

Measuring Instruments and Testers



2014 / 2015



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 further 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!



WHO WE ARE

 GMC INSTRUMENTS

 METRAWATT INTERNATIONAL

 GOSSEN METRAWATT

 CAMILLE BAUER

GMC-I  PROSyS

GMC-I  MESSTECHNIK

GMC-I  SERVICE



GOSSEN

MORE THAN 100 YEARS OF QUALITY AND INNOVATION

The GOSSEN METRAWATT, CAMILLE BAUER, DRANETZ and GMC-I ProSyS brand names 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, Camille Bauer in Wohlen, Switzerland, sets standards in the areas of industrial measuring and process engineering, Dranetz in New Jersey (USA) is specialized in mains quality and analysis, and GMC-I ProSyS (GB) stands for high precision clamp measuring technology. GOSSEN Foto- und Lichtmesstechnik GmbH is highly successful in the photometry market.

Our international production facilities are located in Germany, Switzerland, England and the USA, and we demonstrate on-site presence in Italy, the Netherlands, the Czech Republic, Switzerland, Austria, France, Spain and China with our own 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 GOSSEN 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 was continued in Erlangen a year later.

The two merged to form GOSSEN METRAWATT GmbH in 1992.





OVERVIEW



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Safe, reliable multimeters for every application

SoftwareSection 6

Transfer, display, manage and document data – Gossen Metrawatt’s software products

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Improved electrical systems stability with GOSSEN METRAWAT’s power disturbance analyzers

Medical TechnologySection 7

SECULIFE is the new, dependable brand name for top quality testers in medical technology

Test Instruments.....Section 3

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

Energy Management.....Section 8

Professional energy data logging for industry and building management for efficient energy use

Test Instruments.....Section 4

Test instruments for testing the electrical safety of electrical equipment

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Safety through competence – competence through training

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Controllable current and voltage sources, electronic loads

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SECUTEST | BASE



METRALOG-APP



PROFITEST-APP



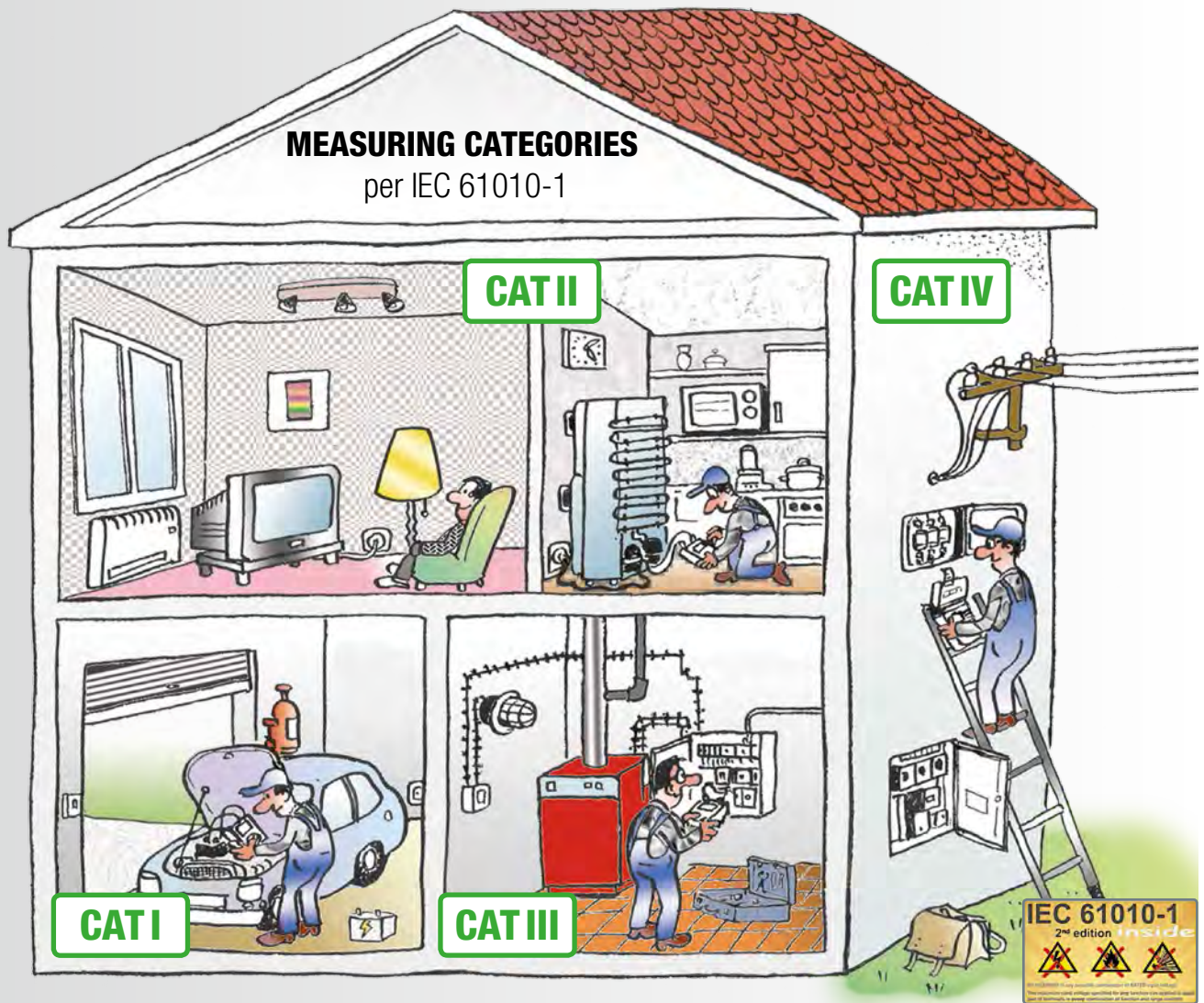
METRAHIT | T-COM XTRA



METRAHIT | ULTRA BT



PROFITEST | MXTRA



CAT	Description	Application
CAT I (0)*	Measurements in electrical circuits which are not directly connected to the mains	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

* Per DIN EN 61010-2-030

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), EN 61010-1 (German version) and VDE classification VDE 0411-1.

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 61010-1:2010
- ▲ VDE 0411-1:2011

RECOMMENDED WORKSHOP EQUIPMENT

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
Measuring instruments for electrical devices	DIN VDE 0701-0702	 METRATESTER 5+	 SECUTEST BASE	 SECUTEST BASE 10
Voltmeters to at least 600 V. Ammeters to at least 15 A continuity test	DIN VDE 0410 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 72
Tester for insulation measurement, loop resistance, testing RCCBs / RCDs, R _{L0} measurement, earth 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 2	 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 690L	 ProfiSafe 690 B
Phase sequence indicators	DIN VDE 0413-7	 PhaseCop 2	 PhaseCop 2	 METRAPHASE 1

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 digital multimeters 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.



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A SERIES

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



METRAHIT|BASE

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METRAHIT|PRO

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METRAHIT|TECH

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METRAHIT|XTRA

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E SERIES

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



METRAHIT|EBASE

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METRAHIT|ESPECIAL

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METRAHIT|ETECH

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METRAHIT|EXTRA

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S SERIES

Precision TRMS Multimeters, Temperature Measuring Instruments and Data Loggers for Demanding, Universal Applications in the Lab, and for Service Calls



METRAHIT|OUTDOOR

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METRAHIT|30M

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METRAHIT|ENERGY

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METRAHIT|ULTRA

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HANDHELD DIGITAL MULTIMETERS:

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



METRAHIT|2+

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METRAHIT|WORLD

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METRALINE DMM15/16

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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

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METRAHIT|ISO@AERO

Page 1-9



METRAHIT|COIL

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METRAHIT|T-COM / PLUS / XTRA

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MILLIOHMETER 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

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METRAHIT|27I

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METRAHIT|H+E CAR

Page 1-11

EX MULTIMETERS

Explosion-Proof Digital Multimeters and Milliohmmeters.

Thanks to their intrinsically safe design and a rugged housing, they're suited for use in the mining, chemical and petrochemical industries



METRAHIT | 27Ex

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METRALINE | EXM25

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FOLDING DIGITAL/ ANALOG MULTIMETERS

4¾ Place TRMS Digital Multimeters for Professional Use with a Resolution of 30,000 Digits



METRAport | 40S

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METRAport | 3A

Page 1-13

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

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METRAHIT | 1A, 2A

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METRAMax | 2 / 3

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METRAMax | 6

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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 1-16



METRAHIT | CAL

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DIAGNOSTICS UNIT

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



METRAHIT | 1ASi

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MULTIMETER ACCESSORIES

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



SM16

Page 1-22



CP30

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KS17-ONE

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F841

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METRAHIT | **BASE**



METRAHIT | **PRO**



METRAHIT | **TECH**



METRAHIT | **XTRA**



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

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

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 ± 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 interface and power pack socket

- ▲ IR interface and integrated measured 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

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 ₀ 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 µA ... 10 (16) A	10 nA ... 10 (16) A
Capacitance measurement	–	–	■	■
Resolution	12,000	12,000	12,000	12,000

METRAHIT | EBASE



METRAHIT | ESPECIAL



METRAHIT | ETECH



METRAHIT | EXTRA



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

4⁶/₇ Place High-End TRMS Digital Multimeter, System Compatible with IR Interface – Resolution: 60,000 Digits

Standard for E series:

- ▲ Resolution: 60,000 digits, 4⁶/₇ place, basic accuracy of ± 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 measured 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

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 _o 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 µA ... 10 (16) A	10 nA ... 10 (16) A
Capacitance measurement	–	–	■	■
Resolution	60,000	60,000	60,000	60,000

METRAHIT | **OUTDOOR**



Type	Article
METRAHIT OUTDOOR	M2400

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 is 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 the METRAHIT OUTDOOR:

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

METRAHIT | **30M**



Type	Article
METRAHIT 30M	M230B

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)
- ▲ CAT II @ 600V per IEC 61010-1

Included with the METRAHIT 30M:

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

METRAHIT ENERGY



Type	Article
METRAHIT ENERGY	M249A

Power Multimeter and Mains 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 mains analyzer (power quality tool) for testing mains quality.

Features:

- ▲ Resolution: 60,000 digits, 4⁶/₇ place, basic accuracy of ± 0.05% (V_{DC})
- ▲ V_{AC}, AC+DC TRMS (100 kHz), V_{DC}, A_{AC}, AC+DC TRMS, A_{DC}, dB, Hz (V), Hz (A), Ω, μF, diode, °C/°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
- ▲ Mains quality analysis: detection of over and undervoltage (> 0.5 s), dips/swells (> 10 ms), voltage peaks (> 0.5 s) and transients (> 5 μs), 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 15th 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 the METRAHIT ENERGY:

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

METRAHIT ULTRA



Type	Article
METRAHIT ULTRA	M248A
METRAHIT ULTRA BT	M248B

Precision Multimeter – Optionally with Integrated Bluetooth® and App

Handheld digital multimeter with TRMS measurement including, 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 , °C / °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 1.5 V AA batteries
- ▲ DAkkS calibration certificate

Freeware

App for smartphone or tablet with Android™ for the Bluetooth® variant

METRAHIT 2+



Type	Article
METRAHIT 2+	M205A

TRMS Digital Multimeter

3⁶/₇ 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 µA to 10 (16) A
- ▲ Resolution: 60,000 digits, basic accuracy of ± 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 1.5 V AA batteries
- ▲ Rubber holster
- ▲ DAkkS calibration certificate

METRAHIT World



Type	Article
METRAHIT WORLD	M206A

Universal TRMS Digital Multimeter with IR Interface

3⁶/₇ 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, µF, speed, duty cycle
- ▲ Resolution: 60,000 digits, basic accuracy of ± 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 1.5 V AA batteries
- ▲ Rubber holster and DAkkS calibration certificate

METRALINE DMM15 METRALINE DMM16



Type	Article
METRALINE DMM15	M195A
METRALINE DMM16	M196A

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

METRAHIT ISO



Type	Article
METRAHIT ISO	M246B

4¾ Place Multimeter and Insulation Tester

4¾ 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, Ω, μF, diode, °C / °F (TC/RTD)
- ▲ Direct measurement of current: 100 nA ... 10 A, as well as via current clamp sensors with clip factor
- ▲ Low-pass filter can be activated, 1 kHz/-3 dB for V_{AC}
- ▲ Insulation resistance measurement with adjustable test voltage (50, 100, 250, 500, 1000 V) and detection of interference voltage – up to 3 GΩ
- ▲ 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

METRAHIT ISO@AERO / MASTER TEST KIT



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

Special Version for Avionics Services

Special version for avionics services with special low-voltage insulation measurement and data hold function. Ω 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.

Included with ISO@AERO (M246M): same as 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

METRAHIT COIL



METRAHIT COIL



Coil Test Adapter

Type	Article
METRAHIT COIL	M246C

4¾ Place Motor Coil and Insulation Tester

4¾ place insulation and motor coil tester for service applications for measuring and testing industrial trucks and other applications with asynchronous motors – resolution: 30,000 digits – 28 multimeter functions

- ▲ Short-circuited coil detection with 1000 V test voltage for asynchronous motors with comparison of motor coil decay time
- ▲ Automatic bar graph display of motor coil scatter as a percentage
- ▲ Insulation resistance measurement up to 3 GΩ 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} @ 1 MΩ, 1 kHz low-pass @ V_{AC}, V_{DC}, A_{AC}, AC+DC TRMS, A_{DC}, dB, Hz, duty cycle (%), Ω, μF, diode, °C / °F (TC/RTD)
- ▲ Duty cycle as percentage up to 30 V (U_{max}: 1 kV – not specified)
- ▲ Direct current measurement: 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

METRAHIT | T-COM
METRAHIT | T-COM PLUS



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

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

- ▲ V_{AC}, AC+DC TRMS (10 kHz), V_{DC}, A_{AC}, AC+DC TRMS, A_{DC}, Hz, Ω, μF, 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 the T-COM plus (M246S): KS17-2 measurement cable set and two 1.5 V AA batteries, DAkkS calibration certificate

METRAHIT | T-COM XTRA



Type	Article
METRAHIT T-COM XTRA	M260B

3¼ Place Telecommunications Multimeter with Graphic Display

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

- ▲ Color graphic display with illumination and inverse mode, simultaneous display of cable symmetry
- ▲ User-friendly menu prompting with integrated measuring function help
- ▲ Guided measuring sequence in the AUTO mode for U interference, R_{iso}, C_{Line}, R_{SL} – a-b, a-E and b-E with display of results overview
- ▲ All of the functions included with the METRAHIT T-COM PLUS
- ▲ Insulation resistance measurement with 6 and 100 V test voltages
- ▲ Simultaneous earth capacitance measurements a-E and b-E with symmetry display
- ▲ RSL measurements between a-b, a-E and b-E
- ▲ Integrated signature adapter for signature detection and interference-resistant capacitance measurements
- ▲ Remote control of electronic KE900 (DTMF) or TX915 (pulse code) test unit
- ▲ Rechargeable lithium ion battery

Included with the METRAHIT T-COM XTRA: KS21-T measurement cable set, charger (Z218T), DAkkS calibration certificate

METRAHIT | 27M



Type	Article
METRAHIT 27M	M227A

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 mΩ @ 1 A (pulsed), 30.00 / 300.00 mΩ @ 200 mA, 3.0000 / 30.000 Ω @ 20 mA
- ▲ Multimeter functions: 3.0000 ... 600.0 V_{AC, DC}, 300.00 Hz ... 3.0000 kHz, 300.0 Ω ... 30.000 MΩ, 30.00 ... 3000 MΩ, diode (3 V) / continuity, -200.0 ... +600.0 °C (F) (RTD)
- ▲ DATA hold memory for up to 1200 measured values
- ▲ IR Interface
- ▲ 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 (AA), DAkkS calibration certificate

METRAHIT 27I / 27AS



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

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 gigohm 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 to 600 V DC and 3 to 600 V AC with 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 27 I (M227B):

- ▲ KS17-S measurement cable set
- ▲ 3 rechargeable NiMH batteries (AA)
- ▲ NA HIT 27 charger
- ▲ KC4 set of Kelvin clips (2 pieces)
- ▲ DAkkS 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 incl. with the METRAHIT 27 I Set (M227S):

- ▲ HC30 hard case
- ▲ KS17-2 measurement cable set

METRAHIT H+E CAR



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

Measuring Instrument for Hybrid and Electric Vehicles

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

- ▲ 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 M227T:

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

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)
- ▲ Automotive diagnostics case (Z227T)

Included with the METRAHIT H+E CAR HC30 (M227O):

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



METRAHIT 27EX



4 1/2 Place Milliohmmeter for Potentially Explosive Atmospheres

4 1/2 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:

- ▲ 8 rechargeable NiMH batteries with Ex approval
- ▲ KC27 Kelvin probe (1 piece)
- ▲ KC4 Kelvin clip (1 piece)
- ▲ HC30 hard case
- ▲ DAkkS calibration certificate
- ▲ Ex certificate: INERIS 05ATEX00401

Special variant for AIRBUS (M227G):

- ▲ With AIRBUS logo, ID no. 97F92003500 per AMM

Type	Article
METRAHIT 27EX	M227F
METRAHIT 27EX AIRBUS	M227G

METRALINE EXM 25



Digital Multimeter for 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 ... 2 A
- ▲ Frequency: 0.1 Hz ... 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, CAT IV, 1000 V
- ▲ 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



Type	Article
METRAport 40S	M234D

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), μ 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_{DC}), 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 1.5 V AA batteries
- ▲ Carrying strap
- ▲ DAkkS calibration certificate

METRAport|3A



Type	Article
METRAport 3A	M113A

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 Ω 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 Ω to 20 M Ω
- ▲ 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, Ω)

Included with the METRAport 3A:

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

METRAMAX | 12



METRAMax 12



METRAMax 12 Set

Type	Article
METRAMax 12	M212A
METRAMax 12 SET1	M212D

Handheld Digital/Analog Multimeter

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

Features:

- ▲ Switchable input resistance: 10 MΩ/400 kΩ
- ▲ V (AC, DC), A (AC, DC) to 10 A, Ohm, continuity, diode, Hz, μF
- ▲ Resolution: 4000 digits, basic accuracy of ± 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 (article: M212D):

- ▲ With HC20 case and WZ12A current clamp

METRAHIT | 1A / 2A



Analog Multimeter

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

Technical Data:

- ▲ 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= / ~; 0 ... 1000 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 Ω ... 1 MΩ
- ▲ Level: -15 ... +56 dB

Type	Article
METRAHIT 1A	M100A
METRAHIT 2A	M101A

Included with METRAHIT 1A / 2A:

- ▲ 9V flat cell battery per IEC 6LR61

METRMax 2



Type	Article
METRMax 2	M102A

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 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 (W x H x D): 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)

Scope of delivery:

- ▲ METRMax 2 multimeter

METRMax 3



Type	Article
METRMax 3	M103A

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 (W x H x D): 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 Ω ... 500 k Ω
- ▲ 230 V automatic circuit breaker

Included with the METRMax 3:

- ▲ One 1.5 V AA battery

METRMax 6



Type	Article
METRMax 6	GTM3060000R001

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. 0.3 kg without battery
- ▲ Accuracy per IEC/EN 60051, class 1.5
- ▲ Resistance measurement: 0.05 Ω ... 1 M Ω
- ▲ Capacitance measurement (rough): 0 ... 30,000 μ F

Included with the METRMax 6:

- ▲ One 1.5 V AA battery

METRACAL | MC



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

Multifunctional Process Calibrator and Multimeter

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

The new, 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 Ω), pulse count 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 °C or °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/°C (Pt100/1000, Ni100/1000, type J, L, T, U, K, E, S, R, B and N thermocouples/ 30 ... 2 000 Ω
- ▲ Precision multimeter (V, A, Ω, F, Hz, °C/°F), display: 30,000 (60,000) digits and triple display, basic accuracy of ± 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 1 kHz
- ▲ Measurement and simulation in absolute terms and as percentages (scaled)
- ▲ Memory for measurement results: 2 MB
- ▲ Frequency and pulse run generators: 1 Hz ... 2 kHz
- ▲ Ramp and staircase functions
- ▲ METRAwin® 90-2 calibration software (optional), METRAwin10 / METRAHIT software (optional)
- ▲ Transmitter simulator (sink: 0 ... 24 mA)
- ▲ DAkkS calibration certificate included
- ▲ Rugged, EMC compliant design
- ▲ Measuring category: 300 V CAT II
- ▲ IP 65 protection
- ▲ Power pack connector jack

Included with the METRACAL MC:

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

Type	Article
METRACAL MC	M245A

METRAHIT | CAL / CAL PACK



Type	Article
METRAHIT CAL	M244A
METRAHIT CAL Pack	M244B

Multifunctional Calibrator

Multifunctional calibrator for process engineering – 18 calibrator functions. The newly developed 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 function as well as procedures. Automated sequences with adjustable time quantities can be generated for all simulation quantities.
- ▲ 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

Included with the METRAHIT CAL:

- ▲ KS17-2 measurement cable set
- ▲ Rubber holster with carrying strap
- ▲ Two 1.5 V 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

METRAHIT | 1ASI



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

Addressing and Diagnostics Tool







The handy, rugged addressing and diagnosis 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
- ▲ 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 METRAHIT 1ASI:

- ▲ Rubber holster with carrying strap
- ▲ Connector cable set, M12 to jack plug
- ▲ Z236A addressing cable
- ▲ Z231G module base with addressing socket
- ▲ 4 batteries per IEC LR6

