GOSSEN METRAWATT

Safety through Competence

PROFITEST | MXTRA
INSTALLATION | TESTER

GOSSEN METRAWATT

Measuring Instruments and Testers

2009 / 2010

Dear customer,

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 progressiveness, as well as dynamic design, extremely easy operation and a unique innovative spirit. After all, our measuring and test technology expertise is built into each of our products – and has been for more than 100 years.

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 assistance.

You get support and competent, personalized advice. This is your guarantee of a customer-oriented sales network with highly qualified sales engineers.

We've grown together with you over a period of many decades, and have always striven to align ourselves to you requirements.

You can count on us!

Direct Line to Measuring and Test Technology: **www.gossenmetrawatt.com**

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Made in Germany

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15 METRAHIT 2

15 METRAHIT WORLD

30 METRAFLEX 3000

48 METRAFLEX 3001

48 METRAFLEX 3003

53 Profitest Master

55 PROFITEST 2

81 METRACLIP 63   METRACLIP 64

98 SECUTEST S2 N+ / S2 N+10

126 System Konstanters: SYSKON P 1500 / P 3000 / P 4500

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Measuring Categories per IEC 61010-1

CAT I	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

In the case of 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. The IEC standard was first issued in 1990.

After various amendments and addenda (A1 1992, A2 1995), the most recent revision (the so-called second edition) issued in 2001 has come into force. This revision level has been adopted into the second issue of the German version: EN 61010-1. The currently valid revision level is 8 / 2002.

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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 S2 N+ with SI module
Voltage meter to at least 600 V Current meter to at least 15 A Continuity tester	DIN VDE 0410 DIN VDE 0410 DIN VDE 0403	METRAHIT 2 with WZ12A current transformer clamp	METRAHIT PRO with WZ12C current transformer clamp	METRAHIT X-TRA with Z3512 current transformer clamp
Current clamp to at least 300 A	—	METRACLIP 61	METRACLIP 70	METRACLIP 70
Insulation measuring instrument Test instrument for RCCBs Ohmmeter Loop resistance measuring instrument Phase sequence indicator	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 tester	DIN VDE 0413, part 5		GEOHM C	GEOHM C
Single-pole voltage tester 2-pole voltage tester	DIN VDE 0680, part 5 DIN VDE 0682, part 401	ProfiSafe 400	METRAVOLT 12D	METRAVOLT 12D
Continuity tester	DIN VDE 0403		ProfiSafe 400	ProfiSafe 690
Illuminance meter	DIN VDE 5032		MAVOLUX 5032C	MAVOLUX 5032B

Handheld Digital Multimeters
STARLINE Series

Instruments included in the METRAHIT STARLINE series are extremely rugged, reliable digital multimeters with housings made of impact resistant ABS.

The latest variants of the so-called "E series" and the "high resolution series" –

METRAHIT I EXTRA – METRAHIT I ETECH – METRAHIT I EBASE – METRAHIT I ESPECIAL

 – are distinguished by a resolution of 60,000 digits and an accuracy of 0.05 %.

The devices feature a new design and are equipped with state-of-the-art technology and safety, for example:

- 3 connector jacks with automatic blocking sockets (ABS) (patent 102005062624)
- Voltage measurement with a basic accuracy of ± 0.05% (V DC)
- Auto-ranging current measurement from 100 μA (resolution: 10 nA) to10 A (16 A) via a single connector jack and a single fuse
- Min – Max measuring rate: 40 measurements per second
- Large, light-blue illuminated display with extra large characters (15 mm) and a analog bar graph for dynamic processes
- Separate battery and fuse compartments
- IP 52 protection against dust and water, IP 65 for METRA**HIT OUTDOOR** model
- Measuring categories: 1000V CAT III and 600V CAT IV
- Made in Germany
- Furnished with DKD calibration certificate
- *Manufacturer's guarantee: 3 years material and workmanship, 1 to 3 years for calibration (depending upon application)*

