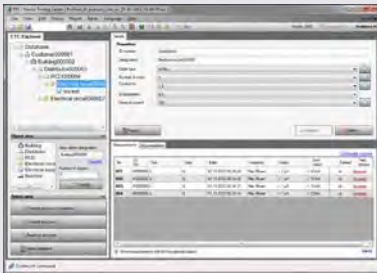
\* With database expansion





# ETC

## Report Generating Software



### Report Generating Software for Test Instruments PROFITEST MASTER, MINITEST, SECULIFE SR, SECUTEST SI, METRISO XTRA

ETC offers a wide variety of support options for data acquisition and management, as well as for generating reports and controlling test sequences.

### SECUTEST BASE / BASE 10 / PRO – SECUTEST SII+, S2N+..., SIII, SIII+, PSI, SI, SI+ / SECULIFE ST

- The software copies test results from internal memory or from the (P) SI module (not required for SECUTEST BASE / PRO).
- Report data can be supplemented.
- The data structure can be exported to the SECUTEST PRO.



### PROFITEST MASTER / INTRO

- The software acquires all important data for reports in accordance with DIN VDE 0100, part 600.
- Test reports (ZVEH) can be generated automatically, and distribution structures with electrical circuit and RCD data can be individually defined.
- Created structures can be saved to memory and loaded to the test instrument as required.
- The test instrument and the PC can exchange data bidirectionally via USB.



### PROFITEST 204+ / METRAMACHINE 204 / 439

- The software makes it possible to receive and transmit machine data with measured values, and allows subsequent report generation in accordance with DIN EN 60204-1 (VDE 0113-1).
- Created structures can be saved to memory and their machine data can be loaded to the test instrument.
- The test instrument and the PC can exchange data bidirectionally via a USB – RS 232 adapter, or via RS 232.

### MINITEST PRO / MASTER, SECULIFE SR and METRISO XTRA

- The software copies measured values from the test instruments.
- Report data can be supplemented.
- Limit values can be set.
- Test reports can be saved as PDF files.

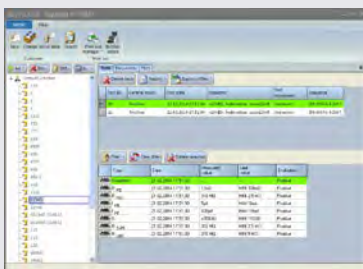
SecuStore memory adapter for the SECUTEST range and the SECULIFE ST

The software copies test reports from the memory adapter and saves them automatically as PDF files.

**Free Download**

# GMST

## Report Generating Software



**GMST is database software for the management of documentation and test data.**

### FEATURES:

- Search and filter database entries according to: ID number, customer, device, inventory number, standard, date
- Print test reports as PDF files, print test labels
- Display in tabular format
- Test history and administrative tools with user activity
- External and local database module

- Modern and simple user interface in German, English, Polish and Russian
- Tree structure, simplified navigation, simple scenario preview

Type	Article
GMST	Z712C

Service license permits management of a central database for several GMST users

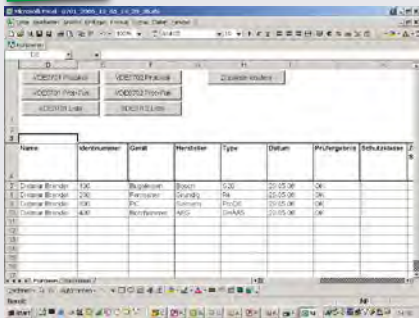
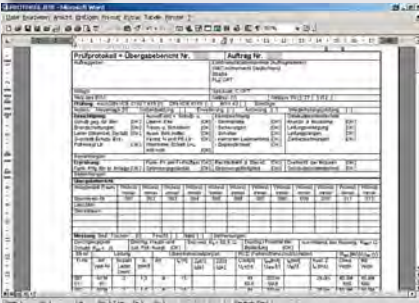
Type	Article
GMST HostService	Z712D





## PC.doc-WORD/EXCEL

### Report Generating Software



Documentation and management software for tests in accordance with DIN VDE 0701-0702/ IEC 62353 (VDE 0751), VDE 0100 and EN 60204/VDE 0113 in combination with MS Word or MS Excel.

#### Language versions:

German, English, French, Finnish, Polish. (exception: Excel component in German and English only)

#### PC.doc-WORD-EXCEL:

#### SYSTEM REQUIREMENTS:

- Word 2003 or higher , Windows 7 – if reports are generated with Word
- Excel 2003 or higher – if reports are generated with Excel
- User interface: D, GB, F, FI, PL
- PC as of 500 MHz Pentium processor and 512 MB RAM
- 1 available serial or USB port with USB – RS 232 adapter

Type	Article
PC.doc-WORD-EXCEL	Z714B

Upgrade from PC.doc win/med ... to PC.doc-WORD, EXCEL

Type	Article
PC.doc-Upgrade	Z714C

For training offerings see section “Seminars with Practical Experience”, on page 09 - 2

# MEDICAL MEASURING INSTRUMENTS AND TESTERS

---

07

SECULIFE is the new, dependable brand name for top quality test instruments in the field of medical technology. They're distinguished by reliable measuring precision, outstanding quality and ease of use – because responsibility necessitates top performance, especially in the field of medicine.

The spectrum covered by the SECULIFE brand name includes test instruments for electrical safety, multi-patient simulators, photometry and interior light monitoring, as well as function testers for defibrillators, infusion pumps, respiration technology and HF electro-surgical generators. A broad spectrum of the test equipment required in the field of medicine is thus encompassed by this product line. The instruments are suitable for the performance of tests at medical institutions, as well as for use in the production of technical medical devices.

All SECULIFE instruments allow for precision measurements and documentation of results in accordance with binding international standards for medical devices. Depending on the respective instrument, options are included for data storage, documentation and data communication.

## CONTENTS

---

### MEDICAL MEASURING INSTRUMENTS AND TESTERS

07 - 2 Overview: Measuring and Test Instruments for Medical Technology

All our SECULIFE products can be found in the 2015/2016 SECULIFE product catalogue.