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
Level measurement (dB)	–	■	–	■	–	■
DATA / Min-Max storage	■		■		■	
Data storage (measured values)	–		–		–	
Analog display, 35/36 scale graduations	■	■	■	■	■	■
Digital display (places/digits)	4½ = 12,000 d	4 ^{6/7} = 60,000 d	4½ = 12,000 d	4 ^{6/7} = 60,000 d	4½ = 12,000 d	4 ^{6/7} = 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/1000V CAT IV/600V		CAT III/1000V CAT IV/600V	CAT II/600V	CAT III/1000V CAT IV/600V	
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	300.000 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	300.000 µA /// 10.0000 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 /// 40.000 MΩ	600.00 Ω /// 60.000 MΩ	10.00000 kΩ /// 10.00000 MΩ	600.00 Ω /// 60.000 MΩ	300.000 Ω /// 30.00000 MΩ	100.00 Ω /// 10.000 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	600.0 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
–	■	–	■	■	–		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 graduations
4½ = 12,000 d	4¾ = 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 IV / 300 V	CAT III / 600 V CAT IV / 300 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	2plus	WORLD	METRAmax12	METRAport 40S
				
DC voltage measuring ranges	600.0 mV /// 600.0 V	600.0 mV /// 600.0 V / 1000 V	400.0 mV /// 400.0 V / 600 V	30.00 mV /// 300.00 V / 600.0 V
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 /// 600.0 V	600.0 mV /// 600.0 V / 1000 V	400.0 mV /// 400.0 V / 600 V	30.00 mV /// 300.00 V / 600.0 V
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 /// 6.000 A / 10.00 A	60.00 mA /// 6.000 A / 10.00 A	40.00 mA /// 400.0 mA / 10.00 A	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 /// 6.000 A / 10.00 A	60.00 mA /// 6.000 A / 10.00 A	40.00 mA /// 400.0 mA / 10.00 A	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	2 V	2 V	3 V	5.1 V
Frequency measuring ranges	100.0 Hz / 1000 Hz	100.0 Hz / 1000 Hz	100.0 Hz / ... / 100.0 kHz / 400.0 kHz	300.0 Hz / ... / 300.0 kHz / 1000.0 kHz
Level measurement (dB)	–	–	–	–
DATA / Min-Max storage	■	■	■	■
Data storage (measured values)	–	–	–	–
Analog display, 35/36 scale graduations	■	■	■	■
Digital display (places/digits)	3 ⁹ / ₇ = 6000 d	3 ⁹ / ₇ = 6000 d	3 ⁴ / ₅ = 4000 D	4 ⁴ / ₄ = 30,000 d
Illuminated display	■	■	■	■
Measurements per second	20 analog / 2 digital	20 analog / 2 digital	20 analog / 2 digital	20 analog / 2 digital
Bandwidth	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 in g	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 (XTRA)	ISO (COIL)	ISO Aero	27M	27I (AS)	27H+E CAR	METRAHIT
							
300.0 mV /// 300.0 V / 600 V		300.00 mV /// 300.00 V / 1000.0 V		3.0000 V /// 300.00 V / 600.0 V		DC voltage measuring ranges	
± 0.5% rdg. +1 d		± 0.5% rdg. +1 d		± 0.1% rdg. +5 d		Intrinsic error for V DC	
300.0 mV /// 300.0 V / 600 V		300.00 mV /// 300.00 V / 1000.0 V		3.0000 V /// 300.00 V / 600.0 V		AC voltage measuring ranges	
± 1.5% rdg. +3 d		± 1.5% rdg. +3 d		± 0.2% rdg. +10 d		Intrinsic error for V AC	
AC, AC + DC		AC, AC + DC		–		TRMS V	
300.0 µA /// 300.0 mA / 1.000 A		300.0 µA /// 3.000 A / 10.00 A		With clamp		DC current measuring ranges	
± 0.5% rdg. +5 d		± 0.5% rdg. +5 d		–		Intrinsic error, A DC	
300.0 µA /// 300.0 mA / 1.000 A		300.0 µA /// 3.000 A / 10.00 A		–		AC current measuring ranges	
± 1.5% rdg. +5 d		± 1.5% rdg. +5 d		–		Intrinsic error, A AC	
AC, AC + DC		AC, AC + DC		–		TRMS A	
300.0 Ω /// 30.00 MΩ		300.00 Ω /// 30.000 MΩ		300.00 Ω /// 30.00 MΩ		Resistance measuring ranges	
± 0.5% rdg. +1 d		± 0.5% rdg. +1 d		± 0.1% rdg. +5 d		Intrinsic error, resistance	
–		–		3.000 mΩ /// 30.000 Ω		4-wire milliohm measurement	
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	Insulation resistance measuring ranges / measuring voltage	
30.00 nF /// 300.0 µF		30.00 nF /// 300.0 µF		–		Capacitance measuring ranges	
± 1% rdg. +6 d		± 1% rdg. +6 d		–		Intrinsic error, capacitance	
■		–		–		Cable length measurement	
-200 °C... +850 °C		-200.0 °C... +850.0 °C		-200 °C... +600 °C		Temp. measurement, Pt100/1000	
–		-200.0 °C... +1372.0 °C		–		Temperature measurement TC	
■		■		■		Continuity test	
13V		13V		3V		Diode test	
300.0 Hz /// 300.0 kHz		300.0 Hz... 300.0 kHz		300.00 Hz / 3.0000 kHz		Frequency measuring ranges	
■		–		–		Level measurement	
■		■		■		DATA / Min-Max storage	
540 kB (15,400)		540 kB (15,400)		32 kB (1000)		Data storage (measured values)	
■		■		–		Analog display, 35/36 scale graduations	
3¼ = 3100 d		4¼ = 30,000 d		4¼ = 31,000 d		Digital display (places/digits)	
■		■		■		Display illumination	
40 analog / 10 digital		40 analog / 10 digital		10 analog / 2 digital		Measurements per second	
10 kHz		10 kHz		1 kHz		Bandwidth	
IR / USB X-TRA		IR / USB X-TRA		IR / BD232 / USB-Hit		Interface / suitable adapter	
■		■		–		Automatic blocking sockets	
CAT II / 600V CAT III / 300V		CAT II / 1000V CAT III / 600V		CAT II / 600V		Measuring category	
DAkKS		DAkKS		DAkKS		Calibration certificate	
420g		420g		420g		Weight with batteries	
2 ea. 1.5V / 200		2 ea. 1.5V / 200		3 ea. 1.5V / 20		Batteries / operating hours	
■		■		■		Power pack socket	
89 x 199 x 43		89 x 199 x 43		84 x 195 x 35		Dimensions in mm (W x H x D)	
IP 54		IP 54		IP 54		Protection	
CE		CE		CE		Approvals and certificates	
Cable set, pouch, RH		Cable set, pouch, GH (COIL adapter)		Cable set, RH		Accessories / included	
METRAwin10		METRAwin10		METRAwin10		Software option	
M246A	M246S (M260B)	M246B (246C)	M246M	M227A	M227B / C / S	M227T / U	Article number

SHUNTS



Shunts for Multimeters

Shunt resistors for multimeters without current measuring function (article: Z205C, Z205B)

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

- ▲ NW300mA (Z205C): 300 mA – 1 Ω – class 0.5 – 1 mV / mA
- ▲ NW3A (Z205B): 3 A – 0.1 Ω – class 0.5 – 600 V – CAT IV – 100 mV/A

PMA 16



Power Measuring Adapter

PMA16 power measuring adapter (article: Z228A)

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.

SM16



Current Measuring Adapter

SM16 current measuring adapter (article: GTM9070190E0002)

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.

USB-HIT / USB-PACK



Bidirectional IR-USB Interface Adapter

Snap-on bidirectional interface adapter, IR-USB (article: Z216A, Z216B)

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 (article: Z216B)

BD232



Bidirectional IR – RS 232 Interface Adapter

Snap-on interface adapter, IR – RS 232 (article: GTZ3242100R0001)

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.

BD-PACK 1



BD232 Bidirectional Interface Adapter with METRAWin 10 Software

BD Pack 1 (article: Z215A)

- ▲ BD232 adapter
- ▲ RS 232 cable
- ▲ With METRAWin10
- ▲ Installation instructions

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 (article: Z216C)

Adapter for data transmission between the multimeter and the PC

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 (article: Z216D)

Z206D



Quick Charger for NiMH Batteries

Quick charger for NiMH / NiCd batteries (AA, AAA) (article: Z206D)

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



Power Packs

NA X-TRA: mains power pack, 90 ... 250 V AC / 5 V DC (article: Z218G)

NA HIT 2x: mains power pack, 90 ... 250 V AC / 5 V DC (article: Z218H)

NA HIT 27: mains power pack, 90 ... 250 V AC / 5 V DC (article: Z218J)

NA T-COM: mains power pack, 90 ... 250 V AC / 5 V DC (article: Z218T)

For battery-saving mains operation, for continuous measurement using multimeters, e.g. as a data logger
Broad range input: 50/60 Hz – measuring category: CAT IV @ 600 V (Z218G,H); CAT II @ 600 V (Z218J, T)

AC-DC CURRENT SENSOR



Z13B

AC-DC Current Sensor

AC-DC current sensor with voltage output, mV / A (article: Z213B)

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

Advantages:

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

Scope of delivery:

- ▲ Current sensor with connector cable
- ▲ 9V flat cell battery

Measuring Range = DC, ~AC	Measuring Category	Conductor Dia. mm	Trans. Ratio mV/A	Frequency Range	Intrinsic Uncertainty ± (% rdg. + A)
0.5 ... 60 / 600 A = 0.2 ... 40 / 400 A ~	CAT IV / 300V	50	10 / 1	DC ... 65 Hz / ... 10 kHz	1.5% / 2%

AC-DC CURRENT SENSORS



CP30 / CP330 / CP1100

CP1800

Type	Article
CP30	Z201B
CP330	Z202B
CP1100	Z203B
CP1800	Z204A

Current Clamp Sensors with Voltage Output

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: CAT III/300V

Type	Meas. Ranges* DC, AC	Resolution	Conductor 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_{peak}; CP 330 / 1100 / 1800: DC or AC_{RMS}

FLEXIBLE AC CURRENT SENSORS



METRAFLEX 3000



METRAFLEX 300M

Type	Article
METRAFLEX 3000	Z207E
METRAFLEX 300M	Z207M

Flexible AC Current Sensors with Voltage Output

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 1.5V AA batteries

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	25 Hz ... 100 kHz	1% ± 100/100/500

AC CURRENT SENSORS



WZ12C



WZ11B

Z3512A

Type	Article
WZ12B	Z219B
WZ12C	Z219C
WZ11B	Z208B
Z3512A	Z225A

With Voltage Output, mV/A

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 current surges

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

AC CURRENT TRANSFORMERS



Z3512

Z3514



WZ12A/D

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

With Current Output, mA/A

AC current transformers with current output, mA/A

Scope of delivery:

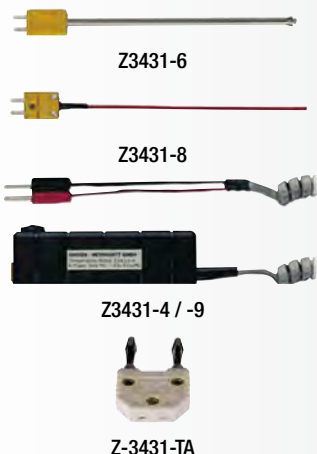
- ▲ Current sensor with connector cable

Advantages:

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

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

TEMPERATURE PROBE (TC)



Type	Article
Z3431-3	GTZ3431003R0001
Z3431-4	GTZ3431004R0001
Z3431-9	GTZ3431009R0001
Z3431-5	GTZ3431005R0001
Z3431-6	GTZ3431006R0001
Z3431-7	GTZ3431007R0001
Z3431-8	GTZ3431008R0001
Z3431-TA	Z102T

Temperature Probes/Sensors for Multimeters Without Integrated Temperature Measurement, Type K thermocouple (TC)

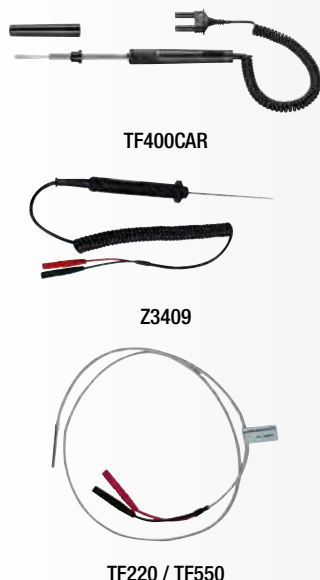
Suitable for temperature measurement from - 25 °C to + 1150 °C. The measurement output is connected to the mV/V measurement input at the multimeter.

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/-7/-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

Type	Measuring Range	Sensor Type	Intrinsic Uncertainty	Input Ω , Multimeter	Output V	Operating Temp.	Power Supply
Z3431-3	- 20 °C... + 350 °C	Type K NiCr-NiAl thermocouple	\pm (0.5% rdg. + 0.5 °C)	> 10 k Ω	1 mV/°C	5 °C... 45 °C	1.5V baby cell, 250 hrs. Service life
Z3431-4	- 25 °C... +1150 °C	NiCr-NiAl, type K thermocouple	\pm (1% rdg. + 1 °C)	> 10 k Ω	1 mV/°C	5 °C... 45 °C	1.5V baby cell, 250 hrs. Service life
Z3431-9	- 20 °C... + 350 °C	NiCr-NiAl, type K thermocouple	\pm (0.5% rdg. + 0.5 °C)	> 10 k Ω	1 mV/°C	5 °C... 45 °C	1.5V baby cell, 250 hrs. Service life
Z3431-5	+ 1100 °C	NiCr-NiAl, type K thermocouple	Standard immersion sensor, can be plugged into temperature probes Z3431-4 and Z3431-9				
Z3431-6	... + 850 °C	NiCr-NiAl, type K thermocouple	Surface sensor, can be plugged into temperature probes Z3431-4 and Z3431-9				
Z3431-7	... + 450 °C	NiCr-NiAl, type K thermocouple	High temperature sensor tape, can be plugged into temperature probes Z3431-4 and Z3431-9				
Z3431-8	... + 250 °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



Type	Article
Z3409	GTZ3409000R0001
TF220	Z102A
TF550	GTZ3408000R0001
TF400CAR	Z102C
TF400SURFACE	Z102E

Temperature Sensors

See table for article number

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
- ▲ TF400CAR: Pt1000 temperature sensor for oil temperature measurement
- ▲ TF400SURFACE: fast reacting surface temperature sensor, type K thermocouple
- ▲ TS-Chipset: Pt100 miniature temperature sensor (10 pieces, adhesive) for spot measurements at small measuring points

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

OVERVIEW

Multimeter Accessories

Type	METRAHIT																		METRALINE DMM15	METRALINE DMM16	METRAmax				METRAport			
	BASE / EBASE	TECH / ETECH	X-TRA / EXTRA	SECULIFE HIT	PRO / ESPECIAL	OUTDOOR	T-COM / plus	T-COM XTRA	ISO / ISO@Aero	ENERGY	ULTRA	METRACAL MC	CAL	2 plus	WORLD	ONEPlus	30M	27M/I			27H+E CAR	1A/2A	2	3	6	12	32S/XS	40S
Shunts																												
NW300mA	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
NW3A	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
NW10A	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Adapter																												
USB X-TRA	-/■	-/■	■	■	-/■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
USB X-TRA SET	-/■	-/■	■	■	-/■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
BD232	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BD-Pack1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
USB-Hit	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
USB-Pack	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
SM16	-	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
PMA16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Power Packs / Chargers																												
NA HIT 2x	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
NA HIT 27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
NA X-TRA	-	-	■	■	-	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
NA T-COM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Z206D	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Current Sensors																												
CP30	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
CP330	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
CP1100	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
CP1800	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Z13B	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
WZ11B	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
WZ12B	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
WZ12C	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Z3512A	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Flexible Current Sensors																												
METRAFLEX 3000	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
METRAFLEX 300M	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Current Transformers																												
WZ11A	-	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
WZ12A	-	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
WZ12D	-	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Z3511	-	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Z3512	-	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Z3514	-	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Temperature Sensors and Probes																												
TF400CAR	-	-	■	■	-	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
TF400SURFACE	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
TF220	-	-	■	■	-	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
TF550	-	-	■	■	-	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Z3409	-	-	■	■	-	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Z3431-3	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Z3431-4	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Z3431-9	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Z3431-TA	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

¹ For dates of manufacture through 2004 only

HIGH FREQUENCY PROBE



Z3431-2

Z3431-2 High Frequency Probe: 100 kHz to 750 MHz, 0.25 to 50 VAC
 (article: GTZ3431002R0001)

In combination with a multimeter, the Z3431-2 high frequency probe allows for measurement of alternating voltages with an amplitude 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.

CABLE SETS



KS17-ONE KS17-2 KS 29



ZKS17-S



(adjustable test probe, CAT II/CAT IV)

KS-AP



KS-NTS



KS21-T



KY95-3

Z3241

Cable Sets with Permanently Mounted Test Probes

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 (article: Z110K):
600 V/CAT III, 1 A, 120 cm long
600 V/CAT II, 16 A
- ▲ KS29 cable set (article: Z229A):
1000 V/CAT III, 1 A safety cable set for power meters
- ▲ KS17-2 cable set (article: GTY3620034P0002):
1000 V/CAT III, 1 A, 600 V/CAT IV, 1 A
1000 V/CAT II, 16 A, 120 cm long
- ▲ KS17-S cable set (article: Z110H):
1000 V/CAT II, 120 cm long,
2 mm diameter steel tips
- ▲ KS-AP cable set (article: Z110S):
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 (article: Z110W):
1000 V/CAT II/III, 20 A,
double insulated silicon measurement cables, 120 cm long, with one pair each small test probes,
alligator clips, clip hooks and North American test probes
- ▲ KS21-T cable set (article: Z110U):
1000 V/CAT II, 16 A,
200 cm long for cable multimeter
- ▲ KY95-3 alligator clip (article: Z110J):
1000 V/CAT III, 16 A,
- ▲ Magnetic test probes with 4 mm plug (article: Z502U):
1000 V/CAT III, 4 A

KELVIN CLIPS

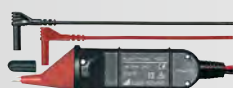


Kelvin Clips

Kelvin clips/probes 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. (article: Z227A)

- ▲ 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

KELVIN PROBES



Kelvin Probes

- ▲ 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 (article: Z227B)

KELVIN CLIP & PROBE



Kelvin Set

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 (article: Z227C)

ACCESSORIES

Multimeters

Type	METRAHIT																METRALINE DMM15	METRALINE DMM16	METRAmax				METRAport					
	BASE/EBASE	TECH/ETECH	X-TRA/EXTRA	SECULIFE HIT	PRO/ESPECIAL	OUTDOOR	T-COM/plus	T-COM XTRA	ISO/ISO@Aero	ENERGY	ULTRA	METRACAL MC	CAL	2 plus	WORLD	ONEplus			30M	27M/I	27H+E CAR	1A/2A	2	3	6	12	32S/XS	40S
High-Frequency Probe																												
Z3431-2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Measuring Accessories																												
KS17-ONE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KS17-2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KS17-S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KS-AP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KS-NTS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KS21-T	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KS29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KY95-3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Z3241	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kelvin Clips																												
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/700 V AC	Fuse link	Z109E	METRAHIT ONE Plus/2/WORLD/2A, T-COM (PLUS), METRAmax 12, METRAport 3A
FF (UR) 16 A/600 V AC	Fuse link	Z109D	METRAHIT ONE Plus
FF 630 mA/700 V	Fuse link	Z109J	METRAHIT CAL, METRAHIT 1A
FF 6.3 A/400 V	Fuse link	Z109K	METRAHIT 1A
FF 16 A/600 V AC	Fuse link	Z109A	METRAmax 12, METRAport 3A, METRAHIT 2A
FF 1 A/380 V (5 x 20)	Fuse link	Z109H	METRAport 32S/32XS
T 16 A/500 V (6.3 x 32)	Fuse link	Z109I	METRAport 32S/32XS
FF 0.63 A/400 V	Fuse link	Z109M	METRACAL MC

Type	Designation	Article	METRAHIT			METRAmax		METRAport
			STARLINE	ONE ... 30M	1A / 2A	2 / 3 / 6	12	40S / 3A
HitBag	Cordura belt pouch	Z115A	■	■	■	■	■	■
HIT-Clip	Magnetic hanger and 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	Z113A	■	■	–	–	–	–
HC30	Hard case with foam inserts on both sides	Z113E	■	■	■	■	■	■



HitBag



F809



F822



F823



F825



F829



F836



F841



GH X-TRA



GH 19



HIT-Clip



GH18



HC20



HC30

Mains 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 mains quality themselves in many ways, but they react extremely sensitively to disturbances as well.

There's only one convincing response to the challenges faced by users in the area of electrical power supply: highly versatile MAVOWATT mains quality analyzers for mains 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.



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3-Phase Energy and Power Disturbance Analyzers – Mavowatt 20.....	2-4
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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

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MAVOWATT |20

The MAVOWATT 20 mains and power analyzer acquires power, demand and energy, and it calculates consumption costs as well as CO₂ footprint.