METRAHIT I ⇒	BASE	EBASE	PRO	ESPECIAL	TECH	ETECH	X-TRA	EXTRA
DC voltage measurement	10 µV…1000 V		10 µV…1000 V		10 µV…1000 V		10 µV…1000 V	
Intrinsic error with V DC	±0.05 % rdg.+3 d		±0.05 % rdg.+3 d		±0.05 % rdg.+3 d		±0.05 % rdg.+3 d	
AC voltage measurement	10 µV…1000 V		10 µV…1000 V		10 µV…1000 V		10 µV…1000 V	
Intrinsic error for V AC	±0.5 % rdg.+9 d		±0.5 % rdg.+9 d		±0.5 % rdg.+9 d		±0.5 % rdg.+9 d	
TRMS	AC, AC+DC		AC, AC+DC		AC, AC+DC		AC, AC+DC	
DC current measurement	With clamp		0.1 mA…10 A		1 µA…10 A		10 nA…10 A	
Intrinsic error, DC	–		±0.9 % rdg.+5 d		±0.5 % rdg.+5 d		±0.5 % rdg.+5 d	
AC current measurement	With clamp		0.1 mA…10 A		1 µA…10 A (16 A)		10 nA…10 A	
Intrinsic error, AC	–		±1.5 % rdg.+30 d		±1.5 % rdg.+30 d		±1.5 % rdg.+30 d	
TRMS	AC, AC+DC		AC, AC+DC		AC, AC+DC		AC, AC+DC	
Resistance Measurement	0.01 Ω…40 MΩ		0.01 Ω…40 MΩ		0.01 Ω…40 MΩ		0.01 Ω…40 MΩ	
Intrinsic error, resistance	±0.2 % rdg.+5 d		±0.2 % rdg.+5 d		±0.2 % rdg.+5 d		±0.2 % rdg.+5 d	
4-wire	–		–		–		–	
Insulation measurement	–		–		–		–	
Capacitance measurement	–		–		10 pF…1000 µF		10 pF…1000 µF	
Intrinsic error, capacitance	–		–		±1 % rdg.+6 d		±1 % rdg.+6 d	
Temp. measurement, Pt100/1000	–		–		–		−200°…+850°	
Thermocouple (type)	−250°…+1372° (K)		−250°…+1372° (K)		−250°…+1372° (K)		−250°…+1372° (K)	
Continuity testing	✓		✓		✓		✓	
Diode test	5.1 V		5.1 V		5.1 V		5.1 V	
Frequency measurement	0.01 Hz…100 kHz		0.01 Hz…100 kHz		0.01 Hz…100 kHz		0.001 Hz…1 MHz	
Level Measurement (dB)	–	✓	–	✓	–	✓	–	✓
DATA–Min–Max storage	✓		✓		✓		✓	
Data storage (measured values)	–		–		–		540 kB (15400)	2048 kB (61600)
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	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		40 analog / 10 digital	
Bandwidth	1 kHz		10 kHz	20 kHz	10 kHz	20 kHz	20 kHz	50 kHz
IR interface	–	✓	–	✓	–	✓	✓	
Automatic blocking sockets	✓		✓		✓		✓	
Measuring category	CAT III / 1000 V CAT IV / 600 V		CAT III / 1000 V CAT IV / 600V	CAT II / 600 V	CAT III / 1000 V CAT IV / 600 V		CAT III / 1000 V CAT IV / 600 V	
Calibration certificate	DKD		DKD		DKD		DKD	
Weight with batteries	395 g		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		2 ea. 1.5 V / 200	
Dimensions in mm (W X H X D)	89 x 199 x 43		89 x 199 x 43		89 x 199 x 43		89 x 199 x 43	
Manufacturer's Guarantee	3 years		3 years		3 years		3 years	
Approvals and certificates	CE, VDE-GS	CE	CE, VDE-GS	CE	CE, VDE-GS	CE	CE, VDE-GS	CE
Accessories / included	Cable sets	KS, HC20, GH	Cable sets	KS, HC20, GH	Cable sets	KS, HC20, GH	Cable sets, GH	KS, HC20, GH
Software option	–	METRAwin10	–	METRAwin10	–	METRAwin10	METRAwin10	