**SAFETY TESTERS**



SECULIFE ST



SECULIFE SR



SECULIFE SB



IA

**FUNCTION TESTERS**



SECULIFE DFBASE / DFPRO



SECULIFE IF+



SECULIFE DPBASE / DPPRO

**HF SURGERY FUNCTION TESTERS**



SECULIFE ESBASE



SECULIFE ESPRO



SECULIFE ESXTRA / ESPRIME

**PATIENT SIMULATORS**



SECULIFE PS100



SECULIFE PS200



SECULIFE PS300



SECULIFE NIBP / BPPro

**PHOTOMETRY**



SECULIFE IT / Base



SECULIFE IM



SECULIFE IA

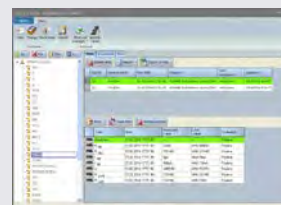


SECULIFE IS

**SOFTWARE**



PerfectLum



GMST



Electric Testing Center ETC

Only by being aware of their own energy consumption are users able to allocate and bill it, and to realize potential energy savings.

GOSSSEN METRAWATT'S Energy Control System (ECS) serves as a professional basis for modern energy management systems in building management and industrial applications. It provides the fundamentals for optimizing consumption and load, as well as for cost center billing.

GOSSSEN METRAWATT offers all of the necessary components for setting up modern, energy data logging – from calibrated energy meters and summators right on up to Energy Management Control software (EMC) for logging, evaluation and billing.

Every company is different, and that's why our project engineering department provides you with support for planning, selection and start-up of your own individualized ECS solution.

Thanks to their special control algorithms, our control technology products are suitable for precision control tasks without overshooting, as well as for temperature limiting. They can be used in machinery and equipment manufacturing, as well as in the food processing and luxury food industries thanks to IP 67 protection at the front panel.

## CONTENTS

---

ENERGY MANAGEMENT / CONTROL TECHNOLOGY

08 - 2 Overview : Energy Management and Control Technology

All of the respective products can be found in our 2016 Industry Technology catalog.



**ENERGY MANAGEMENT**

**ENERGY METERS /  
MULTIFUNCTIONAL  
POWER METER**



Alternating/3-Phase Current,  
2/3/4-Wire System  
**U128x, U138x**



Alternating/3-Phase Current,  
2/3/4-Wire System  
**U18xA/B**



3-Phase Current,  
3/4-Wire System  
**A2000**

**SUMMATORS**



**SMARTCONTROL**



**SMARTLOGGER**

**ENERGY MANAGEMENT  
SOFTWARE**

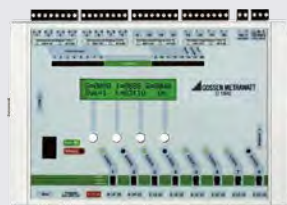


**EMC 5.x**



**SMARTCOLLECT**

**LOAD MANAGEMENT /  
LOAD OPTIMIZATION**



**U1500**

**CURRENT TRANSFORMERS**



Split-Core Current Transformers  
**SC30, SC40-B/C, SC50-E**



Bushing-Type Current Transformers  
**ASK 31.3 / 63.4 / 412.4**



Wound-Primary Current Transformers  
**WSK 30 / 40 / 70.6 N**

**CONTROL TECHNOLOGY**

**COMPACT CONTROLLERS  
CONTROLLER MODULES  
SOFT CONTROLLERS**



**R2500 Controller and  
Temperature Limiter**



**R2700 Controller and  
Temperature Limiter**



**R6000 8-Channel  
Temperature Controller**



**PDPI SOFTcontroller  
CoDeSys / PC Worx**

As a competent partner with an extensive range of services, we're happy to provide you with active after-sales assistance so that we can offer you long-term investment and planning security.

Your learning success is at the center of attention. Our seminars make you fit for correct, professional use of our products. Practical experience, as well as technical and legal background information, round out our hands-on training program. You get background information concerning standards and regulations and are trained in the use of the hardware and software included in ultramodern measuring systems.

Seminars are held at our company headquarters in Nürnberg to this end. Further options include holding seminars at your location upon request.

Competent after-sales service is assured by our service company, namely GMC-I Service GmbH in Nürnberg, and encompasses calibration, repairs (including rental instrument service) and replacement parts service.

## CONTENTS

---

### SERVICES

- 09 - 2 Seminars with Practical Experience
- 09 - 5 GMC-I SERVICE



## SEMINARS

Our objective is to assure that you attain your goals.



Our seminars are consistently focused on your requirements. Participants learn how to take advantage of both the hardware and the software included in our measuring systems, and are provided with background information regarding standards and regulations.

Call the **seminar hotline** for our seminar catalog, prices, advice, and registration: +49 911 8602-935.

Online registration:

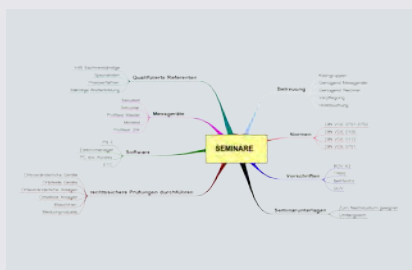
[www.gossenmetrawatt.com/training](http://www.gossenmetrawatt.com/training)

**Dates and Registration**

**What distinguishes our training department?**

- Instructors are employees of our company.
- We provide an adequate number of measuring instruments and notebooks during the seminar.
- We work in small groups.
- We show participants how hardware and software interact.
- Practice stations with corresponding instructional materials are available at the training facilities.
- The hotel is directly opposite our training facilities, and we book accommodation at a reduced price for participants.
- Free parking in the building next door
- Participants can bring instruments with them for calibration or repair.

**Contact:** e-mail: [training@gossenmetrawatt.com](mailto:training@gossenmetrawatt.com)



In addition to top quality, modern measuring and test technology, efficient implementation of legal requirements necessitates the right know-how. A well trained and accordingly qualified inspector is distinguished by both.

Course No.	Description: Seminars in 2016	Utilized Instruments	Days
<b>Testing Electrical Systems and Operating Equipment</b>			
GTT 1211	Periodic testing of electrical equipment in accordance with requirements stipulated in DIN VDE 0701-0702 and DGUV regulation 3/TRBS	SECUTEST S2N+ SECUTEST SIII	2
GTT 1311	Periodic testing of electrical equipment in accordance with requirements stipulated in DIN VDE 0701-0702 and DGUV regulation 3/TRBS	SECUTEST BASE, BASE 10	2
GTT1411	Periodic testing of electrical equipment in accordance with requirements stipulated in DIN VDE 0701-0702 and DGUV regulation 3/TRBS	SECUTEST PRO	2
GTT 1215	Measurements for testing electrical equipment at machinery per DIN VDE 0113 (EN 60204)	PROFITEST 204 / MXTRA METRAMachine 204	2
GTT 1220	Measurements for testing the effectiveness of safety measures in low-voltage systems per DIN VDE 0100/0105 and DGUV regulation 3/TRBS	PROFITEST MBASE, MTECH	2
GTT 1230	Measurements for testing the effectiveness of safety measures in low-voltage systems per DIN VDE 0100/0105 and DGUV regulation 3/TRBS, and soil resistivity measurements	PROFITEST MPRO, MXTRA	3
GTT 1240	Measurements for testing the effectiveness of safety measures in low-voltage systems per DIN VDE 0100/0105 and DGUV regulation 3/TRBS	PROFITEST INTRO	2





## SEMINARS

Our objective is to assure that you attain your goals.