MAVOWATT |20

Page 2-4

MAVOWATT |30

The class A device (2008) 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 2-6

MAVOWATT |40

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



MAVOWATT |40

Page 2-6

MAVOWATT |70

Same as MAVOWATT40 but with additional, in-depth mains quality functions. A-D converter with 1 MHz sampling rate for fast acquisition of transients and waveforms



MAVOWATT |70

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MAVOWATT ACCESSORIES



Metraflex 3003

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TR-2500B

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Metraflex 300M

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MAVOSYS 10



Power Disturbance Analyzers

Monitoring System for Analyzing Mains 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 voltage, 4 current, 8 digital signals
- ▲ Local operation and visualization with an optional ¼ VGA touch-screen
- ▲ Certification in accordance with IEC 61 000-4-30, 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 mains 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 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 φ measurement

Included with MAVOWATT 4:

- ▲ Batteries

Optional Accessories

- ▲ Factory calibration certificate

Type	Article
MAVOWATT 4	GTM3033000R0001

MAVOWATT | 20



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

3-Phase Energy and Power Analyzer

Application

The MAVOWATT 20 mains and power analyzer acquires power, demand and energy, and it calculates consumption costs as well as CO₂ 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 CO₂ 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

Energy Platform Report Writer Software (EPRW)

License-free EPRW software records parameters including curves for voltage, current, active, reactive, and apparent power, power factor, harmonics, import, energy and much more in a user configured report.

An energy audit report summarizes the energy measurement which consists of basic billing parameters such as tariff periods (peak, standard and off-peak), peak loads, energy costs and CO₂ balance.

Included with MAVOWATT 20:

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

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
- ▲ IEEE 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

MAVOWATT 20



MAVOWATT 20



TR-2500B current clamp



TR-2510B current clamp



TR-2550B current clamp

Sets

MAVOWATT 20 Set 1 (M817Q)

- ▲ MAVOWATT 20 and accessories, as described in the scope of delivery
- ▲ + four TR-2500B AC current clamps (10 to 500 A measuring range)

MAVOWATT 20 Set 2 (M817R)

- ▲ MAVOWATT 20 and accessories, as described in the scope of delivery
- ▲ + four TR-2510B AC current clamps (1 to 10 A measuring range)

MAVOWATT 20 Set 3 (M817S)

- ▲ MAVOWATT 20 and accessories, as described in the scope of delivery
- ▲ One DRANFLEX 3003XL/24 three-phase AC current sensor (30/300/3000 A measuring range)
- ▲ One DRANFLEX 3000XL/24 AC current sensor (30/300/3000 A measuring range)
- ▲ ISOFLEX-MHXL mains power pack (DC-DC converter)
- ▲ RR/PS/4A adapter cable for 4 DRANFLEX (cable distributor)

MAVOWATT 20 Set 4 (M817T)

- ▲ MAVOWATT 20 and accessories, as described in the scope of delivery
- ▲ Four TR-2550B AC current clamps (1 to 100 A measuring range)

MAVOWATT 20 Set 5 (M817U)

- ▲ MAVOWATT 20 and accessories, as described in the scope of delivery
- ▲ One DRANFLEX 3003XL/24 three-phase AC current sensor (30/300/3000 A measuring range)
- ▲ One DRANFLEX 3000XL/24 AC current sensor (30/300/3000 A)
- ▲ ISOFLEX-MHXL mains power pack
- ▲ RR/PS/4A adapter cable for 4 DRANFLEX
- ▲ PR150/SP2B AC/DC current clamp sensor (measuring range up to 150 A)

MAVOWATT 20 Set 6 (M817V)

- ▲ MAVOWATT 20 and accessories, as described in the scope of delivery
- ▲ One DRANFLEX 3003XL/24 three-phase AC current sensor (30/300/3000 A measuring range)
- ▲ One DRANFLEX 3000XL/24 AC current sensor (30/300/3000 A measuring range)
- ▲ ISOFLEX-MHXL mains power pack
- ▲ RR/PS/4A adapter cable for 4 DRANFLEX
- ▲ PR1500/SP8B AC/DC current clamp sensor (measuring range up to 1500 A)

MAVOWATT 20 Set 7 (M817Z)

- ▲ MAVOWATT 20 and accessories, as described in the scope of delivery
- ▲ Additionally with flexible current sensors: four DRANFLEX 300MH (3/30/300 A) with ISOFLEX-MHXL
- ▲ PR/PS/4A distributor cable for connecting current clamp to ISOFLEX-MHXL

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 AC, 47 to 63 Hz
- ▲ Battery operation time: 2 hours
- ▲ Display: color LCD touch-screen, 12x9.5 cm
- ▲ Data storage: high-speed compact flash, 4 GB

Type	Article
MAVOWATT 20 Set 1	M817Q
MAVOWATT 20 Set 2	M817R
MAVOWATT 20 Set 3	M817S
MAVOWATT 20 Set 4	M817T
MAVOWATT 20 Set 5	M817U
MAVOWATT 20 Set 6	M817V
MAVOWATT 20 Set 7	M817Z

MAVOWATT | 30 | 40 | 70



3-Phase Energy and Power Disturbance Analyzers

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

Benefits:

- ▲ Simple control per EN50160, EN 61000-4-7 and EN61000-4-15
- ▲ 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 16²/₃ 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

MAVOWATT 40 – same as MW 30, plus:

- ▲ Acquisition of making-operations and error recording
- ▲ Analysis module for voltage dip direction, switching peaks for power factor correction and motor quality

MAVOWATT 70 – same as MW 40, plus:

- ▲ Expanded mains analysis functions
- ▲ Characterization of transients
- ▲ Rapid transient measurement as of 1 µs sampling rate with storage of waveform parameters for distorted and asymmetrical systems per IEE1459
- ▲ Vector/arithmetic parameters

MAVOWATT 70-400:

- ▲ Frequency range: 50/60 Hz and 400 Hz
- ▲ Testing per military standard 1399

Scope of delivery:

Each set includes the mains analyzer of your choice plus a complete set of measurement cables, rechargeable battery and charger, 4 GB compact flash memory card, factory calibration certificate, condensed operating instructions, DranView 6 Pro software and carrying pouch.

Set 1

Energy and mains analyzer with accessories (see above)
+ three TR-2500B AC current clamps (10 to 500 A measuring range)

Set 2

Energy and mains analyzer with accessories (see above)
+ three TR-2510B AC current clamps (1 to 10 A measuring range)

Set 3

Energy and mains analyzer with accessories (see above)
+ one DRANFLEX 3003XL/24 three-phase AC current sensor (30/300/3000 A)
+ one DRANFLEX 3000XL/24 AC current sensor (30/300/3000 A)
+ ISOFLEX-MHXL mains power pack (DC-DC converter) + RR/PS/4A distributor cable





Set 4

Energy and mains analyzer with accessories (see above)
+ four DRANFLEX 300MH (3/30/300 A) with ISOFLEX-MHXL (DC-DC converter)
+ RR/PS/4A distributor cable

Type	Article
MAVOWATT 30 Set 1	M817E
MAVOWATT 30 Set 2	M817I
MAVOWATT 30 Set 3	M817M
MAVOWATT 30 Set 4	M817X
MAVOWATT 40	M817B
MAVOWATT 40 Set 1	M817F
MAVOWATT 40 Set 2	M817J
MAVOWATT 40 Set 3	M817N
MAVOWATT 40 Set 4	M817Y
MAVOWATT 70	M817C
MAVOWATT 70 Set 1	M817G
MAVOWATT 70 Set 2	M817K
MAVOWATT 70 Set 3	M817O
MAVOWATT 70 Set 4	M817W
MAVOWATT 70-400	M817D
MAVOWATT 70-400 Set 1	M817H
MAVOWATT 70-400 Set 2	M817L
MAVOWATT 70-400 Set 3	M817P

OVERVIEW

MAVOWATT | 20 | 30 | 40 | 70

Instrument	MAVOWATT 20	MAVOWATT 30	MAVOWATT 40	MAVOWATT 70
Application / Function				
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 ² / ₃ , 50–60 Hz	16 ² / ₃ , 50–60 Hz	16 ² / ₃ , 50–60 Hz	16 ² / ₃ , 50–60 Hz MW 70-400 up to 400 Hz
Errors recording / in-rush	–	–	■	■
Motor testing	–	–	■	■
Data logging	■	■	■	■
Harmonic analysis up to the 63 rd harmonic (IEC61000-4-7, IEEE519)	■	■	■	■
Flicker per IEC 61000-4-15, IEEE1453	–	■	■	■
Acquisition of fast transients	–	≥ 80 μs	≥ 80 μs	≥ 1 μs
Answer module (motor condition, capacitance switching, voltage dip)	–	–	■	■
Measurement inputs	“Common reference”	Differential	Differential	Differential
Demand and energy reports	■	–	–	–
Monitoring modes	2	4	7	7
Pre/error/post-cycles	0	100	10,000	10,000
Languages	11	11	11	11

ACCESSORIES

MAVOWATT | 20 | 30 | 40 | 70

Type	Article	Description
TR-2510B	Z817A	Current clamp sensor: 1 ... 10 A (AC) RMS, 40 Hz ... 5 kHz, 15 mm dia.
TR-2500B	Z817B	Current clamp sensor: 10 ... 500 A AC RMS, 40 Hz ... 5 kHz, 50 mm dia.
TR-2520B	Z817C	Current clamp sensor: 100 ... 3000 A (AC) RMS, 40 Hz ... 5 kHz, 72 mm dia.
PR150/SP2B	Z817N	Current clamp sensor: 150 A (AC / DC), 9 V battery operation
PR1500/SP8B	Z817O	Current clamp sensor: 1500 A (AC / DC), 9 V battery operation
PR150/SP1B	Z817P	Current clamp sensor: 150 A (AC / DC), operation with power pack (included)
PR1500/SP7B	Z817Q	Current clamp sensor: 1500 A (AC / DC), operation with power pack (included)
COMM-RS 232	Z818A	RS 232 adapter including NodeLink software
COMM-OEA	Z818B	Ethernet adapter including NodeLink software
COMM-OUA	Z818C	USB adapter including NodeLink software
4 mm adapter	Z817T	Adapter for current clamps with 4 mm safety plugs
CFDATA-DB	Z818F	Selected compact flash memory card, 4 GB
BP-PX5	Z818G	Rechargeable battery pack
SCC-4300	Z818H	Carrying pouch for measuring instrument, current clamps and manuals
DRANFLEX 300MH	Z207N	30 / 300 / 3000 A, various sensor lengths (e.g. 60 cm)
DRANFLEX 6000XL	Z816B	60 / 600 / 6000 A, various sensor lengths (e.g. 90 cm)
METRAFLEX 3001XL	Z207H	30 / 300 / 3000 A, 60 cm sensor length, without power pack
METRAFLEX 3003XL	Z207I	3-phase, 30 / 300 / 3000 A, 60 cm sensor length, without power pack

ACCESSORIES

Multimeters or Devices from other Manufacturers

Type	Article	Description	Max. Conductor Diameter	Application	Measuring Category	Usable Range	Output Signal
Flexible AC Current Sensors							
METRAFLEX 3001	Z207F	Switchable: 10 Hz ... 20 kHz, with batteries or external power supply	61 cm	a, b, c	1000 V/CAT III 600 V/CAT IV	30 A AC, 300 A AC, 3000 A AC	100 mV/10 mV/1 mV per A (AC coupled)
METRAFLEX 3003	Z207G	3-phase set, switchable: 10 Hz ... 20 kHz, with batteries or external power supply	3x61 cm	a, b, c	1000 V/CAT III 600 V/CAT IV	30 A AC, 300 A AC, 3000 A AC	100 mV/10 mV/1 mV per A (AC coupled)

a = long-term measurement, b = harmonic measurement, c = frequency converter measurement



METRAFLEX 3003 with 4 mm safety plugs



METRAFLEX 3003 XL for MW 20/30/40/70



TR-2500B for MW 20/30/40/70

ACCESSORIES

MAVOWATT | 20 | 30 | 40 | 70

- Compact
- Rugged
- Small

The METRAFLEX 3000M or the DRANFLEX 300MH assures safe, accurate and flexible measurement at bus bars and current distributors. The coil is above all highly suitable for difficult to access, tight spaces.



METRAFLEX 300M for multimeters



DRANFLEX 300MH for MW 20/30/40/70

Type	Article
METRAFLEX 300M	Z207M
DRANFLEX 300MH	Z207N

Feature	METRAFLEX 300M (Z207M)			DRANFLEX 300MH (Z207N)		
Measuring range	3A	30A	300A	3A	30A	300A
Scaling factor	1	10	100	2	20	200
Output sensitivity	1000 mV/A	100 mV/A	10 mV/A	500 mV/A	50 mV/A	5 mV/A
Accuracy (45 to 65 Hz)	± 1% rdg. ± 0.2A		± 1% rdg. 1 A	± 1% rdg. 0.1 A		± 1% rdg. 0.5 A
Noise	3 mV TRMS	1 mV TRMS	0.1 mV TRMS	1.5 mV TRMS		
Output connection	1 pair 4 mm safety plugs			4-pin Hypertronics plug		
Power Supply						
Battery	2 ea. AA, MN1500 LR6 alkaline batteries					
Battery service life	150 hours (M'FLEX 3000 M)			80 hours (M'FLEX 3000MXL)		
External	3.5 ... 12V DC/max. 100mA			2 ... 3V DC/max. 100mA		
Connection	Barrel connector, 5.5/2.1 mm, minus pole inside					

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) and VDE 0113 (EN 60204) regulations. The tests themselves are executed by the instruments strictly in accordance with stipulations set forth in particular by VDE 0413 (EN 61557).



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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

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PROFITEST | MTECH

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PROFITEST | MPRO

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PROFITEST | MxTRA

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PROFITEST

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



PROFITEST | C

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PROFITEST | 2

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METRALINE, METRATHERM

Loop impedance measurement
 Testing of RCCBs
 Insulation resistance measurement



METRALINE Zcheck

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METRALINE RCDcheck

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METRALINE ISOcheck

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METRATHERM | 1

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PROFITEST PV, PVSUN / MEMO

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



PROFITEST | PV

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PROFITEST | PVSUN

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PROFITEST | PVSUN MEMO

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TEST INSTRUMENTS

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



PROFITEST 204 | +

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METRAMACHINE 204

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METRISO

Insulation and Low Resistance Measuring
 Instruments



METRISO | G1000A

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METRISO | G500

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METRISO | G1000

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METRISO | G1000+

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METRISO, METRAOHM

Insulation and Low Resistance Measuring Instruments



METRISO | G500MM

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METRISO | 5024

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METRISO C

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METRAOHM | 413

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METRISO, ISO CALIBRATOR

Insulation Measuring Instruments, ISO Calibrator



METRISO 5000 A

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METRISO 5000D-PI

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ISO Calibrator 1

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GEOHM, PROFITEST

Earth Testers



GEOHM C

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GEOHM | 5

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PROFITEST | MPRO

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PROFITEST | MxTRA

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METRAPHASE, PROFISAFE, DUSPOL, METRAVOLT

Phase Sequence Indicators, Voltages Testers



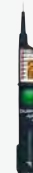
METRAPHASE 1

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PROFISAFE | 690

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DUSPOL Series

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METRAVOLT | 12D+L

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CURRENT CLAMP METERS

METRACLIP 41 / 410
METRACLIP 61 / 62 / 63 / 64
METRACLIP 70 / 72 / 75



METRACLIP 41

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METRACLIP 61

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METRACLIP | 62

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METRACLIP 75

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MICRO, TR MARK, T-REX, TR-1, WR14, WR50, WR100

Microohmmeter



MICRO CENTURION II

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TR-MARK III

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T-REX / T-REX R

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TR-1 / TR-1P

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WR50-12/13

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WR100-12R

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PROFITEST MASTER



DIN VDE 0100–600 / VDE 0105–100 (EN 50110)

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 and IMDs.

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 INSTROM planning software
- ▲ Free firmware updates with the master updater

Advantage: adaptation to changing standards and expanded functions

- ▲ Registration at myGMC (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)
- ▲ SRCDS, PRCDs (Schukomat, Sidos and others), types A, AC, B, B+, F, G/R
- ▲ Testing of RCD protection in IT systems
- ▲ Insulation measurement with rising voltage
- ▲ Current measurement with Metraflex (option)
- ▲ E-Mobility – testing of charging stations with Mennekes test box per IEC 61851

PROFITEST MXTRA – Functions

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

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



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

New!



The PROFITEST App



PROFITEST MASTER Test Instruments

Type	Article
PROFITEST MBASE	M520M
PROFITEST MTECH	M5200
PROFITEST MPRO	M520N
PROFITEST MXTRA	M520P

PROFITEST MASTER

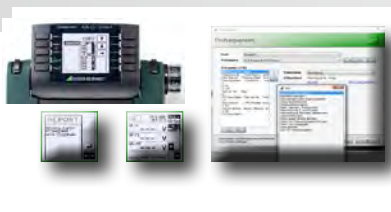
Working Efficiently

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 (PROFITEST MXTRA and MPRO).



DESIGN PLUS
powered by light building

2009

Overview

Characteristics / Features	PROFITEST			
	MBASE	MTECH	MPRO	MXTRA
RCD measurements				
UB measurement without tripping the RCCB	■	■	■	■
Tripping time measurement	■	■	■	■
Tripping current measurement	■	■	■	■
Selective, SRCDs, PRCDs, types A, AC, G/R and F	■	■	■	■
AC/DC sensitive RCDs, type B, type B+	–	■	–	■
Testing of insulation monitoring devices (IMDs)	–	–	–	■
Testing of residual current monitoring devices (RCMs)	–	–	–	■
Testing for N-PE reversal	■	■	■	■
Loop impedance Z_{L-PE} / Z_{L-N}				
Fuse table for systems without RCDs	■	■	■	■
Without tripping the RCD, fuse table	–	■	–	■
With 15 mA test current * without tripping the RCD	■	■	■	■
Earth resistance R_E				
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 ρ_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 $R_{E,LOOP}$ (battery operation) with 2 clamps (current clamp sensor direct and current clamp transformer via PRO-RE/2 adapter)	–	–	■	■
Measurement of equipotential bonding R_{LO}				
Automatic polarity reversal	■	■	■	■
Insulation resistance R_{ISO}				
Variable or rising test voltage (ramp)	■	■	■	■
Voltage Measurement				
$U_{L-N} / U_{L-PE} / U_{N-PE} / f$	■	■	■	■
Special measurements				
Leakage current (clamp measurement) I_L, I_{AMP}	■	■	■	■
Meter start-up	■	■	■	■
Phase sequence	■	■	■	■
Voltage drop	■	■	■	■
Standing-surface insulation Z_{ST}	■	■	■	■
Earth leakage resistance $R_{E(ISO)}$	■	■	■	■
Leakage current with PRO-AB adapter	–	–	–	■
Residual voltage test	–	–	–	■
Intelligent ramp	–	–	–	■
Testing of charging stations per IEC 61851	–	■	–	■
Features				
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: CAT III 600 V / CAT IV 300 V	■	■	■	■
DAkkS calibration	■	■	■	■

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

TESTING PACKAGES



Accessories	
PROFITEST MBASE	
PROFITEST MTECH	
PROFITEST MXTRA	
Earth spike SP350	
TR50 drum	
VARIO plug adapter set	
PRO-RLO II adapter	
PRO-AB leakage current measuring adapter	
E-Clip 2 generator clamp for earthing measurements	
Z3512A clamp for earthing measurements	
PRO-RE 2 measuring adapter for 2-clamp meas. method	
PRO-W Schuko angled plug insert	
F2000 universal carrying pouch	
Test case	
Sortimo case with insert	
E-CHECK case	
Rechargeable battery pack	
Charger	
Charger	

Article

PACKAGES	BASE Starter Package	TECH Starter Package	Master Package TECH	E-CHECK Set	Starter Package XTRA	Master Package XTRA	MEDpackage XTRA	Profi-Package XTRA
Article number	M500M	M500N	M500P	M500U	M500V	M500W	M500X	M500Y
M520M	■	-	-	-	-	-	-	-
M520O	-	■	■	■	-	-	-	-
M520P	-	-	-	-	■	■	■	■
GTZ3304000R0001	-	-	■	-	-	-	-	-
GTY1040014E34	-	-	■	-	-	-	-	-
Z500A	■	■	■	■	■	■	■	■
Z501P	-	-	■	-	-	■	■	-
Z502S	-	-	-	-	-	-	■	-
Z591B	-	-	-	-	-	-	-	■
Z225A	-	-	-	-	-	-	-	■
Z502T	-	-	-	-	-	-	-	■
Z503A	-	-	■	-	-	■	-	■
Z700D	■	-	-	-	-	-	-	-
Z502W	-	-	■	-	-	■	■	■
Z503D	-	■	-	-	■	-	-	-
Z502M	-	-	-	■	-	-	-	-
Z502H	■	■	■	■	■	■	■	■
Z502P	■	■	■	■	-	-	-	-
Z502R	-	-	-	-	■	■	■	■



PRO-AB Leakage Current Measuring Adapter



TR50 drum



PRO-RLO II adapter



SP350 Earth Spike



PRO-W Adapter



E-Clip 2 Clamp Generator



PRO-RE 2 Measuring Adapter



VARIO Plug Adapter Set



Z3512A Clamp Meter



F2000 Universal Carrying Pouch



Test Case



Sortimo Case

PROFITEST | C



Type	Article
PROFITEST C	M521A

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

Protective measures test instrument for loop resistance measurement, calculation of short-circuit current and display of suitable fuse ratings.

In addition to complete testing for the effectiveness of RCCBs, the instrument is also capable of phase sequence analysis, as well as the measurement of voltage and frequency.