2	WORLD	30M	T-COM	ISO	27M / I (AS)	⇐ METRAHIT I
10 µV...600 V	10 µV...600 V	0.1 µV...600 V	300 mV...600 V	300 mV...600 V	3 V...600 V	DC voltage measurement
±0.5 % rdg. +3 d	±0.5 % rdg. +3 d	±0.003 % rdg. +3 d	±0.5 % rdg. +1 d	±0.5 % rdg. +1 d	±0.1 % rdg. +5 d	Intrinsic error with V DC
1 mV...600 V	1 mV...600 V	1 µV...600 V	300 mV...600 V	300 mV...600 V	3 V...600 V	AC voltage measurement
±1 % rdg. +3 d	±1 % rdg. +3 d	±0.08 % rdg. +5 d	±1.5 % rdg. +3 d	±1.5 % rdg. +3 d	–	Intrinsic error for V AC
–	AC+DC	AC+DC	AC, AC+DC	AC, AC+DC	–	TRMS
0.1 µA...10 (16) A	0.1 µA...10 (16) A	100 pA...120 mA	300 µA...1 A	300 µA...1 A	With clamp	DC current measurement
±1 % rdg. +5 d	±1 % rdg. +5 d	±0.02 % rdg. +5 d	±0.5 % rdg. +5 d	±0.5 % rdg. +5 d	–	Intrinsic error, DC
1 µA...10 (16) A	1 µA...10 (16) A	1 nA...120 mA	300 µA...1 A	300 µA...1 A	–	AC current measurement
±1.5 % rdg. +2 d	±1.5 % rdg. +2 d	±0.1 % rdg. +5 d	±1.5 % rdg. +5 d	±1.5 % rdg. +5 d	–	Intrinsic error, AC
–	–	AC+DC	AC, AC+DC	AC, AC+DC	–	TRMS
0.01 Ω...30 MΩ	0.01 Ω...30 MΩ	0.1 mΩ...12 MΩ	300 Ω...30 MΩ	300 Ω...30 MΩ	300 Ω...30 MΩ	Resistance measurement
±0.7 % rdg. +3 d	±0.7 % rdg. +3 d	±0.005 % rdg. +5 d	±0.5 % rdg. +1 d	±0.5 % rdg. +1 d	–	Intrinsic error, resistance
–	–	0.1 mΩ...30 Ω	–	–	0.001 mΩ...30 Ω	4-wire
–	–	–	300 kΩ...3 MΩ at 100 V	1 kW...3 GΩ at 500/1000 V	I/AS: 1 kΩ...3 GΩ at 100 V	Insulation measurement
–	40 nF...400 µF	–	30 nF...300 µF	30 nF...300 µF	–	Capacitance measurement
–	±1 % rdg. +6 d	–	±1 % rdg. +6 d	±1 % rdg. +6 d	–	Intrinsic error, capacitance
–	–	–	–200°...+850°	–200°...+850°	–200°...+600°	Temp. measurement, Pt100/1000
–50°...+400° (K)	–200°...+800° (K)	–270°...+1372° (J,K)	–250°...+1372° (K)	–250°...+1372° (K)	–	Thermocouple (type)
✓	✓	✓	✓	✓	✓	Continuity testing
2 V	2 V	5.1 V	13 V	13 V	3 V	Diode test
–	100 Hz...100 kHz	0.01 Hz...100 kHz	300 Hz...300 kHz	300 Hz...300 kHz	300 Hz...3 kHz	Frequency measurement
–	–	–	–	–	–	Level measurement
✓	✓	✓	✓	✓	✓	DATA – Min – Max storage
–	–	–	540 kB (15400)	540 kB (15400)	32 kB (1000)	Data storage (measured values)
✓	✓	✓	✓	✓	–	Analog display, 35/36 scale graduations
3¾ = 12,000 d	3¾ = 12,000 d	6½ = 1,200,000 d	3¾ = 3100 d	4¾ = 30,000 d	4¾ = 31,000 d	Digital display (places/digits)
–	–	✓	✓	✓	✓	Display illumination
20 analog / 2 digital	20 analog / 2 digital	1 digital	10 / 40	10 / 40	–	Measurements per second
1 kHz	1 kHz	10 kHz	10 kHz	10 kHz	1 kHz	Bandwidth
✓	✓	✓	✓	✓	✓	IR Interface
✓	✓	–	✓	✓	–	Automatic blocking sockets
CAT III / 600 V	CAT III / 600 V	CAT III / 1000 V CAT IV / 600 V	CAT II / 600 V CAT III / 300 V	CAT II / 600 V CAT III / 300 V	CAT II / 600 V	Measuring Category
DKD	DKD	DKD	DKD	DKD	DKD	Calibration certificate
350 g	350 g	350 g	420 g	420 g	350 g	Weight with batteries
9 V / to 750	9 V / to 750	2 ea. 1.5 V / 200	2 ea. 1.5 V / 200	2 ea. 1.5 V / 200	3 ea. 1.5 V / 20	Batteries / operating hours
84 x 195 x 35	84 x 195 x 35	84 x 195 x 35	89 x 199 x 43	89 x 199 x 43	84 x 195 x 35	Dimensions in mm (W X H X D)
3 years	3 years	3 years	3 years	3 years	3 years	Manufacturer's guarantee
CE	CE	CE	CE	CE	CE	Approvals and certificates
Cable sets, GH	Cable sets, GH	Cable sets	Cable set, pouch	Cable set, pouch	Cable sets, pouch	Accessories / included
–	METRAwin10	METRAwin10	METRAwin10	METRAwin10	METRAwin10	Software option