Course No.	Description: Seminars in 2016	Utilized Instruments	Days
<b>Combination: Testing Electrical Systems and Operating Equipment – Courses with Testers and Software Together</b>			
GTT 7000	3-day combination seminar for SECUTEST S2N+ with PS3 user software (current version) for portable devices	SECUTEST S2N+ SECUTEST SIII	3
GTT 7100	3-day combination seminar for SECUTEST BASE/BASE 10 with PS3 user software (current version) for portable devices	SECUTEST BASE, BASE 10	3
GTT 7200	3-day combination seminar for SECUTEST PRO with PS3 user software (current version) for portable devices	SECUTEST PRO	3
GTT 7500	3-day combination seminar for PROFITEST MTECH/MBASE with PS3 user software (current version) in electrical systems	PROFITEST MBASE, MTECH	3
GTT 7600	4-day combination seminar for PROFITEST MPRO/MXTRA with PS3 user software (current version) in electrical systems and with earth resistance measurements	PROFITEST MPRO, MXTRA	4
GTT 8000	3-day combination seminar for SECUTEST S2N+ with ELEKTROmanager (current version) for portable devices	SECUTEST S2N+ SECUTEST SIII	3
GTT 8100	3-day combination seminar for SECUTEST BASE/BASE 10 with ELEKTROmanager (current version) for portable devices	SECUTEST BASE, BASE 10	3
GTT 8200	3-day combination seminar for SECUTEST PRO with ELEKTROmanager (current version) for portable devices	SECUTEST PRO	3
GTT 8500	3-day combination seminar for PROFITEST MBASE/MTECH with ELEKTROmanager (current version) in electrical systems	PROFITEST MBASE, MTECH	3
GTT 8600	4-day combination seminar for PROFITEST MPRO/MXTRA with ELEKTROmanager (current version) in electrical systems and with earth resistance measurements	PROFITEST MPRO, MXTRA	4
GTT 9000	3-day combination seminar for SECUTEST S2N+ with GMST user software (current version) for portable devices	SECUTEST S2N+ SECUTEST SIII	3
GTT 9100	3-day combination seminar for SECUTEST BASE/BASE 10 with GMST user software (current version) for portable devices	SECUTEST BASE, BASE 10	3
GTT 9200	3-day combination seminar for SECUTEST PRO with GMST user software (current version) for portable devices	SECUTEST PRO	3
GTT 9500	3-day combination seminar for PROFITEST MBASE/MTECH with GMST user software (current version) in electrical systems	PROFITEST MBASE, MTECH	3
GTT 9600	4-day combination seminar for PROFITEST MPRO/MXTRA with GMST user software (current version) in electrical systems and with earth resistance measurements	PROFITEST MPRO, MXTRA	4
GTT 3010	Efficient testing for building management in accordance with DGUV regulation 3/TRBS and DIN VDE regulations with the SECUSTAR FM+ and PS3 software	SECUSTAR FM+	3
<b>Medical Technology</b>			
GTT 1213	Electrical safety tests for medical devices with SECUTEST SIII, SECULIFE ST and SECUTEST S2N+ test instruments per DIN EN 62353 VDE 0751	SECUTEST S2N+ SECUTEST SIII SECULIFE ST	2
GTT 1214	Electrical safety tests for electrically operated hospital beds with SECUTEST SIII, SECULIFE ST and SECUTEST S2N+ test Instruments per DIN EN 62353 VDE 0751	SECUTEST S2N+ SECUTEST SIII SECULIFE ST	1
GTT 1313	Electrical safety tests for medical devices with SECUTEST BASE/BASE 10 test instruments per DIN EN 62353 VDE 0751	SECUTEST BASE, BASE 10	2
GTT 1314	Electrical safety tests for electrically operated hospital beds with SECUTEST BASE/BASE 10 test instruments per DIN EN 62353 VDE 0751	SECUTEST BASE, BASE 10	2
GTT 1413	Electrical safety tests for medical devices with the SECUTEST PRO test instrument per DIN EN 62353 VDE 0751	SECUTEST PRO	2
GTT 1414	Electrical safety tests for electrically operated hospital beds with the SECUTEST PRO test instrument per DIN EN 62353 VDE 0751	SECUTEST PRO	2



## SEMINARS

Our objective is to assure that you attain your goals.

Course No.	Description: Seminars in 2016	Utilized Instruments	Days
<b>Testing of Arc Welding Equipment</b>			
GTT 3012	Testing arc welding equipment in accordance with TRBS, BetrSichV and DIN VDE 0544-4 with the SECUTEST PRO	SECUTEST PRO	1
GTT 3013	Testing arc welding equipment in accordance with TRBS, BetrSichV and DIN VDE 0544-4 with the SECUTEST BASE/BASE 10	SECUTEST BASE, BASE 10	1
GTT 3014	Testing arc welding equipment in accordance with TRBS, BetrSichV and DIN VDE 0544-4 with the SECUTEST S2N+W	SECUTEST S2N+W	1
GTT 3015	Testing arc welding equipment in accordance with TRBS, BetrSichV and DIN VDE 0544-4 with the SECUSTAR FM+ and PS3 software	SECUSTAR FM+	2
GTT 3016	Testing arc welding equipment in accordance with TRBS and DIN VDE 0544-4 with the SECUTEST S2N+W and PS3 software	SECUTEST S2N+W	2
GTT 3017	Testing arc welding equipment in accordance with TRBS, BetrSichV and DIN VDE 0544-4 with the SECUTEST S2N+W and ELEKTROmanager	SECUTEST S2N+W	2
GTT 3018	Testing arc welding equipment in accordance with TRBS, BetrSichV and DIN VDE 0544-4 with the SECUTEST BASE/BASE 10 and PS3 software	SECUTEST BASE, BASE 10	2
GTT 3019	Testing arc welding equipment in accordance with TRBS, BetrSichV and DIN VDE 0544-4 with the SECUTEST BASE/BASE 10 and ELEKTROmanager	SECUTEST BASE, BASE 10	2
GTT 3021	Testing arc welding equipment in accordance with TRBS, BetrSichV and DIN VDE 0544-4 with the SECUTEST PRO and PS3 software	SECUTEST PRO	2
GTT 3022	Testing arc welding equipment in accordance with TRBS, BetrSichV and DIN VDE 0544-4 with the SECUTEST PRO and ELEKTROmanager	SECUTEST PRO	2
<b>Software for Administration, Following Up on Deadlines and Streamlining Test Sequences</b>			
GTT 1224H	Basic seminar covering the current version of PS3 user software in combination with the SECUTEST	SECUTEST S2N+ SECUTEST SIII	1
GTT 1227A	Basic seminar covering the current version of ELEKTROmanager in combination with the SECUTEST	SECUTEST S2N+ SECUTEST SIII	1
<b>Fundamentals of Power Disturbance Analysis</b>			
GTT 1645	Introduction to the MAVOWATT 30/40/70 and Dranview software	MAVOWATT 30 / 40 / 70	2
GTT 1646	Introduction to the MAVOWATT 230/240/270 and Dranview software	MAVOWATT 230 / 240 / 270	2
<b>Additional Training Options</b>			
On-site seminars at our customers' facilities. We'd be pleased to provide you with a quotation.			