Features:

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

Included with the PROFITEST C:

- ▲ 1 neck strap
- ▲ 1 set of batteries
- ▲ Factory calibration certificate
- ▲ Set of operating instructions

PROFITEST | 2



Type	Article
PROFITEST 2-a	M520W

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

Inexpensive, universal protective measure test instrument for DIN VDE 0100 - 600 / IEC 60364-6

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

Features:

- ▲ Easy operation
- ▲ Fast test sequences
- ▲ AMC – automatic measurement cable compensation using 4-wire method
- ▲ Low-resistance measurement
- ▲ Insulation measurement
- ▲ $Z_{Loop} + I_K$ + fuse type
- ▲ Complete RCD testing (RCD types A and AC)
- ▲ Earthing measurements
- ▲ Phase sequence indicator
- ▲ Testing via earthing contact plug or 2-pole adapter

Included with the PROFITEST 2-a:

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

BARCODE READER



Barcode Scanner with Laser

Barcode scanner with laser and coil cable laid out especially for the PROFITEST MASTER 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



List with Barcodes

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

Features:

- ▲ Creation of system structures and distributors
- ▲ Acquisition of room designations
- ▲ Functions for navigating within the database for the PROFITEST MASTER 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

Type	Article
SCANBASE RFID	Z751G

See chapter 4 for further details.

PROFITEST | PRCD



Type	Article
PROFITEST PRCD	M512R

Adapter for standards compliant testing of type S and K PRCDs

Adapter for standards compliant testing of type S and K PRCDs by simulating faults per DIN VDE 0701-0702, DIN VDE 0100-600, VDE 0105-100, VDE 0661, BGI / GUV-I 608 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

METRAFLEX | P300



Type	Article
METRAFLEX P300	Z502E

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:

- ▲ Broad 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 small sensor cross-section
- ▲ 9.9 mm and narrow end-cap (13.6 mm)
- ▲ 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

PRO- ... PLUG INSERTS



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

Plug Inserts

PRO-SCHUKO (article: GTZ3228000R001)

Plug insert for Germany and other countries with appropriate plug systems

PRO-CH (article: GTZ3225000R001)

Plug insert for Switzerland in accordance with SEV

PRO-W (article: Z503A)

Same as PRO-Schuko but with angled earthing contact plug

PRO-A3 II (article: Z5010)

2/3-pole measuring adapter

PRO-A3 II NCC (article: Z503C)

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

PRO-RLO II (article: Z501P)

Plug inserts for PE and other similar measurements

PRO-UNI II (article: Z501R)

Plug inserts with 3 connector cables for any connection standards

PRO-GB/USA-Set (article: Z503B) – plug insert with adapter for GB and USA

PRO-RSA (article: Z501A) – plug insert for South Africa

METRALINE | Z^{CHECK}



Measurement Results



Phase Detection (L)



Table Display



Type	Article
METRALINE ZCHECK	M507A

Loop Resistance Measuring Instrument

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 Z^{check}** 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

METRALINE | RCD^{CHECK}



Touch voltage



Time to trip



Tripping current



Type	Article
METRALINE RCDCHECK	M507B

Testing of Residual Current Devices

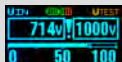
Testing of residual current devices (RCCBs)

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 systems and RCDs with rising residual current including indication of tripping current
- ▲ Testing of RCDs, IDN = 10, 30, 100, 300 und 500 mA
- ▲ Testing of RCDs with $\frac{1}{2} \cdot I_{\Delta N}$, $1 \cdot I_{\Delta N}$, $2 \cdot I_{\Delta N}$, $(5 \cdot I_{\Delta N}$ to 100 mA nominal current)
- ▲ Testing 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

METRALINE | ISO CHECK



Ramp Function



Measurement Results



Table Display



Type	Article
METRALINE ISO CHECK	M507C

Insulation Resistance Measurement

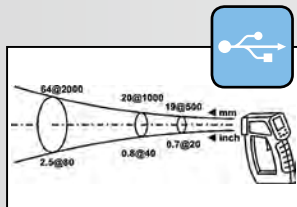
Measurement of insulation resistance

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

METRATHERM |



Type	Article
METRATHERM 1	M680A

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 ΔT
- ▲ 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

PROFITEST | PV



External Load Disconnecter



Calibrated Irradiation Sensor



External Pt1000 Temperature Sensor



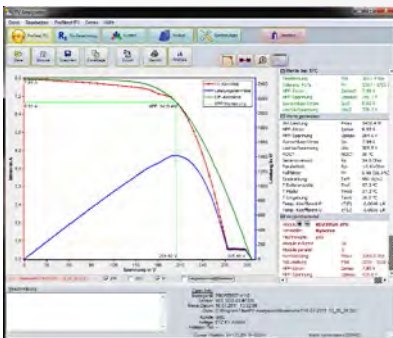
4-Wire Measurement Cable Set, 10 m



External Power Pack



Case System for the PROFITEST PV and Accessories



Type	Article
PROFITEST PV	M360A

Photovoltaics

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 DC, current up to 20 A DC
- ▲ Measurement of short-circuit current ISC, open circuit voltage UOC, instantaneous peak power of a solar cell Pmax and series resistance RS
- ▲ Measurement of internal parallel resistance RP
- ▲ 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 DC) 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.

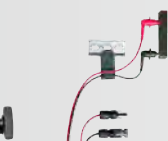
PV Analyzer includes the following functions and more:

- ▲ Read-in measured characteristic curve values 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 characteristics 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 browser window
- ▲ Module database (approx. 40,000 modules)
- ▲ Analysis function: evaluation of measured values acquired under STCs (error interpretation)

ACCESSORIES FOR PROFITEST PV



Trolley (Z502V)
for Case System



Magnetic
Contactors
with MC4 Plug (Z502Y)



PV Adapter Set
MC3-MC4 (Z360K)



PV Adapter Set
TYCO-MC4 (Z360J)



PV Adapter Set
SUNCLIX-MC4 (Z360H)



4 Wire Measurement
Cable Set, 25 m
Connection (Z360L)

Accessories

- ▲ Trolley (article: Z502V)
Trolley for case system
- ▲ Magnetic test probes (article: Z502Y)
with MC4 plug
- ▲ PV adapter set (article: Z360K)
MC3-MC4
- ▲ PV adapter set (article: Z360J)
TYCO-MC4
- ▲ PV adapter set (article: Z360H)
SUNCLIX-MC4
- ▲ 4-wire measurement cable (article: Z360L)
25 meter connection

PROFITEST PVSUN / PVSUN MEMO



PROFITEST PV SUN



PROFITEST PV SUN MEMO



PROFITEST PV SUN-SOR

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

Test Instrument

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

- ▲ Voltage measurement: 0 ... 1000 V DC
- ▲ Current measurement (direct): 0 ... 20 A DC
- ▲ Insulation resistance measurement
- ▲ Measuring range: 0 ... 20 MΩ – test voltages: 250, 500, 1000 V DC
- ▲ Ground fault measurement: 0 ... 1000 V DC
- ▲ 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 PVSUN:

- ▲ 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 PVSUN / PROFITEST PVSUN MEMO:

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

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

Type	Article
PROFITEST 204+	GTM5027000R0001
PROFITEST 204L+	M505C

PROFITEST 204L+: same as PROFITEST 204+ but with:

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

METRAMACHINE | 204/2,5+
METRAMACHINE | 439/5,4+



Portable Test System

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

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

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

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

ACCESSORIES FOR PROFITEST 204 | +



Caddy 204



Signal 204



Claim 204



RS 232 – USB



F2000

Accessories

- ▲ **Signal 204, (article: Z504D)**
 Combination signal lamp on a magnetic base plate for high-voltage tests in accordance with DIN VDE 0104
- ▲ **Cable Lug 204, (article: Z504E)**
 Adapter for PE and ISO tests – plug-on cable lug for secure attachment of the test probe to terminals
- ▲ **Leadex 204, (article: Z504C)**
 12 meter extension for the measurement cable with test probe to which the measuring circuit fuse is installed
- ▲ **Caddy 204, (article: Z504A)**
 Trolley for basic instrument combined with high-voltage module, includes cover with side pockets
- ▲ **Claim 204, (article: Z504G)**
 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, (article: Z501L)**
 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, (article: Z700D)**
 Universal carrying pouch for test instrument and accessories

PROFITEST 204 HP / 2.5 KV,
 PROFITEST 204 HV / 5.4 KV



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

High-Voltage Modules

5 kV high-voltage module for connection to the PROFITEST 204+ and the METRISO 5000D-PI

PROFITEST 204 HP-2.5 (M505A)
 2 KV high-voltage module for connection to the PROFITEST 204+ and expanded measuring options for high-voltage testing with 2xUN 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 (M505B)
 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).

SECUTEST | SI+ SECUTEST | PSI



Type	Article
SECUTEST SI+	M702G
SECUTEST PSI	GTM5016000R0001

for PROFITEST 204 | + / L+ and METRISO 5000D-PI

The SECUTEST SI+ / SECUTEST PSI serves strictly as an input device for the PROFITEST 204+ and the METRISO 5000D-PI

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

METRISO®
G500MM / G500 / G1000 / G1000+ / G1000A



METRISO G500MM



METRISO G500



METRISO G1000



METRISO G1000+



METRISO G1000A

Insulation Measuring Instrument / Low Resistance Measuring Instrument

Features:

- ▲ Intelligent filter – measurement-dependent, precision activation for the measurement of very high resistances with:
 - ◆ Beating, i.e. compensation of 16⅔ 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
- ▲ Overvoltage protection – protects the instrument in the event of inadvertent connection to mains power
- ▲ Electronic fuse for protection of low-resistance (RLO) and resistance (R) measurements
- ▲ Device self-test with integrated 10 MΩ test resistor per EN 50110/VDE 0105-100

Type	METRISO G500MM	METRISO G500	METRISO G1000
Display	LCD	LCD	LCD
Measuring voltage	50 to 500 V (50, 100, 250, 500)	50 to 500 V (50, 100, 250, 500)	50 to 1000 V (50, 100, 250, 500, 1000)
Measuring range	10 kΩ ... 100 GΩ	10 kΩ ... 100 GΩ	10 kΩ ... 200 GΩ
Polarization index, PI/DAR	–	–	–
Low-resistance measurement	–	0.17 Ω ... 10 Ω	0.17 Ω ... 10 Ω
Voltage measurement	10 V ... 500 V	10 V ... 500 V	10 V ... 1000 V

Type	METRISO G1000+	METRISO G1000A
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 kΩ ... 1 TΩ	10 kΩ ... 1 TΩ
Polarization index, PI/DAR	■	–
Low-resistance measurement	0.17 Ω ... 10 Ω	0.20 Ω ... 5 Ω
Voltage measurement	10 V ... 1000 V	10 V ... 1000 V

Type	Article
METRISO G500MM	M550K
METRISO G500	M550D
METRISO G1000	M550C
METRISO G1000+	M550B
METRISO G1000A	M542A

ACCESSORIES



Test Probe for Remote Triggering



Ever-Ready Case

Type	Article
Test probe	Z550A
Ever-ready case	Z550C

METRISO® SET
G500MM / G500 / G1000 / G1000+ / G1000A

Included with the METRISO G Sets:

- ▲ Test probe for remote triggering the METRISO G
- ▲ METRISO G ever-ready case

Type	Article
METRISO G500MM Set	M550J
METRISO G500 Set	M550H
METRISO G1000 Set	M550G
METRISO G1000+ Set	M550F
METRISO G1000A Set	M542B

METRISO C



Type	Article
METRISO C	M541A

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, DIN VDE 0701-0702, 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

Technical data:

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

METRAOHM 413



Type	Article
METRAOHM 413	M630A

Low Resistance Measuring Instrument

Digital low-resistance measuring instrument for measuring protective conductors, equipotential bonding and much more

Features:

- ▲ Two measuring ranges from 0.01 to 1 999 k Ω , zero balancing for measurement cables
- ▲ 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: CAT III 300 V / CAT II 600 V
- ▲ IP 65 protection

Included with the METRAOHM 413:

- ▲ Plug-in measurement cable and
- ▲ 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

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

Type	Article
METRISO 5024	M540E

Included with the METRISO 5024:

- ▲ Insulation measuring instrument, ohmmeter and voltmeter
- ▲ Carrying pouch

METRISO 5000 A



Analog High-Voltage Insulation Measuring Instrument



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

METRISO 5000 AK: The battery powered **METRISO 5000 A** is converted into the muscle powered **METRISO 5000 AK** by replacing the battery module with a crank generator.

Features:

- ▲ Extensive measuring range: 10 kΩ ... 1 TΩ
- ▲ Measuring range: 100 kΩ ... 100 MΩ (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

Included with the METRISO 5000 A (M580A):

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

METRISO 5000 AK (M580C)

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

METRISO 5000 A-Set (M580S) / METRISO 5000 AK-Set (M580T)

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

Type	Article
METRISO 5000 A	M580A
METRISO 5000 AK	M580C
METRISO 5000 A-Set	M580S
METRISO 5000 AK-Set	M580T

METRISO 5000D-PI



Digital High-Voltage Insulation Measuring Instrument

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 5000D-PI 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: 100V, 250V, 500V, 1 kV, 1.5kV, 2kV, 2.5kV, 5kV
- ▲ Polarization index and absorption ratio
- ▲ Voltage measurement to 1000V
- ▲ Frequency measurement: 15 Hz ... 1 kHz
- ▲ Capacitance measurement: 0.1 ... 5 µF
- ▲ Measurement of electrical discharge
- ▲ Guard terminal for the elimination of surface current
- ▲ Supply power from mains, battery pack or external 12 V power supply
- ▲ Backlit dot matrix display
- ▲ Digital display of measured values and limit values
- ▲ Timer function: 1 s ... 100 min.

Included with the METRISO 5000 D-PI:

- ▲ Basic unit with permanently connected measurement cables and test probes
- ▲ Alligator clips (5 kV version)
- ▲ Rechargeable battery (for M5810-V001 only) / mains power cable
- ▲ 5 m extension cord / interface cable

Type	Article
METRISO 5000 D-PI	M5810

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.

- ▲ 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 5000 A, Leadex 5000



Guard terminal for METRISO 5000

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

Article: Guard 5000 A (Z580C): guard cable and 1 alligator clip

Article: Leadex 5000 (Z580D): 5 m extension cord

KY 5000 A



Alligator clip for METRISO 5000

Alligator clips, 5 kV version

Article: Z580B

Generator 5000 A



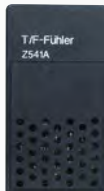
Crank Generator for METRISO 5000

Crank generator for Metriso 5000 A

The battery powered **METRISO 5000 A** is converted into the muscle powered **METRISO 5000 AK** by replacing the battery module with a crank generator.

Article: 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%

Article: Z541A

PRO-AB



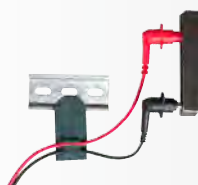
Leakage Current Measuring Adapter

PRO-AB leakage current measuring adapter for PROFITEST MXTRA

- ▲ Input current: 0 to 10 mA
- ▲ Input impedance: 1 kΩ ±0.5%
- ▲ Output voltage: 10:1: 0 ... 1 V (0.1 V/mA) 1:1: 0 ... 10 V (1 V/mA)
- ▲ Output impedance: 10 kΩ

Article: Z502S

Magnetic Measuring Probes



Measuring Contactors

Magnetic measuring probes with 4 mm sockets

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

Article: A3-16 (GTZ3602000R0001)

Article: A3-32 (GTZ3603000R0001)

Article: A3-63 (GTZ3604000R0001)

AC Current Clamp Sensors



Z3512A

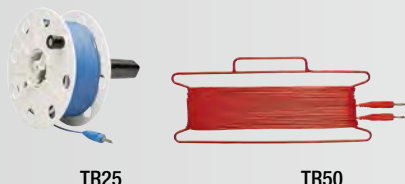
WZ12C

Current Clamp Sensors

Article: Z3512A (Z225A): current clamp sensor, 0.1 / 1 / 10 / 100 / 1000 A AC, switchable

Article: WZ12C (Z219C): Current clamp sensor, 1 mA ... 15 A AC, 1 mV/mA, 1 A ... 150 A AC, 1 mV/A, switchable

Measurement Cable



TR25

TR50

Measurement Cable

Article: TR25 (GTZ3303000R0001) reel with 25 m measurement cable.

Cable ends are equipped with banana plugs.

Article: TR50 (GTY1040014E34) 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.

KS24 Cable Set



Cable Set

Cable set for test instruments

The KS24 **cable set** includes a 4 m long extension cord with a permanently attached test probe at one end and a contact protected socket at the other end, as well as an alligator clip which can be plugged onto the test probe.

Article: GTZ3201000R0001

Set of Rechargeable Batteries



Set of Rechargeable Batteries

Article: (Z502H) Battery set for PROFITEST MASTER series: 8 rechargeable NiMH enloop batteries

Chargers for Z502H battery set

Article: (Z502P) for PROFITEST MTECH/MBASE

Article: (Z502R) for PROFITEST MXTRA/MPRO/METRISO G1000+

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.

Article: GTZ3304000R0001

VARIO PLUG ADAPTER Set



Self-Retaining Test Probes

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.

Article: 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

Article: GTZ3196000R0001

Telearn 1



Telescoping Rod

Telescoping rod with test probe, and with a socket in the handle for quick and safe testing of, for example, lamps installed at considerable heights for the meas. of protective conductor resistance.

The rod is 53 cm long and can be telescoped to a working length of 120 cm and locked into place. Max. permissible voltage to earth: 1000 V.

Article: GTZ3232000R0001

IRDA-USB Converter



Interface Converter

Interface adapter for connecting a test instrument to a PC (IrDA-USB)

Electrically isolated infrared interface for data transmission between a test instrument and a PC (USB).

Scope of delivery: CD-ROM with interface drivers

Article: Z501J

RS 232 – USB Converter



Interface Converter

The interface converter is used to connect any desired device with RS 232 ports to PCs which are equipped with USB ports only.

Scope of delivery: CD-ROM with interface drivers

Article: Z501L

Pouches and Cases



F2000



HC30-C / HC40



Ever-Ready Case

Universal Carrying Pouch, Hard Case, Ever-Ready Case

Carrying pouches	Description	Article
F2000	Universal carrying pouch for measuring and test instruments plus accessories, dimensions: 380 x 310 x 200 mm	Z700D
HC30-C	Hard case for series C testers and accessories, dimensions: 394 x 294 x 106 mm	Z541C
HC40	Hard case for 2 series C testers and accessories, dimensions: 450 x 361 x 140 mm	Z541D
Ever-ready case	Ever-ready case for PROFITEST MASTER with external pockets for accessories	Z502X

E-CHECK SET



Special Case

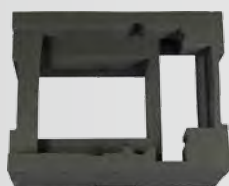
Included with the E-CHECK-SET (article: M500U):

- ▲ PROFITEST MTECH (article: M5200)
- ▲ E-CHECK case (article: Z502M)
- ▲ VARIO plug adapter set (article: Z500A)
- ▲ Charger (article: Z502P)
- ▲ Compact 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

SORTIMO L-BOXX GM



Plastic System Case

Plastic system case made of impact resistant ABS for PROFITEST MASTER

Article: Z503D

Optional: foam insert (article: Z503E) for SORTIMO L-BOXX GM with compartments for PROFITEST MASTER

GEOHM C



Type	Article
GEOHM C	M590A

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, as well as auxiliary earth electrode and probe resistance with indication if allowable limit values are violated
- ▲ 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 to 50 kW
- ▲ 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

GEOHM 5



Type	Article
GEOHM 5-SET	M591B

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) with current clamp (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 (LR14), carrying strap and stackable system case

E-SET 3



Type	Article
E-SET 3	GTZ3301005R0001

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

* Only in combination with the PRO-RE adapter (Z501S)

E-SET 4



Type	Article
E-SET 4	Z590A

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

* Only in combination with the PRO-RE adapter (Z501S)

E-SET 5



Type	Article
E-SET 5	Z590B

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

* Only in combination with the PRO-RE adapter (Z501S)

E-CLIP|1/E-CLIP|2



Clamp Meter and Generator Clamp

E-Clip 1

Clamp meter: 1 mA... 1200 A, 1 mA/A, 40 Hz–5 kHz, 52 mm diameter

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

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 diameter

Same as **E-Clip 1** except:

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

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 ... 660V/45 ... 1000 Hz

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 with electronic rotary dial, frequency display and nominal line voltage display –complies with safety regulations

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.