METRA**HIT** I EXTRA

4 6/7 Place High-End TRMS Digital Multimeter,
System Compatible with Data Memory and IR Interface –
Resolution: 60,000 Digits – 26 Multimeter Functions

- Data logger function with 2048 kB data memory, i.e. for up to 61,600 measured values
- Infrared interface for data exchange and parameters configuration with a PC (optional: IR-USB adapter and METRAwin10 software)
- Power pack connector socket for operation without batteries
- TRMS AC and AC+DC voltage measurement, bandwidths of up to 50 kHz
- TRMS AC and AC+DC current measurement, bandwidths of up to 10 kHz
- dB measuring function
- Adjustable clamp factor for measurement with current sensor and current transformer clamps
- *Plus additional functions as included with the METRAHIT X-TRA*

❐ See optional accessories beginning on page 24

Scope of delivery:
- Multimeter set with HC20 hard case
- KS17-2 measurement cable set
- Protective rubber cover
- Two 1.5 V AA batteries
- Condensed operating instructions
- CD ROM with data sheet and operating instructions (German and English)
- DKD calibration certificate

CE

Type	Data Sheet No.	Article Number
METRAHIT EXTRA	3-349-454-03	M250A

METRA**HIT** I ETECH

4 6/7 Place High-End TRMS Digital Multimeter,
System Compatible with IR Interface –
Resolution: 60,000 Digits – 23 Multimeter Functions

- Infrared interface for data exchange and parameters configuration with a PC (optional: IR-USB adapter and METRAwin10 software)
- TRMS AC / AC+DC voltage measurement, bandwidths of up to 20 kHz
- TRMS AC / AC+DC current measurement, bandwidths of up to 5 kHz
- dB measuring function
- Adjustable clamp factor for measurement with current sensor and current transformer clamps
- *Plus additional functions as included with the METRAHIT TECH*

❐ See optional accessories beginning on page 24

Scope of delivery:
- Multimeter set with HC20 hard case
- KS17-2 measurement cable set
- Protective rubber cover
- Two 1.5 V AA batteries
- Condensed operating instructions
- CD ROM with data sheet and operating instructions (German and English)
- DKD calibration certificate

CE

Type	Data Sheet No.	Article Number
METRAHIT ETECH	3-349-454-03	M253A

METRA**HIT** I EBASE

4 6/7 Place High-End TRMS Digital Multimeter,
System Compatible with IR Interface –
Resolution: 60,000 Digits – 15 Multimeter Functions

- Infrared interface for data exchange and parameters configuration with a PC (optional: IR-USB adapter and METRAwin10 software)
- TRMS AC and AC+DC voltage measurement, bandwidths of up to 20 kHz
- dB measuring function
- Adjustable clamp factor for measurement using current sensor with voltage output
- *Plus additional functions as included with the METRAHIT BASE*