## SERVICE

### After-Sales Service



As a leading service provider for measuring and test instruments, GMC-I Service GmbH is certified in accordance with DIN EN ISO 9001:2008 and DIN EN ISO 14001.

Our DAkkS calibration laboratory is accredited per ISO / IEC 17025:2005.

We can offer you an optimized full service package including repairs, replacement parts service, service contracts, rental instrument service, testing per DGUV regulation 3 (BGV A3 tests) and calibration services, as well as value and quality conservation measures.

Beyond this, we continuously assure the safety and reliability of all operating equipment and the advancement of our customers' employees, thus increasing their economic efficiency.

### A selection of our services:

## Calibration as an Element of Quality Assurance

### After-Sales Service



With regard to calibration as a standard feature, test equipment monitoring is included as an essential element of quality assurance in the DIN EN ISO 9000-9004 series of standards. Test equipment monitoring must assure that all test equipment with relevance for product quality measures "correctly".

In order to assure that this is the case, test equipment must be calibrated on a regular basis, and must be traceable to national standards. Ascertained measured values must be documented as well. Traceability of calibration results to national standards had already been verified for the user in the past by means of "factory certificates" as a standard feature.

However, international recognition of certificates of this sort became more and more questionable due to enormous growth in the number of calibration service providers, some of whom were unqualified. And thus to an ever greater extent, not only in other European countries do ISO 9000 inspectors demand calibration certificates issued by calibration service providers who are accredited by or associated with the EA (European Cooperation for Accreditation).

### OUR SERVICES:

- DAkkS calibration with calibration certificate
- Contractually specified testing
- Recalibration of H-rail energy meters



## Repair Service

### After-Sales Service



As a leading service provider for devices and systems for measuring, test, control and automation technology, we can provide you with extensive repair services.

Thanks to our highly qualified employees and monitored processes, we can assure quick and competent repair of your defective instrument.



## Rental Instrument Service

### After-Sales Service



Without fail, measuring instruments always break down at the most inconvenient moment, and the time required for a repair is always too long.

All of your test instruments are currently in use and a new order is received, which of course must also be completed.

Your test instrument is currently in the calibration lab but pending measurements need to be performed now.

We can offer you a rental instrument for a reasonable price under any of these circumstances.

## Update Service

### After-Sales Service



Our VDE test instruments are continuously updated to fulfill the latest standards and market requirements.

This assures that you will still be in possession of an up-to-date, standards-compliant test instrument in the future.

#### ADVANTAGES OF UPDATING:

- Always up to date with the state-of-the-art
- Adaptation to the latest standards and regulations
- Participation in technological further development
- Avoidance of unnecessary new acquisitions
- Clear-cut, calculable costs

## Replacement Parts Service

### Always Well-Supplied



Where modern, high performance measuring and test instruments are utilized, the availability of replacement parts is an important criterion. With us you're always well-supplied. Original replacement parts are available for nearly all instruments in our well-stocked warehouse.

#### Worldwide Delivery Service

As a premium service provider for measuring and test instruments, we can of course provide you with replacement part delivery services. We ship original replacement parts to you – anywhere in the world, quickly and simply.

Further information concerning our comprehensive after-sales service is available at [www.gmci-service.com](http://www.gmci-service.com).

In order to provide orientation with regard to the most important regulations and ordinances in the field of measuring technology, frequently recurring terms and abbreviations are included below.

This is followed by an overview of the various measuring categories, currently valid safety regulations and product standards.

We then offer suggestions for recommended workshop equipment for electrical installation operations based on our measuring instruments in accordance with ZVEH and VDEW directives.

Finally, we provide you with a quick overview of our extensive range of measuring and test instruments with the help of a type index.

## CONTENTS

---

### APPENDIX

- 10 - 2 Regulations and Ordinances
- 10 - 3 Safety Standard: IEC 61010-1
- 10 - 4 Recommended Workshop Equipment
- 10 - 5 Type Index



## The Fundamentals of Measuring and Test Technology

### An Orientation Aid for the Regulations Jungle: BGV, DGUV, BetrSichV, TRBS and “Preservation of the Status Quo”

#### DGUV Regulation 3 (formerly BGV A3)

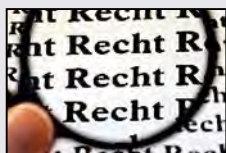


DGUV regulation 3 evolved from the merger of the two involved trade associations in 2015. DGUV regulation 3 is important with reference to the safety of electrical systems, machines and operating equipment. DGUV regulation 3, previously known as BGV A3, includes standards with which risks can be ruled out by means of testing in accordance with DGUV regulation 3. During testing, the inspector must comply with recognized rules of technology (e.g. VDE).

#### DGUV Regulation 4

DGUV regulation 4 evolved from GUV V3 as a result of the merger of the two involved trade associations. It applies to electrical systems and operating equipment, as well as community facilities, and is identical to GUV-V A3 (applications, inspectors, deadlines).

#### German Occupational Safety Law (BetrSichV)



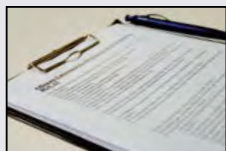
BetrSichV was issued by the German federal ministry of economics and has been in effect since the 1<sup>st</sup> of June, 2015. It's directly related to German occupational safety legislation (ArbSchG). BetrSichV applies to the use of tools and working materials in all locations at which people work, i.e. companies **and** public facilities.

In the event that BetrSichV is violated, **criminal law** applies in extreme cases – a significant difference to DGUV! Test deadlines must be determined on the basis of a hazard assessment (§ 3).