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 ... 690V/50 ... 400Hz
- ▲ Power supply: 4 ea. mignon cell per IEC LR 6

Rotating field direction:

Rotating Field Direction	Phase Sequence	Display at Phase LEDs	Display at 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	–

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

DUSPOL®

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



DUSPOL® – analog 1000



DUSPOL® – expert 1000



DUSPOL® – digital 1000

DUSPOL® voltage and continuity testers – top level product safety

- ▲ 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
- ▲ Measurement 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)

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 to 1000 V AC (TRMS) / 1200 V DC
Continuity test	–	LED up to 100 kΩ	LED up to 100 kΩ
Resistance	–	–	0.1 kΩ to 300 kΩ
Diode	–	–	0.3 V to 2 V
Phase sequence test	LCD	Green LED	Green LED
Single-pole phase test	LCD	Red LED	Red LED
Polarity test	LCD	LED	LCD
Frequency	–	–	15 Hz to 1 kHz
30 mA RCCB tripping via pushbutton	■	■	■
Measuring point illumination	–	■	■
Batteries	–	2 ea. 1.5 V AAA	2 ea. 1.5 V AAA

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

PROFISAFE | 690 B / L



PROFISAFE 690 B



PROFISAFE 690 L

Type	Article
PROFISAFE 690B	M630H
PROFISAFE 690L	M630J

EN 61243-3 (DIN VDE 0682-401)



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 IV devices

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 kΩ... 1999 kΩ

Type	Article
METRAVOLT 12D + L	M630G

EN 61243-3	PROFISAFE 690B	PROFISAFE 690L	METRAVOLT 12D + L
Nominal voltage	12 ... 690 V	24 ... 690 V	8 ... 1000 V AC / 1500 V DC
Measuring category	CAT IV	CAT IV	CAT IV
Protection	IP 65	IP 65	IP 65
Dielectric strength	> 5 kV, test voltage: 5 kV (1.2/50 ms pulse wave)		10 kV, test voltage: 6 kV (1.2/50 ms pulse wave)
Display levels	12/24/50/ 120/230/690 V	12/24/50/ 120/230/400/690 V	–
Input resistance	117 kΩ	202 kΩ	311 kΩ
Continuity test	0 ... 500 kΩ	0 ... 500 kΩ	0 ... 10 kΩ
Frequency range	0 ... 2000 Hz	0 ... 2000 Hz	15 ... 10,000 Hz
Current	3.4 mA	3.4 mA	3.2 mA
Display	LEDs	LEDs	LCD (backlit) + LEDs
Power supply	Rechargeable Li battery with solar cell	Rechargeable Li battery with solar cell	9 V block battery
Functions	Voltage testing and measurement plus phase, continuity, polarity and phase sequence indicator		



Technical Data	METRACLIP 41	METRACLIP 410	METRACLIP 61	METRACLIP 62
Article	M320A	M320B	M311D	M311F
Description	Electrical safety per IEC 61010. HOLD function. Suitable for measuring process signals (4 to 20 mA)	Electrical safety per IEC 61010. HOLD function	Digital leakage-current clamp, DATA HOLD and Max-Min display	Current clamp for measuring leakage and charging current. Leakage current clamp meter with specially shielded clamp opening for protection against external influences.
Clamp opening (mm)	25	25	40	18
CAT / Vmax (V)	III / 300	III / 300	III / 300	III / 300
Display, digits	Digital	Digital	Digital + bar graph	Digital
Current (A)	5 mA to 40 A AC TRMS/DC	100 mA to 400 A AC TRMS/DC	0 to 0.3 / 0 to 300 AC	200 m AC TRMS/DC 2000 m AC TRMS/DC 10 AC TRMS/DC
Resolution	1 mA / 10 mA	10 mA / 100 mA	0.01 mA / 0.01 A	0.1 mA / 1 mA / 0.01 A
Voltage (V)	–	–	–	–
Frequency range for U/I (Hz)	15 to 400	15 to 400	50 to 60	50 to 60 2 kHz cut-off frequency
Peak memory	DATA HOLD	DATA HOLD	DATA HOLD	Min / Max; DATA HOLD
Frequency measurement (Hz)	–	–	–	–
Continuity	–	–	–	–
Resistance (Ohms)	–	–	–	–
Active power (W)	–	–	–	–
Power factor	–	–	–	–
Accuracy	± 1% rdg. ± 5 digits	± 1% rdg. ± 5 digits	± (1.2% + 5 d) (- 5% ± 5 d)	1% ± 3 / 5 / 10 digits
Power Supply	9V block	9V block	2 ea. LR44/SR44	2 ea. 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
Included accessories	–	–	2 button-cell batteries, imitation leather pouch	Batteries, imitation leather pouch

METRACLIP 63	METRACLIP 64	METRACLIP 70	METRACLIP 72	METRACLIP 75
M311G	M311H	M312A	M312B	M312H
<p>Milliampere current clamps for measuring leakage current and process signal current (4 to 20 mA). The milliampere current clamp is extremely well suited for measuring small DC and AC current values beginning with 1 mA. It's equipped with a power saving circuit, an analog interface, indication of exceeded measuring ranges and a flexible current sensor, and can even be used under very unfavorable mechanical conditions.</p>		<p>Clamp meter with 4½ place digital display. Automatic or manual measuring range selection, DATA HOLD and maximum/minimum display.</p>	<p>Digital clamp multimeter with multimeter functions: Direct and alternating voltage measurement, continuity test, buzzer, resistance, overvoltage category: CAT III @ 600 V, IP 40 protection</p>	
			Frequency measurement, phase sequence	Temperature measurement
5	30	42	26	26
II/600–III/300	II/600–III/300	III/600	III/600 ... IV/300	III/600 ... IV/300
Digital	Digital	Digital	4000	4000
100 m/1000 m DC 100 m/1000 m AC 10 AC	100 m/1000 m DC 100 m/1000 m AC 10 AC	0.2 to 1400 DC 0.2 to 1000 AC RMS	0.2 to 400 DC/AC RMS 600 A pk	0.1 to 200 AC RMS, 0.2 to 600 DC/AC RMS
0.01 mA / 0.1 mA / 0.001 mA		100 mA / 1 A	10 mA / 100 mA / 1 A	
–	–	0.2 to 600 DC 0.4 to 600 AC	0.2 to 600 DC/AC RMS 900 V pk	0.2 to 600 DC/AC RMS 900 V pk
50 to 60	50 to 60	45 to 450	45 to 65	45 to 65
DATA HOLD	DATA HOLD	Min/Max; DATA HOLD	Min/Max; DATA HOLD Peak	Min-Max, DATA HOLD, PEAK
–	–	... 4k	0.01 Hz ... 20 kHz	–
–	–	Acoustic	Acoustic ... 400	Acoustic ... 400
–	–	0.5 to 6 MΩ	0.0 to 40 kΩ	0.5 to 4 kΩ
–	–	–	240 kW	–
–	–	–	0.2 ... 1.00	–
1% ± 10 digits	1% ± 10 digits	2% ± 10 digits	1% + 2 digits	1% + 2 digits
4 ea. LR6 (AA)	4 ea. LR6 (AA)	9 V, IEC 6 LR61	9 V, IEC 6 LF22	9 V, IEC 6 LF22
19 x 113 x 28	33 x 170 x 24	97 x 254 x 46 mm	70 x 193 x 37 mm	70 x 193 x 37 mm
0.28 kg	0.28 kg	0.6 kg	0.26 kg	0.26 kg
IEC LR6 batteries (AA), carrying pouch, data recording cable		Battery, pouch, 2 measurement cables with test probe	Battery, 2 measurement cables with contact-protected plugs and test probe, 1 alligator clip, pouch with carrying strap	Battery, 2 measurement cables with contact-protected plugs and test probe, 1 adapter for type K thermocouple, pouch with carrying strap

Micro-Centurion II



Type	Article
Micro-Centurion II	M681E

Microohmmeter

Microohmmeter for up to 200 A for testing contact and connection resistance

Features:

- ▲ Extremely accurate
- ▲ Automatic measuring range selection from 0.00 $\mu\Omega$ to 5 Ω
- ▲ Internal memory for measurement results
- ▲ "Single key" operation
- ▲ Safety and protection circuitry; emergency off
- ▲ Rugged, lightweight, water-proof carrying case
- ▲ Free T-Base Pro analysis software (see chapter 6, "Software")

Micro-Junior 2



Type	Article
Micro-Junior 2	M681A

Portable Microohmmeter

Portable microohmmeter for up to 10 A for testing contact and connection resistance, with a large measuring range of up to 400 k Ω

Features:

- ▲ Highly accurate thanks to integrated thermovoltage compensation
- ▲ Automatic measuring range selection from 0.00 $\mu\Omega$ to 400 k Ω
- ▲ Battery operation – more than 2000 measurements are possible
- ▲ Integrated printer
- ▲ Internal memory for measurement results
- ▲ Safety and protection circuitry; emergency off
- ▲ Rugged, lightweight, water-proof carrying case
- ▲ Free T-Base Pro analysis software (see chapter 6, "Software")

TR-MARK III



Type	Article
TR-MARK III	M681U

Turn Ratio Meter

Measuring instrument for checking the turn ratio at single and 3-phase transformers in manufacturing and service applications

Features:

- ▲ Measurement of voltage, transformation ratio, current and phase shift
- ▲ Extended measuring range for measurements at power transformers, as well as current and voltage transformers
- ▲ Automatic test voltage range
- ▲ Very quick measurement thanks to one-time only connection
- ▲ Outstanding accuracy and only minimal loading of the device under test
- ▲ Data exchange via USB stick
- ▲ Integrated printer
- ▲ High-performance protection circuitry; emergency off
- ▲ Rugged, lightweight, water-proof carrying case
- ▲ Free T-Base Pro analysis software (see chapter 6, "Software")

T-Rex



Type	Article
T-Rex	M681D

Voltage Vector Measuring Option

3-phase voltage vector measuring option for the TR-Mark III

Features:

- ▲ Read-out of a pure “3-phase sinusoidal wave”
- ▲ Automatic selection of test voltage frequency
- ▲ One-time only hook-up to the transformer with minimal loading of the device under test
- ▲ Measurement of phase relationships other than 30 degrees or multiples thereof
- ▲ Measurement of phase-shifting transformers
- ▲ Measurement of converter transformers
- ▲ Self-calibration
- ▲ Safety and protection circuitry
- ▲ Rugged, lightweight, water-proof carrying case
- ▲ Free T-Base Pro analysis software (see chapter 6, “Software”)

TR-1 / TR-1P



Type	Article
TR-1	M681R
TR-1P	M681K

Turn Ratio Meter

Portable measuring instrument for checking the turn ratio at single-phase transformers in manufacturing and service applications

Features:

- ▲ Mains-independent measuring instrument / battery operation (roughly 1000 measurements)
- ▲ Rechargeable with mains power or optional DC automotive adapter
- ▲ Test current of up to 1 A for CT tests
- ▲ Integrated printer (in type TR-1P)
- ▲ Fully automated continuous operation
- ▲ Internal memory for the last 50 measurement results
- ▲ RS 232 port with optional adapter
- ▲ Pass/fail function
- ▲ Comparison with up to 16 transformer ratios
- ▲ Rugged, lightweight, water-proof carrying case
- ▲ Free T-Base Pro analysis software (see chapter 6, “Software”)

WR14



Type	Article
WR14	M681W

Microohmmeter

Microohmmeter for up to 15 A for testing contact, connection and winding resistance at inductances of up to 1500 Henry

Features:

- ▲ Battery and mains operation
- ▲ Demagnetization function for transformers and automatic discharging function
- ▲ Optical and acoustic indication of discharging status
- ▲ 2 independent measuring channels, 2 temperature channels
- ▲ Data storage for up to 10,000 measurements
- ▲ Data exchange via USB stick
- ▲ Color touch-screen
- ▲ Integrated printer
- ▲ Emergency-off pushbutton, power off and discharging begins
- ▲ Rugged, lightweight, water-proof carrying case
- ▲ Free T-Base Pro analysis software (see chapter 6, “Software”)
- ▲ **Optional:** heat-run test software (AHRT 01) for WR14 / WR50 / WR100

WR50-12 / WR50-13



Type	Article
WR50-12	M681M
WR50-13	M681N

Microohmmeter

2/3-channel microohmmeter for up to 50 A / 50 V for testing contact, connection and winding resistance at inductances of up to 1500 Henry in the high and medium-voltage ranges, as well as continuity testing and length measurement for cables and cable shielding (transformers, generators, motors)

Features:

- ▲ High-power DC supply (50 A / 50 V)
- ▲ Demagnetization function for transformers and automatic discharging function
- ▲ Extremely large measuring range from 0.00 $\mu\Omega$ to 100 k Ω , adjustable charging current
- ▲ 2 measuring channels (3 measuring channels with WR50-13)
- ▲ 3 temperature channels (with automatic resistance correction)
- ▲ Optical and acoustic indication of discharging status
- ▲ Data transmission to internal printer at selectable time intervals
- ▲ Data storage for up to 10,000 measurements
- ▲ Data exchange via USB stick
- ▲ Color touch-screen with background illumination
- ▲ Safety and protection circuitry; emergency off
- ▲ Rugged, lightweight, water-proof carrying case
- ▲ Free T-Base Pro analysis software (see chapter 6, "Software")

Heat-run test software (AHRT 01)

- ▲ Option for WR50, WR100 and WR14 microohmmeters

WR100-12R / WR100-13R



Type	Article
WR100-12R	M681Y
WR100-13R	M681Z

Microohmmeter

2/3-channel microohmmeter in 19" rack for up to 100 A / 50 V for testing contact, connection and winding resistance at inductances of up to 1500 Henry in the high and medium-voltage ranges, as well as continuity testing and length measurement for cables and cable shielding (transformers, generators, motors)

Features:

- ▲ High-power DC supply (100 A / 50 V)
- ▲ Demagnetization function for transformers and automatic discharging function
- ▲ Extremely large measuring range from 0.00 $\mu\Omega$ to 100 k Ω , adjustable charging current
- ▲ 2 measuring channels (3 measuring channels with WR100-13R)
- ▲ 3 temperature channels (with automatic resistance correction)
- ▲ Optical and acoustic indication of discharging status
- ▲ Data storage for up to 10,000 measurements
- ▲ Data exchange via USB stick
- ▲ Color touch-screen with background illumination
- ▲ "Warning output" for transformer under test
- ▲ Emergency-off pushbutton, power off and discharging begins
- ▲ Free T-Base Pro analysis software (see chapter 6, "Software")

Heat-run test software (AHRT 01)

- ▲ Option for WR100, WR50 and WR14 microohmmeters

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
IEC / EN 61010, 60601, 60950, 60335
- ▲ For servicing or as the operating company
 - ◆ Of electrical devices
DIN VDE 0701-0702
 - ◆ Of medical devices
IEC 62353 (VDE 0751)
 - ◆ Of welding equipment
IEC 60974-4 (VDE 0544-4)



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SECUTEST, 4TH GENERATION

Universal test instrument for testing the electrical safety of electrical devices



SECUTEST|BASE / BASE 10 / XTRA

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SECUTEST

Test Instrument for BGV A3 and MPG



SECUTEST SIII+

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SECUTEST S2|N+W

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SECUTEST

Test Case, Workshop Test Panels



SECUTEST 3PL

Page 4-11



SECUTEST 21F

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SECUTEST|WP

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SECUSTAR / SECULIFE

Modular 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



SECUSTAR|FM+

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SECULIFE|SB

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SECULIFE|SR

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METRA-TESTER

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



METRATESTER 5+

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METRATESTER 5+|3P

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MINITEST

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



MINITEST|Base

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MINITEST|Pro

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MINITEST|MASTER

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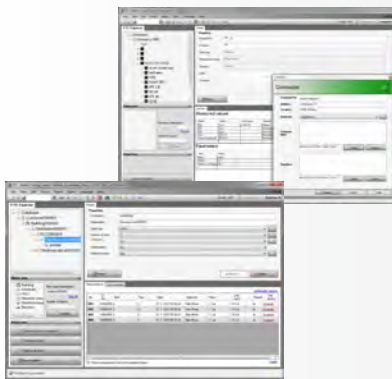


MINITEST 3P|MASTER

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Type	MINITEST			METRA-TESTER 5+	SECUTEST			SECUSTAR FM+	SECLIFE SR
	BASE	PRO	MASTER 3P MASTER		BASE / BASE 10 / XTRA	SECUTEST SIII + SECLIFE ST	SECUTEST S2 N+w	SECLIFE SB	
Article number	M712C	M712D	M712U M712X	M700D	M7050- ...	Configurable	M7010-V033	M761A/M691A	M692A
Applications, Target Groups									
BGV A3, VDE 0701-0702, BetrSichV	■	■	■	-	■	■	■	■	-
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. 50,000	125		approx. 3000 *	-
Software (optional)	See chapter 6 for complete information.								
Functions / Measurements									
Visual inspection	-	-	-	-	■	■	■	Programmable	-
Protective conductor resistance	200 mA				200 mA / 10 A		200 mA 10 / 25 A		200 mA.
Insulation Resistance	■	■	■	■	Adjustable voltage				■
Leakage Current Test Methods 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 application 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)	-	-	-	-	-	■	■	-	-
Miscellaneous									
Display	LED	2-line LCD		Customer-specific	Color display	Black and white dot matrix		Color touch-screen	Black & 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 to 250 V 40 Hz to 400 Hz	230 V / 50 Hz 115 V / 60 Hz		Battery, 90 V to 250 V 40 Hz to 400 Hz	90 V to 250 V 40 Hz to 400 Hz
* Option									

SECUTEST | BASE / BASE 10 / XTRA



The New 4th Generation of the SECUTEST Series

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
- ▲ Arc welding equipment per DIN EN 60974-4

Testing of the electrical safety of electrical devices is necessary in many applications and is required in accordance with legislation and regulations set forth by official authorities, operating companies and insurance carriers.

Tests must be conducted as a preventive measure after each repair, and within the framework of work safety, at regular intervals in order to protect users.

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:

- ▲ 8+1 predefined test sequences for testing electrical devices quickly
- ▲ One universal, adjustable test sequence
- ▲ One test sequence executed with individual measurements

Highlights:

- ▲ Revolutionary data management and storage concept for automated test sequences and individual measurements – for up to 50,000 data records
- ▲ Pioneering operating concept with double rotary switch, direct selection keys and softkeys
- ▲ Unique multiple measurement allows for 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 data acquisition and management, as well as for documenting completed tests.

Accessories:

- ▲ Thermal printer and special thermal paper with long shelf-life
- ▲ Barcode reader / barcode scanner
- ▲ 3-phase current adapter (active/passive)
- ▲ Adapter for 3-phase extension cords
- ▲ Various special cables
- ▲ Calibration adapter
- ▲ Pouches and cases

Type	Article
SECUTEST XTRA	M7050- ...
Type	Article
SECUTEST BASE	M7050-V001
SECUTEST BASE 10	M7050-V002

Customer-Specific Variant with Selection Option
<ul style="list-style-type: none"> ▲ User interface language ▲ Country-specific mains cable and test socket variants ▲ Test current amperage for protective conductor test: 200 mA or 200 mA + 10 A ▲ DAkkS calibration certificate language
Preconfigured Variant
<ul style="list-style-type: none"> ▲ German user interface ▲ Earthing contact mains connection and test socket ▲ DAkkS calibration certificate in D/GB/F
<ul style="list-style-type: none"> ▲ German user interface ▲ Earthing contact mains connection and test socket ▲ 200 mA and 10 A test current for the protective conductor test ▲ DAkkS calibration certificate in D/GB/F

SECUTEST SIII+ / SECULIFE | ST



SECUTEST SIII+
with SECUTEST SI+

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:** IEC 60601, routine testing of electrical medical devices (optional/configurable)

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

- ▲ **F02:** including high-voltage test up to 6000 V DC (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 4-12

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

Universal Test Instrument

Universal test instrument for testing the electrical safety of electrical devices in accordance with safety legislation, medical device regulations and BGV A3, as well as final inspection testing 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, 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 application parts
- ▲ Test sequence per IEC 60601 with SFC conditions

Designation	Basic Instrument = All 00 Features	M7010 M6930
Connectors and plugs 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
	Switzerland	B09
Other countries upon request	Adapter set for international use (equipped with feature B01)	B11
User interface language	German	C00
	English	C01
	French	C02
	Italian	C03
	Spanish	C04
	Czech	C05
	Dutch	C06
HV test	Without	F00
	With high-voltage test, setpoint: max. 4 kV AC – max. 6.126 kV DC test voltage output	F02
AC test current for protective conductor measurement	10 A.	G00
	25 A.	G01
	Without AC test current	G02
Test sequence for IEC 60601	Without	KA00
	With (recommended with J01)	KA01
Data memory for up to 125 tests	Without	KB00
	With	KB01
Detection of probe at protective conductor	Without	KD00
	With (including SK5 probe, 5 m)	KD01
Direct printing	Without	KE00
	Direct printing after each measurement for automatic test sequences	KE01

SECUTEST S2|N+w



SECUTEST S2N+w
with SECUTEST SI+

Test Instrument for BGV A3 Including Arc Welding Equipment

Universal test instrument for testing the electrical safety of electrical devices including arc welding equipment in accordance with safety legislation and BGV A3

Automatic test sequences per:

- ▲ VDE 0701-0702
 - ◆ Testing of extension cords
 - ◆ Passive test sequence (device is not started up)
 - ◆ Active test sequence (device is started up)
 - ◆ Testing of computer equipment
- ▲ IEC 60974-4 (VDE 0544-4), testing arc welding equipment

Expanded functionality:

- ▲ Safety for the user thanks to integrated safety switch – suitable for persons with basic electro-technical instruction
- ▲ Menu-driven test sequences in compliance with the standards including automatic detection of protection classes I + II
- ▲ Voltage measurement at SELV/PELV circuits included in the test sequence
- ▲ Convenient memory and report generating functions
- ▲ Expanded data storage and reports generating via optional, external memory
- ▲ Expandable with optional accessories for 3-phase devices

Included with the test instrument:

- ▲ Test probe
- ▲ Alligator clip
- ▲ DAkkS calibration certificate
- ▲ Carrying strap

Optional accessories as of Page 4-12

- ▲ See chapter 6 for PC analysis software.
- ▲ See chapter 9 for training offerings.
- ▲ SECULOAD-N for measuring the peak value of open circuit voltage at arc welding equipment



Profiset VDE 0544-4

Profiset VDE 0544-4 (M702P)

- ▲ SECUTEST S2N+W
- ▲ SECUTEST SI+: memory module and interface
- ▲ AT16-DI: 3-phase, 16 A differential current adapter with additional 16 to 32 A adapter cable
- ▲ SECULOAD-N for measuring open circuit voltage at welding units with 4 measurement cables and 2 alligator clips
- ▲ F2020 carrying pouch: padded carrying pouch
- ▲ ETC software report generating software for SECUTEST and PROFITEST

Type	Article
SECUTEST S2N+w	M7010-V033
Profiset VDE 0544-4	M702P

SECUSTAR FM+



Bagstar

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

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.