❐ See optional accessories beginning on page 24

Scope of delivery:
- Multimeter set with HC20 hard case
- KS17-2 measurement cable set
- Protective rubber cover
- Two 1.5 V AA batteries
- Condensed operating instructions
- CD ROM with data sheet and operating instructions (German and English)
- DKD calibration certificate

CE

Type	Data Sheet No.	Article Number
METRAHIT EBASE	3-349-454-03	M251A

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METRA**HIT** I X-TRA

**4½ Place High-End TRMS Digital Multimeter,
System Compatible with Data Memory and IR Interface –
Resolution: 12,000 Digits – 23 Multimeter Functions**

- AC TRMS voltage – AC+DC TRMS voltage – DC voltage
- Frequency (Hz, MHz) – duty cycle – resistance –
  continuity test – diode test – capacitance
- AC TRMS current – AC+DC TRMS current
- Temperature with Pt 100/1000 sensors and type K thermocouples
- Additional filter function and voltage measurement
  with reduced input impedance for limiting interference,
  e.g. for measurements at frequency converters
- 512 KB data memory for long-term measurements with data logger
  function
- Power pack connector socket for operation without batteries
- Infrared interface for communication with the PC
- Rubber holster safeguards against shocks and impacts

❏ See optional accessories beginning on page 24

Scope of delivery:
- Multimeter including KS17-2 measurement
  cable set
- Rubber holster
- Two 1.5 V AA batteries
- Condensed operating instructions
- CD ROM with data sheet and
  operating instructions (German and English)
- DKD calibration certificate

Type	Data Sheet No.	Article Number
METRAHIT X-TRA	3-349-350-03	M240A

METRA**HIT** I TECH

**4½ Place TRMS Digital Multimeter for Industrial Use, e.g. in
Chemical Process Engineering, Resolution: 12,000 Digits –
20 Multimeter Functions.**

- AC TRMS voltage – DC voltage – AC+DC voltage
- AC TRMS current – DC current – AC+DC TRMS current
- Frequency (Hz via voltage and current)
- Temperature with type K thermocouples
- Capacitance – continuity testing – diode testing – resistance
- Additionally adjustable transformation ratio for connecting current
  sensors and transformers with voltage or current output
- Additional filter function and voltage measurement
  with reduced input impedance for limiting interference,
  e.g. for measurements at frequency converters

❏ See optional accessories beginning on page 24

Scope of delivery:
- Multimeter including KS17-2 measurement
  cable set
- Two 1.5 V AA batteries
- Condensed operating instructions
- CD ROM with data sheet and
  operating instructions (German and English)
- DKD calibration certificate

- METRA**HIT TECH+GH**, same as above
  but with rubber holster

Type	Data Sheet No.	Article Number
METRAHIT TECH	3-349-350-03	M243A
METRAHIT TECH+GH	3-349-350-03	M243E

METRA**HIT** I BASE

**4½ Place TRMS Digital Multimeter with a Resolution of 12,000
digits and 12 Multimeter Functions**

- AC TRMS voltage – AC+DC TRMS voltage – DC voltage
- Frequency (Hz) – resistance – continuity test – diode test
- TRMS current via additional current sensors with voltage output
- Adjustable clamp parameters
- Temperature with type K thermocouples

❏ See optional accessories beginning on page 24

Scope of delivery:
- Multimeter including KS17-2 measurement
  cable set
- Two 1.5 V AA batteries
- Condensed operating instructions
- CD ROM with data sheet and
  operating instructions (German and English)
- DKD calibration certificate

Type	Data Sheet No.	Article Number
METRAHIT BASE	3-349-350-03	M241A

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METRA**HIT** I P**RO**

4½ Place TRMS Digital Multimeter for Professional Use with a Resolution of 12,000 Digits and 16 Multimeter Functions
- ■ AC TRMS voltage – AC+DC TRMS voltage – DC voltage
- ■ Frequency (Hz) – resistance – continuity test – diode test
- ■ AC TRMS current – AC+DC TRMS current
- ■ Additional filter function and voltage measurement with reduced input impedance for limiting interference, e.g. for measurements at frequency converters