Put briefly and to the point:

A minor hazard (e.g. a PC in an office) means a longer test interval, and a significant hazard (e.g. an angle grinder) means a shorter test interval. During testing, the inspector must comply with recognized rules of technology (e.g. VDE and TRBS 1201).

#### Technical Rules of the German Ordinance on Industrial Safety and Health (TRBS)



Technical rules of the German ordinance on industrial safety and health are formulated by a committee for work safety and published by the German federal ministry of labor and social affairs. For example, a TRBS reflects the state of the art and the ergonomic findings associated with the provision and use of tools and working materials, as well as for the operation of systems which require monitoring.

The following TRBS are of special significance for us:

TRBS 1111: hazard assessment

TRBS 1201, part 1: inspection of tools and working materials

TRBS 1203, part 3: authorized person (prerequisites for an inspector)

#### Essential Differences Between BetrSichV and DGUV



- Obligatory documentation requirement
- Test deadlines must be determined by means of a hazard assessment.
- The operating company is responsible for commissioning a qualified inspector to conduct the test, and thus for the quality of the test as well.
- Violations of BetrSichV are not just misdemeanors, they may also be statutory offenses!
- Initial testing prior to start-up is mandatory under certain circumstances.

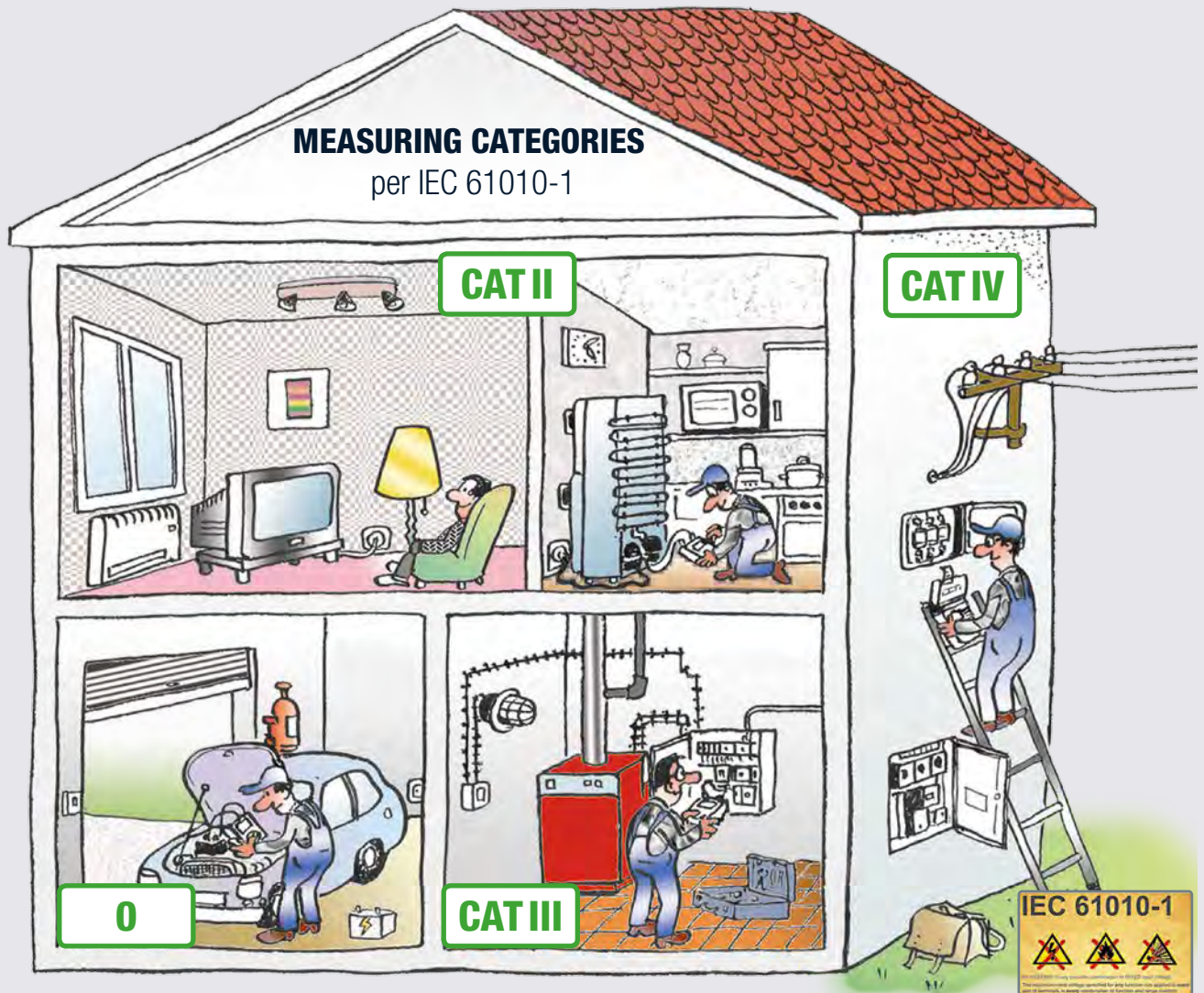
#### Preservation of the Status Quo for Electrical Systems



Retrofitting of electrical systems and operating equipment is not mandatory if:

- They complied with valid VDE regulations at the time they were set up or manufactured and still comply with them
- No adaptation to the current state of the art is required by successor standards or other bodies of rules and regulations
- The operating and ambient conditions have not changed.
- There are no defects which would represent a hazard for life and limb or any risk of property damage.

For electricians, this means that the safety aspect must always be in the foreground when providing customers with consultation.



CAT	Description	Application
0*	Measuring equipment without connection to the mains which cannot be allocated to categories CAT II through CAT IV.	For example batteries etc.
CAT II	Measurements in electrical circuits which are directly connected to the low-voltage mains	Via plug, e.g. in household, office and laboratory applications
CAT III	Measurements in building installations	Stationary consumers, distributor terminals, devices connected permanently to the distributor
CAT IV	Measurements at power sources for low-voltage installations	Meters, mains terminals, primary overvoltage protection devices

\* The possibility of designating this category in the future as "0" or "CAT 0" is currently being considered.

With regard to multimeters and test instruments, the CE declaration of conformity confirms that European regulations (low-voltage directive and EMC directive) are adhered to.

The CE declaration is a prerequisite for putting products into circulation within the European Community. Adherence is substantiated by fulfilling the following standards: IEC 61010-1 (international), DIN EN 61010-1 (German version) and VDE classification VDE 0411-1, as well as product standards for devices used for testing, measuring or monitoring protective measures. IEC 61557, parts 1 through 16 (international), DIN EN 61557, parts 1 through 16 (German version) and DIN VDE 0413, parts 1 through 16.