Characteristics

- ▲ 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 2000 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

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

Starterset (M702W)

- ▲ SECUSTAR FM+
- ▲ Bagstar carrying pouch
- ▲ Barcode reader (Z751A)
- ▲ PC.doc-ACCESS for testing in accordance with DIN VDE 0701-0702

Profiset (M702X)

- ▲ SECUSTAR FM+
- ▲ Bagstar carrying pouch
- ▲ Barcode reader (Z751A)
- ▲ PS3 BM software for maintenance and equipment management

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)

SECULIFE | 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:
 - ◆ 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 2000 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

Included with the test instrument:

- ▲ Factory calibration certificate

Type	Article
SECULIFE SB	M691A

SECULIFE | 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 application parts (via 4 mm sockets)
- ▲ Supports all measuring methods for leakage current (direct, differential, equivalent)
- ▲ Connection option for 10 A 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
SECULIFE SR	M692A

METRATESTER 5+



Metratester 5+



Metratester 5-F-E

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

Safety of Electrical Devices

Instrument for electrical safety testing 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)**

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 ~
Differential 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

METRATESTER 5+ | 3P



Type	Article
METRATESTER 5+3P	M700K

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 be connected either 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 CEE 16 A, 5-pole mains plug and coupling socket
- ▲ Optional accessories as of Page 4-12
- ▲ See chapter 9 for training offerings

MINITEST | **BASE**



Type	Article
MINITEST BASE	M712C

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

- ▲ Tester
- ▲ Probe cable

MINITEST | **PRO**



Type	Article
MINITEST PRO	M712D

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

Same scope of delivery as BASE plus:

- ▲ USB cable

MINITEST | **Master**
MINITEST 3P | **Master**



MASTER

3P MASTER

Type	Article
MINITEST MASTER	M712U
MINITEST 3P MASTER	M712X

Test Instrument for DIN VDE 0701-0702

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

Same scope of delivery 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

SECUTEST 3PL



Applications for all SECUTEST Instruments

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

Test Instrument for DIN VDE 0701-0702

Test case for tests per BGV A3/GUV A2 at single and 3-phase devices and extension cords per DIN VDE 0701-0702

Test instrument for fast, 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

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.

See chapter 6 for PC analysis software.

SECUTEST 21F



Type	Article
SECUTEST 21F	M601A

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: 532 x 792 x 179 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

SECUTEST WP



Type	Article
SECUTEST WP	M704C

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 by means of 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.

SECUTEST | SI+ / SECUTEST | PSI



SECUTEST SI+



SECUTEST PSI

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

Memory and Input Module

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: 240x81x40 mm, weight: approx. 0.8 kg
- ▲ Batteries: four 1.5V 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

SECUSTORE



Type	Article
SECUSTORE	Z745U

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

BARCODE PRINTER / REPORT PRINTER



Z721D Barcode Printer Z721S Report Printer

Type	Article
Barcode printer	Z721D
Label set	Z722D
Label set	Z722E
Report printer	Z721S
Thermal paper	Z722S

Barcode and Label Printer for Connection to a PC, Including Software, Report Printer for Connection to the USB Master Port at the Test Instrument

For the identification of equipment with barcode labels

Features:

- ▲ Prints smudge-proof, scratch resistant labels in all common sizes
- ▲ Ideal in combination with the following barcode scanners: B3261, Z720A, Z751A
- ▲ MS Windows software

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

Z721S report printer

Thermal printer for connection to the USB master port at the SECUTEST BASE(10)/XTRA 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

AT3-III-E



Type	Article
AT3-III-E	Z745S

Adapter

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

Characteristics

- ▲ 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: 405 x 300 x 220 mm (with lid), weight: approx. 6.7 kg

AT3-IIS / AT3-IIS32



Type	Article
AT3-IIS	Z745T
AT3-II S32	Z745X

Adapter

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-drive 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**
Equipment: 5-pole CEE 32 A (max. 20 A) and CEE 16 A
Dimensions: 290 x 120 x 105 mm, weight: 2.4 kg
- ▲ **AT3-IIS32: article: Z745X**
Equipment: 5-pole CEE 32 A (max. 40 A) and CEE 16 A, single-phase earthing contact outlet
Dimensions: 285 x 220 x 128 mm, weight: 4.15 kg

AT16-DI / AT32-DI



Type	Article
AT16-DI	Z750A
AT32-DI	Z750B

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

VL2E



Type	Article
VL2E	Z745W

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:

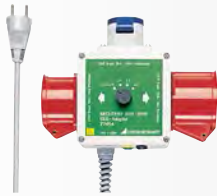
At electrical devices:

- ▲ 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.

Z745A CEE-ADAPTER



Type	Article
CEE ADAPTER	Z745A

Adapter for 3-Phase Consumers

The Z745A CEE adapter allows for quick and efficient testing of devices equipped with a CEE plug in accordance with DIN VDE 0701-0702.

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

SECU-CAL 10



Type	Article
SECU-cal 10	Z715A

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

SECULOAD



Type	Article
SECULOAD	Z745V
SECULOAD N	Z745R

Test adapter

SECULOAD N:

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

SECULOAD:

Peak-value rectifier with extended measured value acquisition, even for steep edges at pulsed voltage outputs

EL1



EL

PRO-CH

Type	Article
EL1	Z723A
PRO-CH	GTZ3225000R0001

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 C14 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

KS13



Type	Article
KS13	GTY3624065P01

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
- ▲ 2 plug-on test probes

SK2 / SK5



Probe Cable for Protective Conductor Measurement

SK2 (Z745D): probe including test probe and 2 m probe cable (not coiled), suitable for HV testing

SK2W (Z745N): probe including test probe and 2 m probe cable (coiled), suitable for HV testing

SK5 (Z745O): 5 meter probe cable for protective conductor measurement

SK5 (Z745K): 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

RS 232 – USB CONVERTER



Type	Article
RS 232 – USB converter	Z501L

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.

CURRENT CLAMP SENSOR



Type	Article
WZ12C	Z219C

Current Sensor

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

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

Scope of delivery:

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

Measuring Range	CAT at V	Conductor Cross-Section	Transmission Factor	Frequency Range	Intrinsic Uncertainty ± (% rdg. + mA)
1 mA... 15 AAC / 1 A... 150 AAC	III @ 300	15 mm dia.	1 mV/mA / 1 mV/A	45 ... 65 ... 500 Hz	3% + 0.15 mA / 2% + 0.1 A

BRUSH PROBE



Type	Article
Brush probe	Z745G

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 (contact current)
- ▲ Protective conductor resistance measurement

PA4



Type	Article
PA4	Z745L

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

Z3409 TEMPERATURE SENSOR



Type	Article
Z3409	GTZ3409000R0001

Standard Temperature Sensor

Standard PT 100 Temperature Sensor for Surface and Immersion Measurements

Technical Data	
Sensor element	Pt100
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	0.15K
Transient recovery, T90 water/air	5 s / 30 s
Lead/insulation	Strands: 2 ea. 0.35 sq. mm / PVC

POUCHES, CASES



F2000



F2020



K2010



Z740B



BAGSTAR



SORTIMO BOXX

Accessories

F2000 (Z700D):
Universal carrying pouch
 ▲ Dimensions: 380 x 310 x 200 mm

F2020 (Z700F):
Large universal carrying pouch
 ▲ Dimensions: 430 x 310 x 300 mm

K2010 (Z504L):
Aluminum case
 ▲ Dimensions: 645 x 535 x 160 mm

Z740B (Z740B):
Hard case for testers and accessories
 ▲ Dimensions: 394 x 294 x 106 mm

BAGSTAR (Z700E):
Ever-ready case

SORTIMO BOXX GM (Z503D):
 Plastic system case

Foam SORTIMO L-BOXX (Z701D)
 Foam insert for SORTIMO L-BOXX GM with compartment for SECUTEST BASE(10)/XTRA

BARCODE READERS AND SCANNERS



Z751A Barcode Reader

Z720A barcode scanner with laser for test instruments with RS 232 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. See our barcode and label printers for water-insoluble labels as well.

- ▲ 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 reader with laser for test instruments with RS 232 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
- ▲ Insertion of decoded characters to any desired cursor position

Type	Article
Z720A (barcode scanner)	Z720A
Barcode Profiscanner RS 232	Z502F
Z751A (barcode scanner)	Z751A

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. 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.

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, 24x18 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, 10 mm	250
RFID tag (125 kHz), shape as requested	Z751U	125 kHz	–	20 mm	100

OVERVIEW

Test Instrument Accessories

Type	MINITEST				METRATESTER 5 +	METRATESTER 5 + 3P	SECUTEST					SECUSTAR FM+ SECULIFE SB	SECULIFE ST	SECULIFE SR
	BASE	PRO	MASTER	3P MASTER			BASE	BASE 10	XTRA	SIII +	S2N +W			
General Accessories														
SECUTEST SI+	-	-	-	-	-	-	-	-	■	■	-	-	■	-
SECUTEST PSI	-	-	-	-	-	-	-	-	■	■	-	-	■	-
RS 232 – USB converter	-	-	-	-	-	-	-	-	■	■	■	-	■	-
SECUSTORE	-	-	-	-	-	-	-	-	■	■	■	-	■	-
AT3-III E	-	-	-	-	-	-	-	■	■	-	-	-	-	-
AT3-IIS	-	-	-	-	-	-	-	■	■	-	-	-	-	-
AT3-IIS32	-	-	-	-	-	-	-	■	■	-	-	-	-	-
AT16-DI	-	-	-	-	-	-	-	■	-	■	-	■	■	■
AT32-DI	-	-	-	-	-	-	-	■	-	■	-	■	■	■
SECU-cal 10	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Temperature / humidity sensor	-	-	-	-	-	-	-	-	-	-	-	■	-	-
VL2E	■	■	■	-	■	■	■	■	■	■	-	■	■	■
EL1	-	-	-	-	-	-	-	■	■	■	-	■	■	■
KS13	■	■	■	■	■	■	■	■	■	■	■	■	■	■
SECULOAD / SECULOAD-N	-	-	-	-	-	-	-	■	■	■	■	■	■	-
CEE adapter	■	■	■	-	■	-	■	■	■	-	■	■	■	■
SK2	-	-	-	-	-	-	-	■	■	■	■	■	■	■
PC5	-	-	-	-	-	-	-	■	■	■	■	■	■	■
Current clamp sensors	-	-	-	-	-	-	-	-	■	■	■	■	■	■
Brush probe	■	■	■	■	-	-	-	■	■	■	■	■	■	■
PA4	-	-	-	-	-	-	-	-	-	-	-	-	■	-
Temperature sensors	-	-	-	-	-	-	-	-	■	■	-	-	■	-
Carrying Pouches														
F2000	■	■	■	■	■	■	■	■	■	■	■	■	■	■
F2020	■	■	■	■	■	■	■	■	■	■	■	■	■	■
K2010	-	-	-	-	-	-	-	-	■	■	-	-	-	-
Z740B	■	■	■	-	-	-	-	-	-	-	-	-	-	-
BAGSTAR	-	-	-	-	-	-	-	-	-	-	-	■	■	■
SORTIMO BOXX	-	-	-	-	-	-	-	■	-	-	-	-	-	-
Foam insert for SORTIMO L-BOXX GM SECUTEST BASE(10)/XTRA	-	-	-	-	-	-	-	■	-	-	-	-	-	-
SCANBASE / SCANWRITER RFID														
Z751E	-	-	-	-	-	-	-	■	-	-	-	■	-	-
Z751G	-	-	■	■	-	-	-	-	■	■	■	-	■	-
Barcode Reader / Barcode Scanner / Barcode Printer / Report Printer														
Z720A	-	-	■	■	-	-	-	-	■	■	■	-	■	-
Z502F	-	-	■	■	-	-	-	-	■	■	■	-	■	-
Z751A	-	-	-	-	-	-	-	■	-	-	-	■	-	-
Z721S	-	-	-	-	-	-	-	■	-	-	-	-	-	-

* 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 superim-

posing low-frequency signals to the output via analog control inputs.

Data storage provided by SSP and SYSKON models makes it possible to save UI time profiles, and to run the respective sequences automatically.

Depending upon the device, available interfaces include analog, RS 232, IEEE 488 (GPIB) or USB.

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.



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**ELECTRONIC
LOADS – SPL / SSL**



LOAD KONSTANTER – SPL

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LOAD KONSTANTER – SSL 32EL

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SYSKON P SERIES

Single Output Computer Controlled
Laboratory Power Supplies
P500 / P800 / P1500 / P3000 / P4500



SYSKON | P500

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SYSKON | P800

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SSP 32N KONSTANTER



SSP 32N KONSTANTER 120 ... 320

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SSP 62N/64N KONSTANTER



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MSP 64D KONSTANTER



MSP 64D KONSTANTER

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LSP 32K KONSTANTER



LSP 32K KONSTANTER

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SLP 32N KONSTANTER



SLP 32N KONSTANTER 120 ... 320

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SPL SERIES



Programmable Electronic Loads

Series SPL instruments (single-channel programmable load) are programmable electronic loads with a maximum sink power of 250 or 400 W and 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 rate of current rise: 0.1 mA to 4 A per μ s
- ▲ 3 transient functions + sense terminal + trigger input
- ▲ The load can be activated as of an adjustable voltage level
- ▲ Short-circuit and battery discharging functions
- ▲ Memory for 7 sequences with up to 50 steps each (at least 10 μ s per step)
- ▲ Low load voltage: < 0.6 V at max. current
- ▲ Load 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 with SCPI commands or LabVIEW

Scope of delivery:

- ▲ Mains power cable with earthing contact plug
- ▲ Operating Instructions
- ▲ RS 232 cable
- ▲ SCPI command guide

Optional accessories:

- ▲ IEEE 488 interface

SSL SERIES



Programmable Electronic Loads

Series SSL instruments (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.

- ▲ 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

Optional accessories:

- ▲ Interface adapter for USB / RS 232

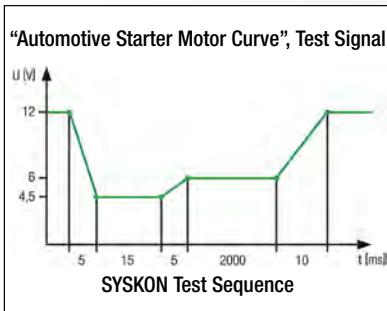
See software in section 6

Type	Article
32 EL 150 R 30	K850A
32 EL 300 R 30	K851A
SPL 250-30	K852A
SPL 400-40	K853A
IEEE 488 interface	K890A

Power P_{Set} [W]	Voltage U_{Set} [V]	Current I_{Set} [A]	Resistance R_{Set} [Ω]	Dimensions W x H x D (mm)		Weight (approx. kg)
				Benchtop Instrument	19" Rack	
0.1 ... 150.0	0.001 ... 360.0	0.001 ... 30.00	0.01 ... 500.0	215 x 100 x 280	$\frac{1}{2}$ 19" x 2 s.h.u. ¹⁾ x 243 + 45 mm	5.0
0.1 ... 300.0	0.001 ... 360.0	0.001 ... 30.00	0.01 ... 500.0			
0.001 ... 250.00	0.001 ... 80.000	0.0001 ... 30.000	0.0200 ... 2000	226 x 110 x 414	$\frac{1}{2}$ 19" x 2 s.h.u. ¹⁾ x 350 + 45 mm	5.8
0.001 ... 400.00	0.001 ... 80.000	0.0001 ... 40.000	0.0200 ... 2000			
For SPL series						0.1

¹⁾s.h.u. = standard height unit

SYSKON | P SERIES



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

Single Output Computer Controlled Laboratory Power Supplies

SYSKON P series KONSTANTERs (SYSTEM KONSTANTER, programmable) are single output, computer controlled 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 (10V) 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
- Sink:** dynamic up to 195 W

Functionality:

- ▲ Output power: 500 W, 800 W, 1500 W, 3000 W 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)

Scope of delivery:

- ▲ CD with user and driver software, operating instructions (D + EN), data sheet (D + EN)
- ▲ Clear-cut user software [soft front-panel]
- ▲ Mains power cable (P500, P800, P1500)
- ▲ USB cable (90° angle)
- ▲ Installation set for 19" rack mounting
- ▲ DAkkS calibration certificate
- ▲ Operating instructions (printed)

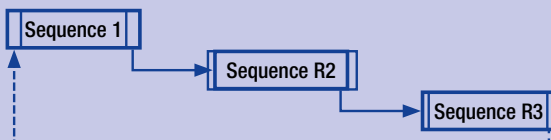
Optional accessories:

- ▲ IEEE 488 interface
- ▲ 3-phase mains power cable for SYSKON P3000 and P4500
- ▲ RS 232 bus cable
- ▲ IEEE 488 bus cable

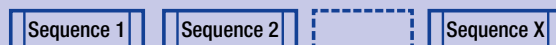
See software in section 6.

■ **Sequence memory:**
1700 locations for sequence functions

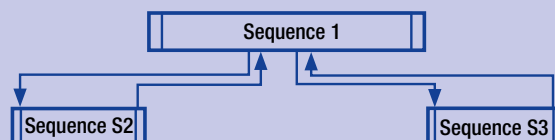
■ **Sequence stringing**



■ **Setup memory:** 15 memory locations for complete configurations



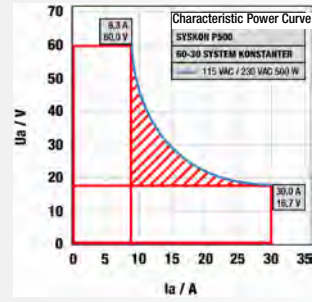
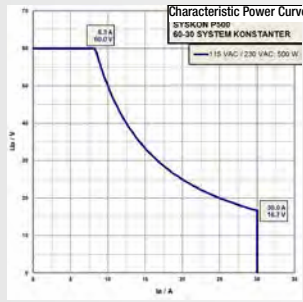
■ **Invocation of sub-sequences from primary sequences**



SYSKON | P500



500 W output power

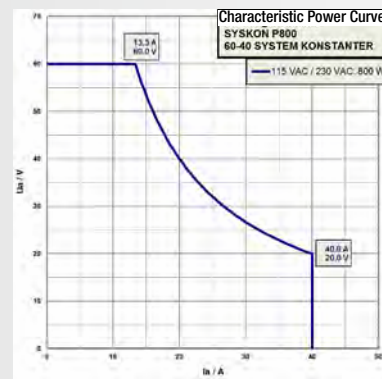


Auto-Range Curve
Relative to
Square Waves

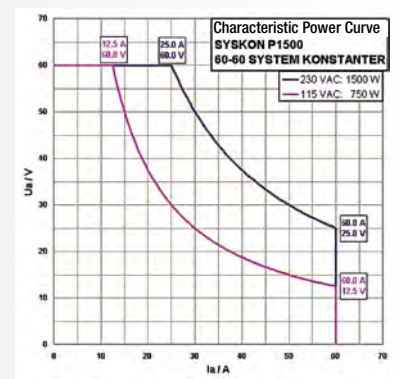
SYSKON | P800



800 W output power



1 500 W output power



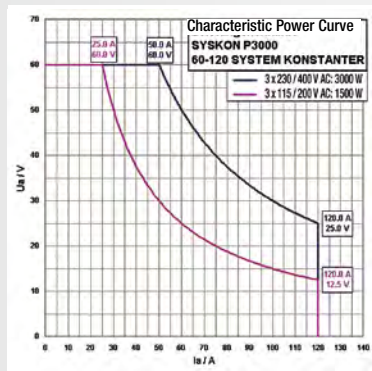
SYSKON | P1500



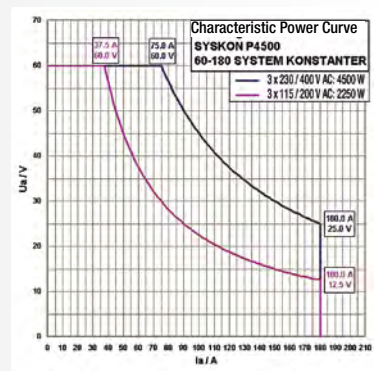
SYSKON | P3000



3000 W output power



4500 W output power



SYSKON | P4500



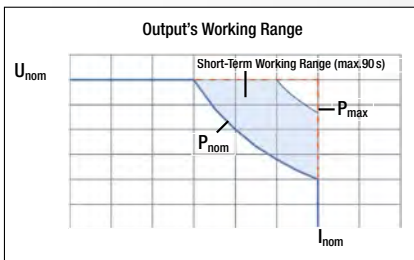
Type	Article
SYSKON P500	K346A
SYSKON P800	K347A
SYSKON P1500	K353A
SYSKON P3000	K363A
SYSKON P4500	K364A
IEEE 488 interface	K384A
Mains power cable, 3 m	K991B

Technical Data

Type	Power	Voltage	Current	Dimensions (W x H x D in mm)		Weight (approx. kg)
	P_{nom} [W]	U_{set} [V]	I_{set} [A]	Benchtop Instrument	19" Rack	
SYSKON P500	500	0 ... 60	0 ... 30	447 x 102 x 541	2 s.h.u. ¹ x 501	10
SYSKON P800	800	0 ... 60	0 ... 40	447 x 102 x 541	2 s.h.u. ¹ x 501	10
SYSKON P1500	1500	0 ... 60	0 ... 60	447 x 102 x 541	2 s.h.u. ¹ x 501	10
SYSKON P3000	3000	0 ... 60	0 ... 120	447 x 191 x 541	4 s.h.u. ¹ x 501	16
SYSKON P4500	4500	0 ... 60	0 ... 180	447 x 191 x 541	4 s.h.u. ¹ x 501	20

¹s.h.u. = standard height unit

SSP 32N KONSTANTER 120 ... 320



SSP 32N Models, 120/240 W



SSP 32N Models, 320 W

Computer Controlled Laboratory Power Supplies

SSP32N KONSTANTER 120, 240 and 320 devices (single output system power supplies) are single output computer controlled 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:

Digital interfaces: 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 15 W

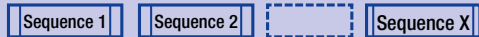
Functionality:

- ▲ 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, 10 ms]
- ▲ High setting accuracy [as of 0.15% + 30 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 (e.g. for automotive applications)
- ▲ Execution of long-term testing
- ▲ Incorporation into test systems (with analog or digital control)

■ Sequence memory: 242 locations for sequence functions



Scope of delivery:

- ▲ Mains power cable with earthing contact plug
- ▲ Operating instructions (printed)

Optional accessories:

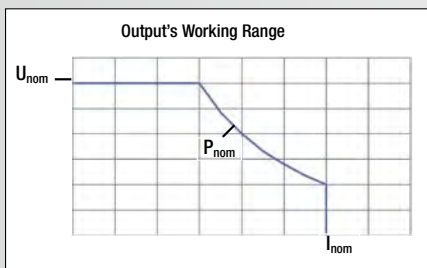
- ▲ IEEE 488 interface
- ▲ IEEE 488 and RS 232 cable
- ▲ Installation sets for 19" rack mounting
- ▲ Mains power cable for connecting two 32N instruments

See software in section 6.