❐ See optional accessories beginning on page 24

Scope of delivery:
- • Multimeter including KS17-2 measurement cable set
- • Two 1.5 V AA batteries
- • Condensed operating instructions
- • CD ROM with data sheet and operating instructions (German and English)
- • DKD calibration certificate
- • METRA**HIT PRO Set,** same as above in HC20 case with WZ12A AC current clamp
- • METRA**HIT PRO+GH,** same as above but with rubber holster

Type	Data Sheet No.	Article Number
METRAHIT PRO	3-349-350-03	M242A
METRAHIT PRO Set	3-349-350-03	M242D
METRAHIT PRO+GH	3-349-350-03	M242E

METRA**HIT** I E**SPECIAL**

4 6/7 Place Special Multimeter for Connection to a Current Transformer – prevents any possible danger in the event that electrical circuits are interrupted during operation.
Digital Multimeter, System Compatible, with Data Memory and IR Interface – Resolution: 60,000 Digits – 21 Multimeter Functions
- ■ Infrared interface for data exchange and parameters configuration with a PC (optional: IR-USB adapter and METRAwin10 software)
- ■ TRMS AC and AC+DC voltage measurement, bandwidths of up to 20 kHz
- ■ TRMS AC and AC+DC current measurement, bandwidths of up to 5 kHz
- ■ dB measuring function
- ■ Adjustable clamp factor for measurement with current sensor and current transformer clamps
- ■ *Plus additional functions comparable with METRAHIT PRO*

❐ See optional accessories beginning on page 24

Scope of delivery:
- • Multimeter set with HC20 hard case
- • KS17-2 measurement cable set
- • Protective rubber cover
- • Two 1.5 V AA batteries
- • Condensed operating instructions
- • CD ROM with data sheet and operating instructions (German and English)
- • DKD calibration certificate

Type	Data Sheet No.	Article Number
METRAHIT ESPECIAL	3-349-454-03	M252A

METRA**HIT** I O**UTDOOR**

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 with the METRAHIt X-TRA.
- ■ Special rugged design with shock and impact resistant housing, and additional rubber holster, special sand color
- ■ Dust-proof: IP 6x, water jets: IP x5
- ■ Patented, sealed blocking sockets
- ■ *Plus additional functions as included with the METRAHIT X-TRA*

❐ See optional accessories beginning on page 24

Scope of delivery:
- • Multimeter including KS17-2 measurement cable set
- • Rubber holster
- • Two 1.5 V AA batteries
- • Condensed operating instructions
- • CD ROM with data sheet and operating instructions (German and English)
- • DKD calibration certificate

Type	Data Sheet No.	Article Number
METRAHIT OUTDOOR	3-349-350-03	M240O

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METRA**HIT** | **X-TRA** limited edition

**4½ Place High-End TRMS Digital Multimeter,
System Compatible, with Data Memory and IR Interface –
Resolution: 12,000 Digits – 23 Multimeter Functions –
Special, Limited Edition with Wooden Case**

■ Elegant silver finish

■ Limited edition: 100 pieces

■ *Same scope of functions as METRAHIT X-TRA*

Scope of delivery:
- Multimeter including KS17-2 measurement
  cable set
- Rubber holster
- Wooden case
- Two 1.5 V AA batteries
- Condensed operating instructions
- CD ROM with data sheet and
  operating instructions (German and English)
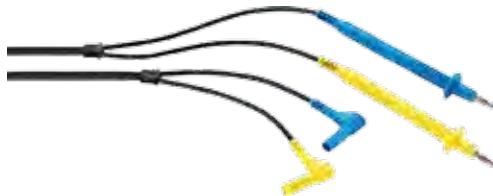- Data Sheet
- DKD calibration certificate

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Type	Data Sheet No.	Article Number
METRAHIT X-TRA limited edition	3-349-350-03	M240X

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METRAHIT T-COM

3¾ Place Telecommunications Multimeter for Measurements in Symmetrical Copper Cable Networks – System Compatible, with Data Memory and IR Interface – Resolution: 3100 Digits – 22 Multimeter Functions