Safety requirements for electrical equipment for measurement, control and laboratory use are described in this standard.

#### Currently valid safety regulations include:

- IEC 61010-1:2010 + Cor.:2011
- DIN EN 61010-1:2011-07
- VDE 0411-1:2011-07

#### Currently valid product standards include:

- IEC 61557-1 through 16:2014
- DIN EN 61557-1 through 16 :2015
- VDE 0413-1 through 16 :2016



### Recommended Workshop Equipment in Accordance with ZVEH and VDEW Guidelines

Required Measuring and Test Instruments	Per Standard	For First-Time Users	Standard	For Efficient Work
Test bay with permanently integrated measuring instruments	DIN VDE 0104	 METRATESTER 5+3P	 SECUTEST 21F	 METRATESTER 5+3P / VL2E
Test instruments for electrical equipment	DIN VDE 0701-0702	 METRATESTER 5+	 SECUTEST BASE	 SECUTEST PRO
Voltmeters to at least 600 V Ammeters to at least 15 A continuity test	DIN VDE 0410 DIN VDE 0403	 METRAHIT 2+ with WZ12C current clamp transformer	 METRAHIT TECH with WZ12C current clamp transformer	 METRAHIT TECH with Z3512A current clamp sensor
Current clamp meters to at least 300 A	—	 METRACLIP 410	 METRACLIP 410	 METRACLIP 86
Test instrument for insulation measurement, loop resistance, testing RCCBs/RCDs, R <sub>LO</sub> measurement, earthing resistance	DIN VDE 0413, part 2 DIN VDE 0413, part 3 DIN VDE 0413, part 4 DIN VDE 0413, part 6 DIN VDE 0413, part 7	 PROFITEST INTRO	 PROFITEST MTECH+	 PROFITEST MXTRA
Earth testers	DIN VDE 0413, part 5	—	 GEOHM C	 GEOHM C
Single-pole voltage testers, 2-pole voltage testers	DIN VDE 0680, part 5 DIN VDE 0682, part 401	 Duspol Digital 1000	 Duspol Digital 1000	 METRAVOLT 12D+L
Continuity testers	DIN VDE 0403	—	 ProfiSafe 690 L	 ProfiSafe 690 B
Phase sequence indicators	DIN VDE 0413-7	 PhaseCop 2	 PhaseCop 2	 METRAPHASE 1



**Numerics**

1081 Probe ..... 03 - 26

**A**

A3-16 ... 63 Three-Phase Current Adapter ..... 03 - 25  
 Accessories for Laboratory Power Supplies ..... 05 - 12  
 Accessories for PROFITEST 204+ ..... 03 - 19  
 Accessories for PROFITEST PV ..... 03 - 17  
 Accessories: MAVOWATT 230, 240, 270 ..... 02 - 5  
 AC current clamp sensors ..... 03 - 25  
 AC Current Transformers ..... 01 - 25  
 AC/DC Current Sensors ..... 01 - 24  
 Aero MasterTest Kit II ..... 01 - 9  
 AT3-III-E ..... 04 - 14  
 AT3-IIS ..... 04 - 14  
 AT3-IIS32 ..... 04 - 14  
 AT16-DI ..... 04 - 14  
 AT32-DI ..... 04 - 14

**B**

Barcode printer ..... 04 - 18  
 Barcode Printer / Report Printer ..... 04 - 18  
 Barcode Reader/Scanner ..... 04 - 19  
 Barcode Scanner ..... 03 - 8  
 Battery Set ..... 03 - 25  
 BD232 ..... 01 - 22  
 BD PACK 1 ..... 01 - 23  
 Brush Probe ..... 04 - 17

**C**

CEE16 Adapter Cable ..... 04 - 16  
 CEE32 Adapter Cable ..... 04 - 16  
 Clamps ..... 04 - 17  
 Control technology  
   Compact Controllers ..... 08 - 2  
   Controller Modules ..... 08 - 2  
   Soft Controllers ..... 08 - 2

**D**

DGVU Regulation 3 ..... 10 - 2  
 DranView 6 Software ..... 06 - 5  
 DranView 7 Software ..... 06 - 5  
 DUSPOL ..... 03 - 34

**E**

E-CHECK Set ..... 03 - 27  
 E-CLIP 1, 2 ..... 03 - 32  
 EL1 ..... 04 - 16  
 Energy Management  
   Current Transformers ..... 08 - 2  
   Energy Meters ..... 08 - 2  
   Load Management / Load Optimization ..... 08 - 2  
   Multifunctional Power Meter ..... 08 - 2  
   Software ..... 08 - 2  
   Summators ..... 08 - 2  
 Energy Management / Control Technology ..... 08 - 1  
 E-Set 3, 4, 5 ..... 03 - 30  
 ETC Software ..... 06 - 7

**F**

Flexible AC Current Sensors ..... 01 - 24

**G**

GENERATOR 5000A ..... 03 - 24  
 GEOHM 5 ..... 03 - 28  
 GEOHM C ..... 03 - 28  
 German Occupational Safety Law (BetrsichV) ..... 10 - 2  
 GMC-I Service ..... 09 - 5  
 GMST Software ..... 06 - 7  
 Guard 5000A ..... 03 - 24

**H**

High Frequency Probe ..... 01 - 28

**I**

ISO CALIBRATOR 1 ..... 03 - 23

**K**

Kelvin Clips ..... 01 - 29  
 KONSTANTER Series Software ..... 06 - 4  
 KONSTANTER: SPL Series ..... 05 - 3  
 KONSTANTER: SSL Series ..... 05 - 3  
 KONSTANTER: SYSKON P Series ..... 05 - 5  
   SYSKON IP500 ..... 05 - 5  
   SYSKON IP800 ..... 05 - 5  
   SYSKON IP1500 ..... 05 - 5  
   SYSKON IP3000 ..... 05 - 5  
   SYSKON IP4500 ..... 05 - 5  
 KS13 Cable Set ..... 04 - 16  
 KS24 Cable Set ..... 03 - 25  
 KY 5000A ..... 03 - 24

**L**

LABKON P Series, Single-Channel,  
 Computer Controlled Laboratory Power Supplies ... 05 - 9  
 Leadex 5000 ..... 03 - 24  
 LSP 32K KONSTANTER, Single-Channel,  
 Computer Controlled Laboratory Power Supplies ... 05 - 9