Type	Article
SSP 120W	32 N 20 RU 10 P K320A
	32 N 40 RU 6 P K321A
	32 N 80 RU 3 P K322A
SSP 240W	32 N 20 RU 20 P K330A
	32 N 40 RU 12 P K331A
	32 N 80 RU 6 P K332A
SSP 320W	32 N 32 RU 18 P K334A
IEEE 488 interface	K380A

Power		Voltage	Current	Dimensions (W x H x D in mm)		Weight (approx. kg)
P_{nom} [W]	P_{max} [W]	U_{nom} [V]	I_{nom} [A]	Benchtop Instrument	19" Rack	
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
120	240	0 ... 40	0 ... 6			
120	240	0 ... 80	0 ... 3			
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
240	360	0 ... 40	0 ... 12			
240	360	0 ... 80	0 ... 6			
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
-		-		-	-	0.1

SSP 62N / 64N KONSTANTER 500...3000



SSP 62N Models
500 and 1000 W



SSP 64N Models
2000 and 3000 W

Computer Controlled Laboratory Power Supplies

SSP KONSTANTER 500, 1000, 2000 and 3000 devices (single output system power supplies) are single output computer controlled laboratory power supplies 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)

■ Sequence memory: 245 locations for sequence functions



Scope of delivery:

- ▲ Mains power cable (62N series)
- ▲ Installation set for 19" rack mounting
- ▲ Operating instructions (printed)

Optional accessories:

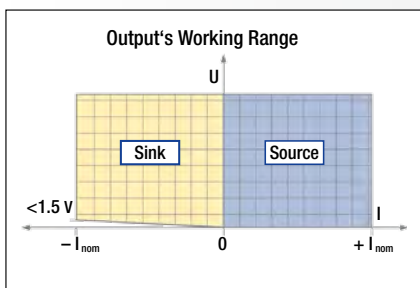
- ▲ IEEE 488 + RS 232 interface
- ▲ RS 232 interface
- ▲ 3-phase cable for SSP 64N models
- ▲ RS 232 bus cable / IEEE 488 bus cable

See software in section 6.

Type		Article
500 W	62 N 52 RU 25 P	K344A
	62 N 80 RU 12.5 P	K341A
1000 W	62 N 52 RU 50 P	K345A
	62 N 80 RU 25 P	K343A
2000 W	64 N 52 RU 100 P	K352A
	64 N 80 RU 50 P	K351A
3000 W	64 N 80 RU 75 P	K361A
IEEE 488 + RS 232 interface		K382A
RS 232 interface		K383A
Mains power cable, 3 m		K991B

Power P_{nom} [W]	Voltage U_{nom} [V]	Current I_{nom} [A]	Dimensions (W x H x D in mm)		Weight (approx. kg)
			Benchtop Instrument	19" Rack	
500	0 ... 52	0 ... 25	449 x 101 x 500	2 standard height units x 500	12
500	0 ... 80	0 ... 12.5			
1000	0 ... 52	0 ... 50	449 x 101 x 500	2 standard height units x 500	13
1000	0 ... 80	0 ... 25			
2000	0 ... 52	0 ... 100	449 x 190 x 500	4 standard height units x 500	22
2000	0 ... 80	0 ... 50			
3000	0 ... 80	0 ... 75	449 x 190 x 500	4 standard height units x 500	28
-			-	-	-
-			-	-	-
-			-	-	-

MSP 64D-KONSTANTER



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)

Modular, Manually Operated and 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

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:

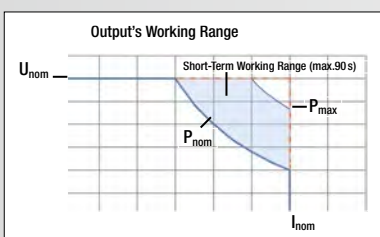
- ▲ IEEE 488 and RS 232 bus cable

See software in section 6.

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 instrument 64 N 80 RU 75 P	K370A				448 x 177 x 390	4 s.h.u. ¹ 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

¹s.h.u. = standard height unit

SLP 32N KONSTANTER 120 ... 320



Type		Article
120 W	32 N 20 R 10	K220A
	32 N 40 R 6	K221A
	32 N 80 R 3	K222A
240 W	32 N 20 R 20	K230A
	32 N 40 R 12	K231A
	32 N 80 R 6	K232A
320 W	32 N 32 R 18	K234A

Analog Controlled, Single Output Laboratory Power Supply

Series SLP 32N KONSTANTERs (single-output laboratory power supplies) are analog controlled, single output laboratory power supplies for universal use in R&D, production, training and service applications.

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 not set by means of processor controlled operating elements or via a PC interface, but rather in the traditional manner with ten-turn potentiometer.

Measured values and setpoints for output voltage and current can be viewed at two 4-place digital displays.

However, an analog interface for remote control and coupling purposes (also included with series SSP 32N instruments) is included here as well.

Scope of delivery:

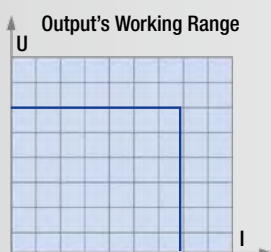
- ▲ SLP KONSTANTER
- ▲ Mains power cable with earthing contact plug
- ▲ Operating Instructions

Optional accessories:

- ▲ Installation sets for 19" rack mounting
- ▲ Mains power cable for connecting two 32N instruments

Power		Voltage	Current	Dimensions		Weight (approx. kg)
P _{nom} [W]	P _{max} [W]	U _{Set} [V]	I _{Set} [A]	W x H x D (mm)		
				Benchtop Instrument	19" Rack	
120	200	0 ... 20	0 ... 10	221.5 x 102.0 x 397.5	½ 19" x 2 standard height units x 400	2.7
120	240	0 ... 40	0 ... 6			
120	240	0 ... 80	0 ... 3			
240	320	0 ... 20	0 ... 20			
240	360	0 ... 40	0 ... 12			
240	360	0 ... 80	0 ... 6			
320	430	0 ... 32	0 ... 18			3.2

LSP 32K KONSTANTER



Type		Article
LSP 32K	32 K 18 R 5	K110A
	32 K 36 R 3	K111A
	32 K 72 R 1.5	K112A

Linear Controlled DC Power Supply

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_{Set} and I_{Set}
- ▲ 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

Optional accessories:

- ▲ Interface adapter for USB, RS 232

See software in section 6.

Power		Voltage	Current	Dimensions (W x H x D in mm)		Weight (approx. kg)
P _{nom} [W]	U _{Set} [V]	I _{Set} [A]	Benchtop Instrument	19" Rack		
90	0 ... 18	0 ... 5	215 x 100 x 280	½ 19" x 2 standard height units x 243 + 45 mm	6.0	
108	0 ... 36	0 ... 3				
108	0 ... 72	0 ... 1.5				

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 _{nom}	
		Dura- tion [W]	< 90 s [W]	U _{set} [V]	I _{set} [A]	0 V → U _{nom} (ms)	U _{nom} → 1 V (ms)	U _{set} (mV)	I _{set} (mA)	t _{set} (ms)	U _{set} ± (% + mV)	I _{set} ± (% + mA)	Tolerance (mV)	Time (ms)

Programmable Laboratory Power Supplies

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 52 RU 25 P	K344A	500	–	0...52	0...25	12.5	12.5	16.7	6.25	10	0.1+17	0.2 + 25	80	0.3
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 50 P	K351A	2000	–	0...80	0...50	10	15	20	12.5	10	0.1+20	0.2550	160	0.4
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
LSP 32 K 18 R 5	K110A	90	–	0...18	0...5	200	1500	10	1	–	0.1+20	0.2+20	70	0.5
LSP 32 K 36 R 3	K111A	108	–	0...36	0...3	200	1500	10	1	–	0.1+20	0.2+20	70	0.5
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	0.5
MSP Plug-In Modules														
ES 31 K 7 R 7 P	K372D	49	–	0...7	0...±7	0.5	0.5	2	2	–	0.054	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	–	0.054	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	–	0.058	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 ◆ 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 _{TRMS})	I (mA _{TRMS})	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	15	■	◆	-	◆	■	10	245	Dyn.	■	■	■	■	-	■	■	-
10	25	■	◆	-	◆	■	10	245	Dyn.	■	■	■	■	-	■	■	-
15	20	■	◆	-	◆	■	10	245	Dyn.	■	■	■	■	-	■	■	-
10	80	■	◆	-	◆	■	10	245	Dyn.	■	■	■	■	-	■	■	-
15	30	■	◆	-	◆	■	10	245	Dyn.	■	■	■	■	-	■	■	-
15	60	■	◆	-	◆	■	10	245	Dyn.	■	■	■	■	-	■	■	-
2	5	-	◆	◆	-	-	-	-	-	■	■	-	■	■	-	-	■
2	4	-	◆	◆	-	-	-	-	-	■	■	-	■	■	-	-	■
2	3	-	◆	◆	-	-	-	-	-	■	■	-	■	■	-	-	-
1	3	-	Via basic instrument	-	-	-	-	-	■	■	■	-	■	■	-	■	■
3	3	-															
3	2	-															
1	3	-															
1	2	-															
3	2	-															
1	3	-	10 via basic instrument	-	-	-	-	-	■	■	■	-	■	■	-	■	■
3	3	-															
3	2	-															
1	3	-															
1	2	-															
3	2	-															

■ Standard ◆ Optional

ACCESSORIES

Laboratory Power Supply



Mounting Kit 2 x 32N



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
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 for SSP64N and SYSKON	SSP 64N, SYSKON P3000/P4500
IEEE cable	K931A	Bus cable, IEEE - IEEE, 2 m, for KONSTANTER	SSP 32N, SSP 62N/64N, MSP 64D, SYSKON
RS 232 cable	GTZ3241000 R0001	RS 232 interface cable, 2 m	SSP 32N, SSP 62N/64N, MSP 64D, SYSKON
RS 232 adapter	K910A	Interface adapter, RS 232 / LSP, SSL	LSP 32K, SSL 32EL
USB adapter	K910B	Interface adapter, USB / LSP, SSL	LSP 32K, SSL 32EL

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:

Features:

- ▲ Fixed voltage switched-mode power supplies in European plug-in module or 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.

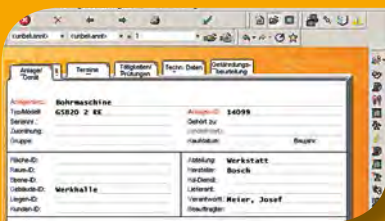
Time required for well-organized safety tests is minimized through the use of ultramodern test software.

GOSSEN METRAWATT can provide you with a complete spectrum of software:

beginning with a free report generating program right on up to comprehensive PS3 for commercial, infrastructural and technical administration of properties, buildings, building technology and systems.



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METRAWIN 90-2



Type	Article
METRAwin 90-2	Z211A
Update 90-2	Z211E

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).

MET/CAL® PROCEDURES

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

Calibration and Adjustment

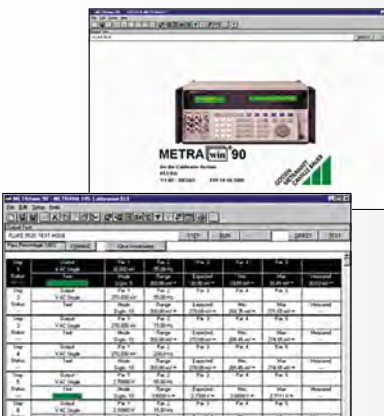
Calibration institutes all over the world use predominantly Fluke multifunction calibrators in order to calibrate and adjust digital multimeters.

This can be automated to a great extent with corresponding procedures for Fluke's MET/CAL® software.

MET/CAL® procedures for Fluke's type 5520 A calibrator with MET/CAL version 7.2 for adjustment

MET/CAL® procedures for Fluke's type 5520 A calibrator with MET/CAL version 7.2 for calibration

METRAWIN 90-F / FJ



Type	Article
METRAWin 90-F	Z211C
METRAWin 90-FJ	Z211F

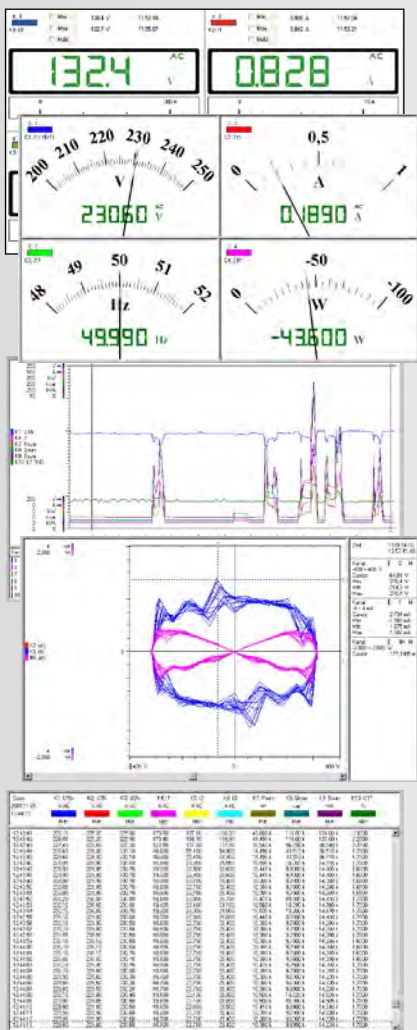
Closed loop Calibration (F) and Adjustment System (FJ)

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

METRAWIN 10/METRAHIT



Type	Article
METRAWin 10/ METRAHit	GTZ3240000R0001

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/s, memory: up to 2000 measurement/s).
- ▲ METRAHIT 30M in combination with USB-Hit (single-channel only, max. 10 measurements/s) or BD232 interface adapter (max. 4 channels).
- ▲ METRAHIT 22S-29S/M/C/I in combination with USB-Hit (single-channel only, max. 20 measurements/s) or BD232 interface adapter, or SI232-II or SI232 memory adapter (max. 6 channels, max. 20 measurements/s).
- ▲ 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/s).

German, English, French, Spanish, Italian or Slovakian can be selected as the user interface language.

The software runs under Windows XP, Vista and 7 (branch office license).

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.

OVERVIEW

Software

Type	MULTIMETER METRAHIT																METRAport			Calibrator							
	EBASE	ETECH	X-TRA/EXTRA	SECULIFE HIT	ESPECIAL	OUTDOOR	T-COM / plus	ISO/ISO@Aero	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	3A.	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
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

SYSKON P	SSP 32N	SSP 62N/64N	MSP 64D	LSP 32K	SSL 32EL	SPL
■	■	■	■	-	-	■
■	■	■	■	-	-	-
■	■	■	■	-	-	-
■	-	-	-	-	-	-
-	■	■	-	-	-	-
-	-	-	-	■	-	-
-	-	-	-	-	■	-

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 2000, XP, Vista and 7
- ▲ Automatic search for SSP devices at all available interfaces
- ▲ Menu language: English

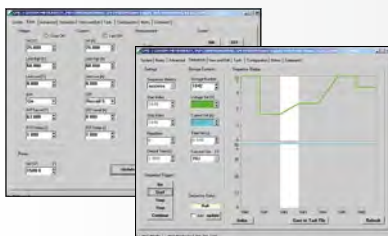
Prerequisite: NI-VISA driver and additional NI-488.2 driver (National Instruments) must be installed for control via GPIB.



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. Additional devices can be individually operated by starting the SFP more than once.

- ▲ For USB, RS 232 and IEEE 488 (GPIB) interface
- ▲ Runs under Windows 2000, XP, Vista and 7
- ▲ 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 2000, XP, Vista and 7
- ▲ Menu language: English

Prerequisite: K910A or K910B interface adapter



ELOAD Management System – PC user interface for SSL electronic loads

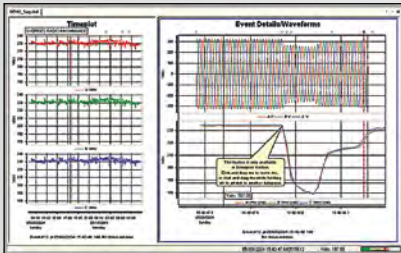
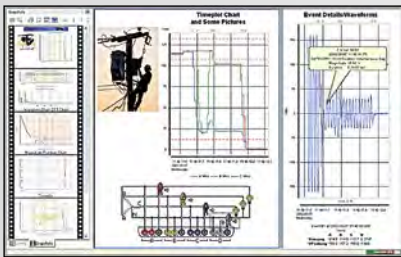
Series SSL 32EL electronic load functions can be interactively controlled and displayed at a PC with this Windows software.

- ▲ For USB and RS 232 port
- ▲ Runs under Windows 2000, XP, Vista and 7
- ▲ Menu language: English

Prerequisite: K910A or K910B interface adapter



DRANVIEW 6 SOFTWARE



Type	Article
DVP-PX	Z818D
DVE-PX	Z818E
DVP-MW20	Z818Q
DVP-MW20OPX	—

MAVOWATT 20, 30, 40, 70

DranView makes it possible for power grid specialists to easily and quickly view and analyze monitored data from the mains. It's very easy to use, includes automated functionality and unites powerful analytical capabilities and adaptable options, in order to fulfill the requirements of each and every user.

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, 40 and 70 power disturbance and power analyzers can be evaluated and documented with this extremely versatile and convenient PC software.

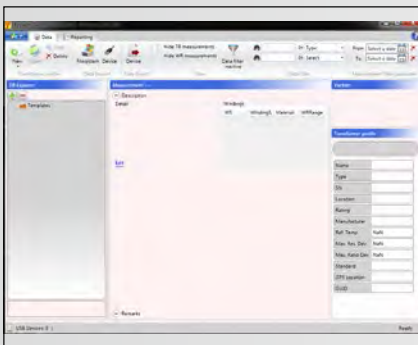
Features:

- ▲ Intuitive, easy to handle user interface
- ▲ Rotatable axes in graphics, simple dragging and zooming 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 (DVP-PX) including USB hardware dongle
- ▲ DranView Enterprise (DVE-PX) including USB hardware dongle

T-BASE PRO



Free
Download

Raytech Software

T-Base Pro from Raytech is high-performance software for remote control, data transmission and analysis – for measuring instruments used to test transformers.

The software runs under Windows operating systems. The graphic user interface is distinguished by intuitive operation. Missing functions can be easily added by means of a user-defined plug-in.