- Insulation resistance measurement (test voltage: 100 V) with detection of interference voltage and polarity reversal
- Cable symmetry testing by means of rapid terminal switching: a – b – E
- TRMS voltage and current measurement, AC and AC+DC
- 200 Hz low-pass filter can be activated for measurement of V_{AC}
- Direct current measurement from 300 µA (resolution 100 nA) to 1 A
- Display illumination can be activated
- Additional analog display, linear or logarithmic for insulation measurement
- Measurement of cable length with adjustable cable parameters
- Loop resistance measurement R_{Loop} with adjustable limit value

☐ See optional accessories beginning on page 24

Scope of delivery:
- Multimeter with KS21T measurement cable set (3-pole, black, yellow and blue)
- F836 ever-ready case
- Rubber holster
- Two 1.5 V AA batteries
- Condensed operating instructions
- CD ROM with data sheet and operating instructions (German and English)
- DKD calibration certificate

CE

Type	Data Sheet No.	Article Number
METRAHIT T-COM	3-349-379-03	M246A

METRAHIT ISO

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

- Insulation resistance measurement with adjustable test voltage (50 V / 100 V / 250 V / 500 V / 1000 V) and detection of interference voltage
- Multimeter with diverse functions (V, A, Ω, °C / °F, Hz, continuity etc.)
- Data logger function with 512 kB data memory for up to 15,400 measured values
- Infrared interface for data exchange and parameters configuration with a PC (optionally available IR-USB adapter and METRAwin10 software)
- Power pack connector socket for operation without batteries
- TRMS AC and AC+DC voltage measurement, bandwidths of up to 10 kHz
- 1 kHz low-pass filter can be activated for measurement of V_{AC}
- TRMS AC and AC+DC current measurement with a bandwidth of up to 2 kHz
- Adjustable clamp factor for measurement with current sensor and current transformer clamps

☐ See optional accessories beginning on page 24

Scope of delivery:
- Multimeter including KS17-2 measurement cable set
- Protective rubber cover
- Two 1.5 V AA batteries
- Condensed operating instructions
- CD ROM with data sheet and operating instructions (German and English)
- DKD calibration certificate

CE

Type	Data Sheet No.	Article Number
METRAHIT ISO	3-349-415-03	M246B

GOSSEN METRAWATT

METRA**HIT** I **2**

3 6/7-Place Digital Multimeter with Analog Scale and Precision Temperature Measuring Instrument for Use in All Areas of Electrical Engineering

- ■ Resolution: 100 μV, 100 mΩ, 10 μA
- ■ Patented automatic blocking sockets (ABS)
- ■ Automatic and manual measuring range selection
- ■ Voltage: 600 mV – 600 V DC / VAC
- ■ Current: 60 mA – 10 A DC / AAC (16 A 30 sec.)
- ■ Resistance: 600 Ω – 40 MΩ
- ■ Temperature: −50.0° C ... + 400.0° C, type K
- ■ Continuity and diode testing
- ■ Min-Max measured value storage and DATA hold
- ■ Power saving circuit
- ■ Protective cover for harsh conditions
- ■ IP 40 protection
- ■ 600 V CAT III per IEC 61010-1

❒ See optional accessories beginning on page 24

Scope of delivery:
- • Multimeter including KS17-2 measurement cable set
- • Rubber holster
- • Two 1.5 V mignon cells, IEC LR6 (AA)
- • Condensed operating instructions
- • DKD calibration certificate

Complete operating instructions are available on the Internet at **www.gossenmetrawatt.com**

Type	Data Sheet No.	Article Number
METRAHIT 2	3-349-476-03	M205A

METRA**HIT** I **W**ORLD

3 6/7-Place Digital Multimeter with Analog Scale and Precision Temperature Measuring Instrument for Use in All Areas of Electrical Engineering