**M**

Magnetic Measuring Probes ..... 03 - 24  
 MAVOSYS I 10 ..... 02 - 10  
 MAVOWATT I 4 ..... 02 - 10  
 MAVOWATT I 20 ..... 02 - 6  
 MAVOWATT I 30 ..... 02 - 7  
 MAVOWATT I 230 / 240 / 270 / 270-400 ..... 02 - 3  
 Measurement Cable ..... 03 - 25  
 MET/CAL® Procedures ..... 06 - 2  
 METRACAL IMC ..... 01 - 16  
 METRACLIP EARTH ..... 03 - 29  
 METRAFLEX P300 ..... 03 - 9  
 METRAHIT I 1A / 2A ..... 01 - 14  
 METRAHIT I 1ASi ..... 01 - 17  
 METRAHIT I 2+ ..... 01 - 8  
 METRAHIT I 27EX ..... 01 - 12  
 METRAHIT I 27I / 27AS ..... 01 - 11  
 METRAHIT I 27M ..... 01 - 10  
 METRAHIT 27M ..... 01 - 9  
 METRAHIT I 30M ..... 01 - 6

METRAHIT I BASE ..... 01 - 4  
 METRAHIT I CAL / CAL PACK ..... 01 - 17  
 METRAHIT I COIL ..... 01 - 9  
 METRAHIT I EBASE ..... 01 - 5  
 METRAHIT I ENERGY ..... 01 - 7  
 METRAHIT I H+E CAR ..... 01 - 11  
 METRAHIT I ISO ..... 01 - 9  
 METRAHIT I ISO@AERO ..... 01 - 9  
 METRAHIT I OUTDOOR ..... 01 - 6  
 METRAHIT I T-COM ..... 01 - 10  
 METRAHIT I T-COM PLUS ..... 01 - 10  
 METRAHIT I ULTRA ..... 01 - 7  
 METRAHIT I WORLD ..... 01 - 8  
 METRALINE I DMM 15 ..... 01 - 8  
 METRALINE I DMM 16 ..... 01 - 8  
 METRALINE EXM 25 ..... 01 - 12  
 METRALINE I ISO CHECK ..... 03 - 15  
 METRALINE I RCDCHECK ..... 03 - 14  
 METRALINE I ZCHECK ..... 03 - 14  
 METRAMACHINE I 204 / 2.5+ ..... 03 - 18  
 METRAMACHINE I 439 / 5.4+ ..... 03 - 18  
 METRAmax 2 ..... 01 - 15  
 METRAmax 3 ..... 01 - 15  
 METRAmax 6 ..... 01 - 15  
 METRAmax12 ..... 01 - 14  
 METRAOHM I 413 ..... 03 - 21  
 METRAPHASE 1 ..... 03 - 33  
 METRAport I 3A ..... 01 - 13  
 METRAport 3A ..... 01 - 13  
 METRAport I 40S ..... 01 - 13  
 METRATESTER 5+ ..... 04 - 11  
 METRATESTER 5+ | 3P ..... 04 - 11  
 METRATHERM I 1 ..... 03 - 15  
 METRAVOLT 12D + L ..... 03 - 35  
 METRAwin 10 / METRAHit Software ..... 06 - 3  
 METRAwin 90-2 Software ..... 06 - 2  
 METRAwin 90-F / -FJ Software ..... 06 - 2  
 METRISO I 5024 ..... 03 - 22  
 METRISO C ..... 03 - 21  
 METRISO INTRO / BASE / TECH / XTRA / PRO ..... 03 - 20  
 METRISO PRIME ..... 03 - 22  
 METRISO PRIME+ ..... 03 - 23  
 MINITEST 3P I MASTER ..... 04 - 12  
 MINITEST I BASE ..... 04 - 12  
 MINITEST I MASTER ..... 04 - 12  
 MINITEST I PRO ..... 04 - 12  
 MSP 64D KONSTANTER ..... 05 - 8  
 Multimeter Accessories ..... 01 - 29  
 Multimeter Cable Sets ..... 01 - 28

**N**

NA HIT 2x ..... 01 - 23  
 NA HIT 27 ..... 01 - 23  
 NA T-COM ..... 01 - 23  
 NA X-TRA ..... 01 - 23

**O**

OEM Power Supplies ..... 05 - 12



<b>P</b>			
PA4 Patient Connector Cable .....	04 - 17	SECUTEST I BASE .....	04 - 4
PC.doc-WORD/EXCEL .....	06 - 8	SECUTEST Pouches, Cases .....	04 - 19
PHASECOP 2 .....	03 - 32	SECUTEST I PRO .....	04 - 5
PMA 16 .....	01 - 22	SECUTEST PSI .....	03 - 19*04 - 18
PRO-AB .....	03 - 24	SECUTEST I S2N+ .....	04 - 7
Probe Set .....	03 - 26	SECUTEST I S2N+ 10 .....	04 - 7
PRO-CH Adapter .....	04 - 16	SECUTEST Si+ .....	03 - 19
Product Standards .....	10 - 3	SECUTEST I Si+ .....	04 - 18
PROFISAFE 690 B/L .....	03 - 35	SECUTEST SIII+ .....	04 - 8
PROFISCAN I ETC D .....	03 - 8	SECUTEST I WP .....	04 - 13
PROFISIM 1 .....	03 - 12	Seminars with Practical Experience .....	09 - 2
PROFISIM 2 .....	03 - 13	Service	
PROFITEST 204 HP / 2.5 KV .....	03 - 19	Rental Instrument Service .....	09 - 6
PROFITEST 204 HV / 5.4 KV .....	03 - 19	Replacement Parts Service .....	09 - 6
PROFITEST 204 I + / L+ .....	03 - 18	Update Service .....	09 - 6
PROFITEST I C .....	03 - 7	SHUNTS .....	01 - 22
PROFITEST H+E BASE .....	03 - 10	SK2 Probe Cable .....	04 - 16
PROFITEST H+E TECH .....	03 - 11	SK5 Probe Cable .....	04 - 16
PROFITEST I INTRO .....	03 - 7	SM16 .....	01 - 22
PROFITEST I MASTER .....	03 - 4	SORTIMO L-BOXX GM .....	03 - 27
PROFITEST MASTER Test Packages .....	03 - 6	SP350 .....	03 - 26
PROFITEST: Pouches and Cases .....	03 - 27	SSP 62N/64N 500 ... 3000 W, Single-Channel, Program- mable Laboratory Power Supplies .....	05 - 7
PROFITEST I PRCD .....	03 - 9	SSP / SLP 32N 120 ... 320 W, Single-Channel, Program- mable Laboratory Power Supplies .....	05 - 6
PROFITEST I PV .....	03 - 16	<b>T</b>	
PROFITEST I PV SUN .....	03 - 17	Temperature Probe (TC) .....	01 - 26
PROFITEST I PV SUN MEMO .....	03 - 17	Temperature Sensors .....	01 - 26*04 - 17
PRO-PE Clip .....	03 - 26	T/H sensor .....	03 - 24
PRO-TYP I Adapter .....	03 - 31	TRBS .....	10 - 2
PRO-TYP II Adapter .....	03 - 31		
<b>R</b>		<b>U</b>	
Recommended Workshop Equipment .....	10 - 4	USB-HIT / USB-PACK .....	01 - 22
RS 232 – USB Converter .....	04 - 16	USB I XTRA .....	01 - 23
<b>S</b>		USB I XTRA SET .....	01 - 23
Safety Regulations .....	10 - 3	<b>V</b>	
SCANBASE / SCANWRITE I RFID .....	03 - 8*04 - 19	VARIO Plug Adapter Set .....	03 - 26
SECU-CAL 10 .....	04 - 15	VL2E .....	04 - 15
SECULIFE		<b>Z</b>	
Function Testers .....	07 - 2	Z745A CEE Adapter .....	04 - 15
HF Surgery Function Testers .....	07 - 2		
Patient Simulators .....	07 - 2		
Photometry .....	07 - 2		
Safety Testers .....	07 - 2		
Software .....	07 - 2		
SECULIFE I SB .....	04 - 10		
SECULIFE I SR .....	04 - 10		
SECULIFE I ST .....	04 - 8		
SECULOAD .....	04 - 15		
SECUSTAR I FM+ .....	04 - 9		
SECUSTORE .....	04 - 18		
SECUTEST 3PL .....	04 - 13		
SECUTEST 21F .....	04 - 13		