Features:

- ▲ Easy import of all test results from your Raytech test system
 - ▲ Display of measurement results in a clear-cut table
 - ▲ Display of measurement results and/or creation of a test report with a single click
 - ▲ Graphic representation and simple interpretation of the test object's status
 - ▲ Comparison of measurement results – history, search function with filter
 - ▲ Creation of transformer profiles with download option
 - ▲ Creation of transformers with several tapping switches is easy with the Tap Reference Wizard
 - ▲ An integrated, high-performance diagnostics tool helps to monitor communications
- ▲ **Optional:** T-BASE PRO Sequence, T-BASE PRO Remote

OVERVIEW

Instruments, Report Generating and Database Software for MS Windows

Type	PROFITEST					SECUTEST						SECUSTAR FM+	SECLIFE			MINITEST			METRISO G1000+	GEOHM C	METRA	
	C	Master Series	SI-BC	PSI-BC	204	BASE	BASE 10	XTRA	SIII +	S2N +W	PSI, SI, SI+		3PL	SECLIFE ST	SECLIFE SB	SECLIFE SR	PRO	MASTER			3P MASTER	METRISO C
Software																						
ETC	-	■	-	-	■	■	-	■*	■*	■	■*	-	■*	-	■	■	■	■	-	■	-	-
Protokollmanager Prof. **)	-	■	■	■	-	-	-	■*	■*	■	■*	-	■*	-	-	-	-	-	-	-	-	-
PC.doc-Word/Excel	■	■	■	■	■	■	-	■	■	■	■	■	■	■	-	■	■	■	■	-	■	■
PC.doc-Access	■	■	■	■	■	■	-	■	■	■	■*	■	■	■	-	■	-	-	■	-	■	■
Elektromanager **)	■	■	■	■	■	■	-	■	■	■	■	■	■	■	-	■	■	■	■	-	■	■
PS3 **)	■	■	■	■	■	■	-	■	■	■	■	■	■	■	-	-	-	-	■	-	■	■
MEST (pat Manager)	-	■	-	-	-	■	-	■*	■*	■	■*	-	■*	-	-	-	-	-	-	-	-	-

* with SECUTEST SI+ ***) only available in German

OVERVIEW

Report Generating and Database Software for MS Windows

Software	ETC	Protokollmanager **)	PC.doc-Word/Excel	PC.doc-Access	MEST (pat Manager)	ELEKTRO manager **)	PS3 **)
Article	Free download	Z611N	Z714A	Z714B	Z712A	Z610A/Z610C	Z531N
Language for user interface	18 languages, e.g. D, GB, F, E ...	D	D, GB, F, FIN, PL	D, GB	D, GB, PL, R	D	D
Software requirements	-	-	Requires MS Word/Excel (32 Bit)	Access (32 Bit) or Runtime	-	-	-
Form for test reports	■ (PDF)	■ (PDF)	■ (Word)	■ (Word)	■ (PDF)	■ (PDF)	■ (PDF)
Forms generator	-	-	Word	Word	-	■	■
Predefined checklists	■	-	■	■	■	■	■
User-specific checklists	-	-	-	-	-	■	■
Filter functions / selection	-	■	-	-	■	■	■
Document management	-	-	-	-	-	■	■ (module)
Deadline administration	-	■	-	-	■	■	■
Data import	File / tester	Tester	Tester	File / tester	Tester	Tester	File / tester
Data export	File / tester	-	-	Tester	-	Tester	File / tester
Remote control	SECLIFE SR	-	-	-	-	SECUTEST/PROFITEST204	SECUTEST
Hazard analysis	-	-	-	■	-	■ (module)	■ (module)
Catalog function	-	■	-	■	-	■	■
Cost management	-	-	-	-	-	-	■
Network compatible	-	-	-	-	-	-	■
Barcode generation	■	-	-	■	■	■	■
Outdoor function	-	-	-	-	-	-	■ (as of 2 licenses)
Statistics	-	-	Error statistics, defects statistics	Error statistics, defects statistics	-	Error statistics, defects statistics	-

***) only available in German

ETC



Free
Download

Report Generating Software

Report software for following testers: PROFITEST MASTER, MINITEST, SECULIFE SR, SECUTEST SI, SECUTEST SII, METRISO G1000+

ETC offers a wide variety of support options for data acquisition and management, as well as for report generation and controlling test sequences.

SECUTEST 4 (new) - SECUTEST SII+, S2N+..., SIII, SIII+, PSI, SI, SI+ / SECULIFE ST

- ▲ The software copies current test results
- ▲ The software copies test results from internal memory or from the (P) SI module (not necessary with series 4)
- ▲ Report data can be supplemented

PROFITEST MASTER

- ▲ 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

- ▲ This software makes it possible to receive and transmit machine data with measured values and allows for subsequent report generation per 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 the USB – RS 232 adapter or via RS 232

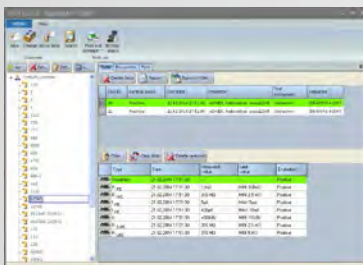
MINITEST PRO / MASTER, SECULIFE SR and METRISO G1000+

- ▲ 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.

MEST (pat MANAGER)



Type	Article
MEST (pat Manager)	Z712A

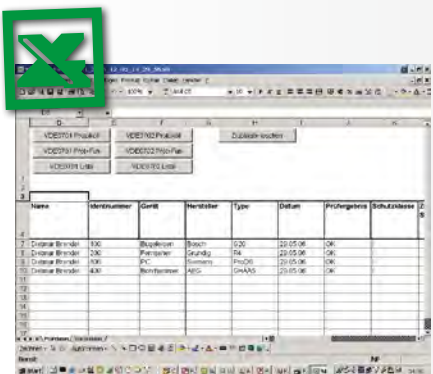
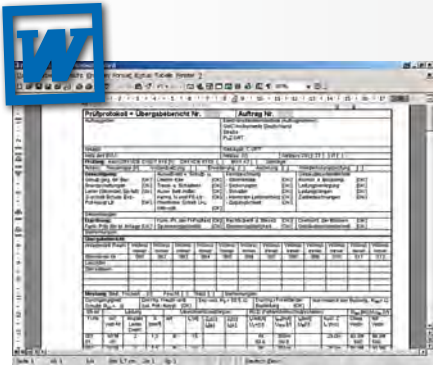
Report Generating Software

MEST (pat Manager) 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
- ▲ Network operation is possible
- ▲ Modern and simple user interface in German, English, Polish and Russian

PC.doc-WORD/EXCEL



Type	Article
PC.doc WORD/EXCEL	Z714A

Report Generating Software

Report generating software as supplement to Microsoft Office Word and Excel.

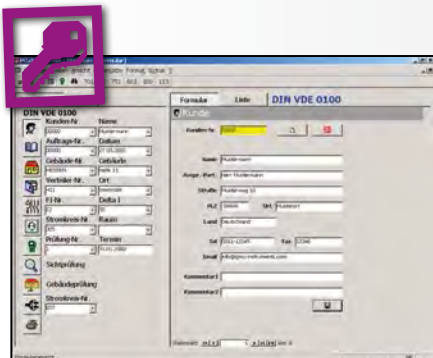
PC.doc-WORD inserts test results and data entered at the test instrument input module into test or list forms. These can then be supplemented and printed out with Word/Excel.

System requirements:

- ▲ Word 2003, Windows 7.0 – 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 256 MB RAM
- ▲ 1 available serial or USB port and a USB – RS 232 adapter

See section 9, “Seminars with Practical Experience”, for training offerings.

PC.doc-ACCESS



Type	Article
PC.doc ACCESS	Z714B
PC.doc-update	Z714C

Report Generating Software

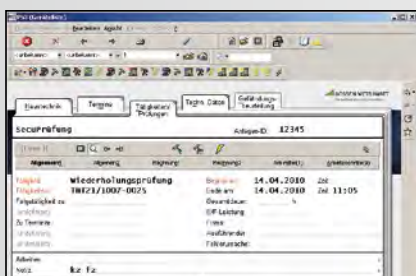
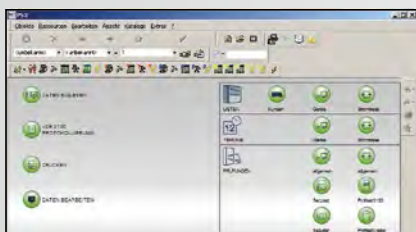
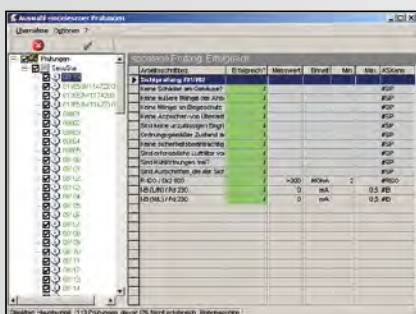
PC.doc-ACCESS: PC.doc-ACCESS is used for generating reports and managing test data as a supplement to Microsoft Access.

System requirements:

- ▲ Access 2000, Windows 7.0
- ▲ Excel 2003 or higher – if reports are generated with Excel
- ▲ User interface: D, GB
- ▲ PC as of 500 MHz Pentium processor and 256 MB RAM
- ▲ 1 available serial or USB port

See section 9, “Seminars with Practical Experience”, for training offerings.

PS3 **)



Type	Article
PS3 AM **)	Z531N
PS3 Navigator **)	Z531C
PS3 Client **)	Z531D
PS3 Hazard Analysis **)	Z531M
PS3 update **)	Z530S
PS3 upgrade **)	Z530T

Installation/Equipment Management, and Report Generation

Software for Test Instruments – Installation/Equipment Management and Report Generation

Automatic read-in and analysis of measured values from tests conducted on systems and equipment. Systems and equipment management with respective test results stored to a database. Generation of test reports in accordance with recommendations issued by the trade associations, as well as user defined test reports.

PS3 AM

- ▲ Extensive scheduling: with calendar display and measured value history
- ▲ Characteristic curve display: lists and selections can be saved to memory
- ▲ Creation of user defined forms, forms as PDF files
- ▲ Generation of user defined test sequences
- ▲ SECUTEST remote control
- ▲ Bidirectional data exchange with SECUSTAR FM
- ▲ Network compatible

PS3 Navigator

- ▲ LHNavigators and LHViewer (prerequisite: PS3 AM)

PS3 Client

- ▲ Client capability (prerequisite: PS3 AM)

PS3 Hazard Analysis

- ▲ Hazard analysis (prerequisite: PS3 AM)

PS3 update

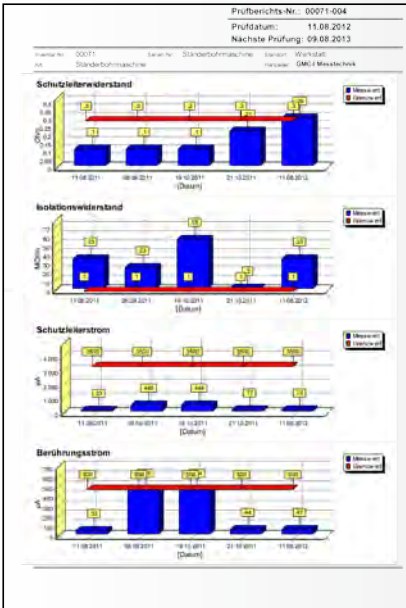
- ▲ Update to PS3 AM, version 9
- ▲ Including hazard analysis
- ▲ Basic software: PS3 add-on module (version 3 or 4)

PS3 upgrade

- ▲ Upgrade to PS3 AM
- ▲ Including hazard analysis
- ▲ Basic software: SE-Q.base or PC.base
- ▲ Basic software: PS3 compact or basic module (any version)

**) only available in German

ELEKTROMANAGER **)



Type	Article
ELEKTROmanager Professional **)	Z610A
ELEKTROmanager Enterprise **)	Z610C
ELEKTROmanager GEPI (hazard analysis module) **)	Z610Z
Protokollmanager Professional **)	Z611N

OTHER SOFTWARE

Data from our test instruments are also supported by software packages from other suppliers.

Please address your enquiries directly to the respective suppliers.

Testing of the Electrical Safety of Operating Equipment and Installations

Software for testing the electrical safety of operating equipment and installations in accordance with BetrSichV, GUV BGI 5190 & BGV A3 per VDE 0100, VDE 0701-0702, VDE 0751, VDE 0113 and VDE 0544-4.

ELEKTROmanager is network compatible database software based on SQL. It's easy to use and self-explanatory. Already existing test instruments from other manufacturers can also be used with the software (option). Report generation is tamper-proof and reports can be evaluated statistically.

Enterprise

- ▲ Full SAP integration (optional)
- ▲ Interface to DDS and Instrom
- ▲ Unlimited customer and test object management
- ▲ Network and client compatible
- ▲ User, rights, location, cost center and document management
- ▲ Report designer for individualized report generation
- ▲ Filter and sorting wizard for efficient test object searches
- ▲ Barcode and RFID recognition, as well as fully integrated, professional scanning function
- ▲ Individualized list generation is possible, already existing standard lists are integrated
- ▲ Installation tree for bidirectional transfer of PROFITEST MASTER data
- ▲ Data import from all other software solutions (optional)
- ▲ Visual trend analysis for measured value observation
- ▲ Extended deadlines management, e.g. for calibration and maintenance deadlines
- ▲ Interference management
- ▲ Inspector management including inspector qualifications per TRBS 1203
- ▲ Including original ZVEH reports
- ▲ Hazard assessment for ascertaining legally secure test intervals (optional)
- ▲ Calibration sequence for 0701-0702 measuring instruments in combination with SECUCAL
- ▲ Integrated test regulation for PRCD-S (portable residual current devices)
- ▲ Machine testing in remote function with Metramaschine 204
- ▲ Optional expansion options for the testing of, for example: ladders and stepladders, fire extinguishers, fire protection flaps, pressure hoses, roll-up gates ...

System requirements:

- ▲ Windows XP Professional, 2000, Vista or 7
- ▲ See section 9, "Seminars with Practical Experience", for training offerings.

**) only available in German

Suppliers of Compatible Software for the Test Instruments (examples)

- ▲ Ambrosia (www.ambrosia-fm.de)
- ▲ DDS (Data Design System) (www.dds-cad.de)
- ▲ ep Instrom (www.instrom.de)
- ▲ Hoppe (www.hoppe-consulting.de)
- ▲ HSD (Händschke Datentechnik) (www.haendschke.de)
- ▲ Loy & Hutz (www.loyhutz.de)
- ▲ Mebedo (www.mebedo.de)
- ▲ mj consulting (www.mj-consulting.de)
- ▲ Prüftech (www.prueftech.de)
- ▲ Speedikon (www.speedikonfm.com)

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 electrosurgical 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.



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All SECULIFE instruments allow for precision measurements and documentation of results in accordance with binding international standards

for medical devices. Depending of the respective instrument, options are included for data storage, documentation and data communication.

All or our SECULIFE products can be found in the 2013/2014 SECULIFE product catalogue

SAFETY TESTERS



SECULIFE | ST



SECULIFE | SR



SECULIFE | SB

FUNCTION TESTERS



SECULIFE | DF+



SECULIFE | IF+

HF SURGERY FUNCTION TESTERS



SECULIFE | ESBASE



SECULIFE | ESPro



SECULIFE | ESxTRA

PATIENT SIMULATORS



SECULIFE | PS100



SECULIFE | PS200



SECULIFE | PS300



SECULIFE | NIBP

PHOTOMETRY



SECULIFE | IA



SECULIFE | IT



SECULIFE | IM



SECULIFE | IS

SOFTWARE



Electric Testing Center ETC



PerfectLum

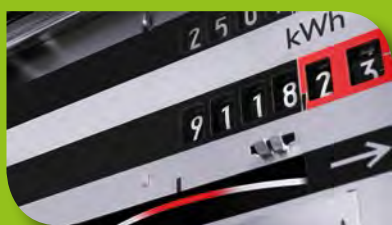
Only by being aware of their own energy consumption are users able to allocate and bill it, and to realize potential energy savings.

GOSSEN 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.

GOSSEN 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 logging, evaluation and billing software (EMC).

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.



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The products of our control technology range with their special control algorithms are suited for precise and dead-beat control tasks and for temperature limitation. Thanks to front protection IP67, they can

be used in the food processing industry as well, apart from applications in mechanical and plant engineering.

All of the respective products can be found in our 2014 Energy Management Product Catalog

ENERGY MANAGEMENT

ENERGY METERS /
MULTIFUNCTIONAL
POWER METER



Alternating/3-phase current,
2/3/4-wire system
U128x, U138x



Alternating/3-phase current,
2/4-wire system
U18xA/B



3-phase current,
3/4-wire system
A2000

SUMMATORS



SMARTCONTROL



SMARTLOGGER

ENERGY MANAGEMENT
SOFTWARE



EMC 5.x

LOAD MANAGEMENT /
LOAD OPTIMIZING



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 SOFT Controller CoDeSys / PC Worx

We're happy to provide active assistance in qualifying your personnel as competent service providers with our seminars.

Practical experience, as well as technical and legal background information, round out our hands-on training program.

Seminars are held at our company headquarters in Nürnberg to this end.

Further options include holding seminars at your location upon request.

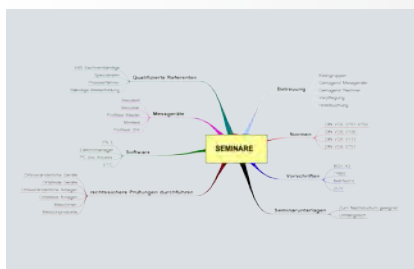


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SEMINARS



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.

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.

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.

Call the **seminar hotline** for our seminar catalog, prices, advice, and registration: +49 911 8602-935.

Online registration:

www.gossenmetrawatt.com/training

Dates and Registration

Contact: e-mail: training@gossenmetrawatt.com

Course No.	Description: Seminars in 2014	Utilized Instruments	Days
Testing Electrical Systems and Operating Equipment			
GTT 1211	Periodic testing of electrical equipment according to requirements set forth by BGV A3/TRBS	SECUTEST S2N+ SECUTEST SIII	2
GTT 1212	Periodic testing of electrical equipment by electro-technically trained persons (EUP) according to requirements set forth by BGV A3/TRBS	SECUTEST S2N+ SECUTEST SIII	1
GTT 1311	Periodic testing of electrical equipment in accordance with DIN VDE 0701-0702 and BGV A3/TRBS	SECUTEST BASE BASE 10, XTRA	2
GTT 1312	Periodic testing of electrical equipment by electro-technically trained persons (EUP) according to requirements set forth by BGV A3/TRBS	SECUTEST BASE BASE 10, XTRA	1
GTT 1216	Basic electro-technical training – basic electro-technical knowledge, dangers of electricity for “trained persons”	Measuring case, multimeter	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 BGV A3/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 BGV A3/TRBS, and earth resistance measurements	PROFITEST MPRO, MXTRA	3

Course No.	Description: Seminars in 2014	Utilized Instruments	Days
Combination: Testing Electrical Systems and Operating Equipment – Courses with Testers and Software Together			
GTT 7000	3-day combination seminar for SECUTEST with PS3 user software (current version) for portable devices	SECUTEST S2N+ SECUTEST SIII	3
GTT 7100	3-day combination seminar for SECUTEST with PS3 user software (current version) for portable devices	SECUTEST BASE BASE 10, XTRA	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 with ELEKTROmanager (current version) for portable devices	SECUTEST S2N+ SECUTEST SIII	3
GTT 8100	3-day combination seminar for SECUTEST with ELEKTROmanager (current version) for portable devices	SECUTEST BASE BASE 10, XTRA	3
GTT 8500	3-day combination seminar for PROFITEST MTECH/MBASE 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 3010	Efficient testing for building management in accordance with BGV A3, BetrSichV, TRBS and DIN VDE regulations	SECUSTAR FM+ Software PS3	3
Medical Technology			
GTT 1213	Safety tests for medical devices in accordance with DIN EN 62353	SECUTEST S2N+ SECUTEST SIII SECULIFE ST	1
GTT 1214	Safety tests for electrically operated hospital beds in accordance with DIN EN 62353	SECUTEST S2N+ SECUTEST SIII	1
GTT 1313	Safety tests for medical devices in accordance with DIN EN 62353	SECUTEST BASE BASE 10, XTRA	2
GTT 1314	Safety tests for electrically operated hospital beds in accordance with DIN EN 62353	SECUTEST BASE BASE 10, XTRA	1
Testing of Arc Welding Equipment			
GTT 3015	Testing arc welding equipment in accordance with TRBS, BetrSichV and DIN VDE 0544-4 with the SECUSTAR and PS3 software	SECUSTAR FM+	2
GTT 3016	Testing arc welding equipment in accordance with TRBS, BetrSichV and DIN VDE 0544-4 with the SECUTEST 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 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 and PS3 software	SECUTEST BASE BASE 10, XTRA	2
GTT 3019	Testing arc welding equipment in accordance with TRBS, BetrSichV and DIN VDE 0544-4 with the SECUTEST and ELEKTROmanager	SECUTEST BASE BASE 10, XTRA	2
Fundamentals of Power Disturbance Analysis			
GTT 1645	Introduction to MAVOWATT 30, MAVOWATT 40 and MAVOWATT 70 instruments, as well as DranView software	MAVOWATT 30 / 40 / 70	2
Software for Administration, Following Up on Deadlines and Streamlining Test Sequences			
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
GTT 1226	Basic seminar covering the current version of PC.doc-ACCESS user software	SECUTEST S2N+	1
Additional Training Options			
	On-site seminars at our customers' facilities. We'd be pleased to provide you with a quotation.		
Hotel seminar	Day 1: Testing portable devices with the SECUTEST S2N+ Day 2: Current version of PS3 application software Day 3: Testing safety measures with the PROFITEST MASTER	Days can be booked individually as well.	

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Further information about our company is available at www.gossenmetrawatt.com.



GOSSEN METRAWATT

GMC-I Messtechnik GmbH

Südwestpark 15
90449 Nürnberg, Germany
Phone: +49 911 8602-111
Fax: +49 911 8602-777
E-mail: info@gossenmetrawatt.com
www.gossenmetrawatt.com

Electromediciones Kainos S.A.
Polígono Industrial Est, Energía, 56
E-08940 Cornellá de Llobregat, Barcelona
Phone: +34 934 742 333
Fax: +34 934 743 470
e-mail: kainos@kainos.es
www.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
e-mail: info@gmc-i.it
www.gmc-instruments.it

GMC-Instruments Nederland B.V.
Daggeldersweg 18
NL-3449 JD Woerden
Phone: +31 348 42 11 55
Fax: +31 348 42 25 28
e-mail: info@gmc-instruments.nl
www.gmc-instruments.nl

GMC-Instruments Schweiz AG
Glattalstr. 63
CH-8052 Zurich
Phone: +41 44 308 80 80
Fax: +41 44 308 80 88
e-mail: info@gmc-instruments.ch
www.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
e-mail: info@gmc-instruments.fr
www.gmc-instruments.fr

GMC-měřicí technika s.r.o.
Fügnerova 1a
CZ-67801 Blansko
Phone: +420 516 482 611/-617
Fax: +420 516 410 907
e-mail: gmc@gmc.cz
www.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
e-mail: office@gmc-instruments.co.at
www.gmc-instruments.co.at

GMC-Instruments (Tianjin) Co., Ltd.
Phone: +86 10 84798255
Fax: +86 10 84799133
Rm.710, Jin Ji Ye BLD. No.2,
Sheng Gu Zhong Rd.
P.C.: 100022, Chao Yang District
info@gmci-china.cn, www.gmci-china.cn

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