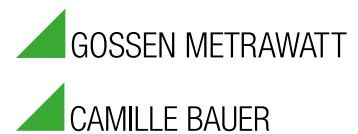
<b>MEASURING AND TEST TECHNOLOGY</b>
<b>Measuring Systems for Medical Technology</b>
Function Testers
Safety Testers
<b>Measuring Technology – Universal</b>
Power Quality – Energy – Power
Field Measuring Systems, Cable Detection Devices
Resistance Thermometers / Clamp Meters
Digital Multimeters
Analog Multimeters
Multimeter Accessories
Calibrators
Temperature Measuring Instruments
<b>Testing Technology – Electrical</b>
Electrical Installations and Equipment Testing (permanently installed)
Electrical Device Testing (portable)
Electrical Machinery Testing
Earthing, Insulation, Low-Resistance
Workshop Test Panels
AS Interface Test Instruments
<b>Power Supply Technology</b>
Laboratory Power Supplies
Electronic Loads
Customer-Specific OEM Power Supplies
<b>Software for</b>
Measuring Instruments – Testers – Power Supplies

<b>INDUSTRIAL MEASURING AND CONTROL TECHNOLOGY</b>
<b>Measuring Technology – Industrial</b>
Measuring Transducers for Temperature and DC Quantities
Measuring Transducers for Heavy Current Quantities
Measuring Transducers for Angle of Rotation and Position
DC Signal Isolators, Isolating Transformers
Power Packs, Mounting Racks
Isolating Switch Amplifiers, Isolating Amplifiers
Valve Control Modules, Limit Value Indicators
Thermocouples, Resistance Thermometers
<b>Ex-i Equipment</b>
<b>Energy Management</b>
Energy Meters, Summators, Additional Components
Power – Energy – Power Quality – Load Optimization
<b>ECS – Energy Control System</b>
Energy Management – Engineering
Competent Project Management Partner
<b>Control Technology</b>
Compact Controllers, Multi-Channel Control Systems
CoDeSys and PC Worx Software Controllers
<b>Recording Technology</b>
Display Recorders
Continuous Line Recorders
Point Recorders
<b>Software for</b>
Energy Control System – Measuring Transducers – Isolating Amplifiers – Controllers



Further information about our company is available at [www.gossenmetrawatt.com](http://www.gossenmetrawatt.com).

# GMC INSTRUMENTS



## Sales Partners in More Than 40 Countries

### ELECTROMEDICIONES KAINOS S.A.

Poligon Industrial Est · Energia, 56  
E-08940 Cornellá de Llobregat · Barcelona  
Phone: +34 934 742 333 · Fax: +34 934 743 470  
www.kainos.es · kainos@kainos.es

### GMC-INSTRUMENTS ITALIA S.R.L.

Via Romagna, 4  
I-20046 Biassono (MI)  
Phone: +39 039 2480 51 · Fax: +39 039 2480 588  
www.gmc-instruments.it · info@gmc-i.it

### GMC-INSTRUMENTS NEDERLAND B.V.

Daggeldersweg 18  
NL-3449 JD Woerden  
Phone: +31 348 42 11 55 · Fax: +31 348 42 25 28  
www.gmc-instruments.nl · info@gmc-instruments.nl

### CAMILLE BAUER METRAWATT AG

Aargauerstrasse 7  
CH-6610 Wohlen AG  
Phone: +41 44 308 80 80 · Fax: +41 44 308 80 88  
www.gmc-instruments.ch · salesch@gmc-instruments.ch

### GMC-INSTRUMENTS FRANCE SAS

3 rue René Cassin  
F-91349 Massy Cedex  
Phone: +33 1 6920 8949 · Fax: +33 1 6920 5492  
www.gmc-instruments.fr · info@gmc-instruments.fr

### GMC-MĚŘICÍ TECHNIKA S.R.O.

Függerova 1a  
CZ-67801 Blansko  
Phone: +420 516 482 611/-617 · Fax: +420 516 410 907  
www.gmc-cz · gmc@gmc.cz

### GMC-INSTRUMENTS AUSTRIA GMBH

Richard-Strauss-Str. 10 / 2  
A-1230 Vienna  
Phone: +43 1 890 2287 · Fax: +43 1 890 2287 99  
www.gmc-instruments.co.at · office@gmc-instruments.co.at

### GMC-INSTRUMENTS (TIANJIN) CO., LTD.

Rm.710 · Jin Ji Ye BLD. No. 2 · Sheng Gu Zhong Rd.  
P.C.: 100022 · Chao Yang District  
Phone: +86 10 84798255 · Fax: +86 10 84799133  
www.gmci-china.cn · info@gmci-china.cn

## Your Sales Partner



### GMC-I Messtechnik GmbH

Südwestpark 15 ▪ 90449 Nürnberg ▪ Germany  
Phone: +49 911 8602-999 ▪ Fax: +49 911 8602-125

www.gossenmetrawatt.com ▪ export@gossenmetrawatt.com