- ■ Resolution: 100 μV, 100 mΩ, 10 μA, 10 pF, 0.1 Hz
- ■ Patented automatic blocking sockets (ABS)
- ■ Automatic and manual measuring range selection
- ■ TRMS AC+DC
- ■ Voltage: 600 mV – 600 V DC / VAC
- ■ Current: 60 mA – 10 A DC / AAC (16 A 30 sec.)
- ■ Resistance: 600 Ω – 40 MΩ
- ■ Precision temperature measurement (–200 ... +800° C)
- ■ Frequency measurement (max. 100 kHz)
- ■ Capacitance measurement
- ■ Overload and blown fuse indicators
- ■ Bidirectional infrared interface for communication with the PC (9.6 kB)
- ■ Continuity and diode testing
- ■ Min-Max measured value storage and DATA hold
- ■ Power saving circuit
- ■ Rubber holster for harsh conditions
- ■ IP 52 protection
- ■ 600 V CAT III per IEC 61010-1
- ■ 3 year guarantee
- ■ DKD calibration certificate as standard feature

❒ See optional accessories beginning on page 24

Scope of delivery:
- • Multimeter including KS17-2 measurement cable set
- • Rubber holster
- • Two 1.5 V mignon cells, IEC LR6 (AA)
- • Condensed operating instructions
- • DKD calibration certificate

Complete operating instructions are available on the Internet at **www.gossenmetrawatt.com**

Type	Data Sheet No.	Article Number
METRAHIT WORLD	3-349-527-03	M206A

Made in Germany

GOSSEN METRAWATT

METRAHIT | 30M

6 ½ Place Precision TRMS Multimeter, Temperature Measuring Instrument and Data Logger for Demanding, Universal Use in Laboratory and Service Applications

- ■ Display: $+/-$ 1,200,000 digits
- ■ Intrinsic error: $+/-$ (35 ppm of the measured value $+$ 70 ppm)
- ■ Measuring functions: 120 mV – 600 V DC and TRMS AC+DC (bandwidth: 16 Hz - 100 kHz) / 120 µA – 120 mA / 120 Ω – 12 MΩ / 1 Hz – 100 kHz / °C / °F (Pt100, Pt1000, J, K)
- ■ Resistance and temperature measurement with Kelvin connection
- ■ Min-Max measured value storage
- ■ Automatic range selection and battery cutoff
- ■ PTC fuse, max. 250 V
- ■ Integrated 128 kB measurement data memory, sampling interval: 0.1 s – 10 min.
- ■ IR data interface
- ■ Power pack (optional)
- ■ CAT III at 300 V or CAT II at 600 V per IEC 61010-1

❒ See optional accessories beginning on page 24

Scope of delivery:
- Multimeter including KS17-2 measurement cable set
- Rubber holster
- Two 1.5 V AA batteries
- Operating instructions
- DKD calibration certificate

CE

Type	Data Sheet No.	Article Number
METRAHIT 30M	3-348-979-03	M230B

METRAMAX | 12

Inexpensive Handheld Digital-Analog Multimeter for Use in the Fields of General Electronics and Electrical Engineering

- ■ 1 ± 4000 digits with bar graph
- ■ Voltage measurement: 400 mV …600 V AC/DC/AC
- ■ Switchable input resistance: 10 MΩ / 400 kΩ
- ■ Intrinsic error, V AC/DC: ± 0.5 % rdg. + 2 digits
- ■ V AC: ± 1 % rdg. + 5 digits
- ■ Current measurement: 40, 400 mA AC/DC / DC, 10A =/~ (12 A max. 5 min.)
- ■ Intrinsic error, A AC / DC: ± 0.8 % rdg. + 2 digits
- ■ A AC: ± 1 % rdg. + 5 digits
- ■ Resistance measurement: 400 Ω …40 MΩ
- ■ Frequency measurement: 10 Hz …400 kHz
- ■ Capacitance measurement: 4 nF …40 µF
- ■ Continuity and diode testing
- ■ Min, Max and Hold memory
- ■ Case with tilt stand and take-up reel
- ■ Dimensions (W x H x D): 92 x 154 x 25 mm
- ■ Weight: approx. 0.2 kg with batteries
- ■ Manufacturer's guarantee: 3 years material and workmanship

❒ See optional accessories beginning on page 24

Scope of delivery:
- Multimeter including KS14 measurement cable set
- Holster
- Two 1.5 V AA batteries
- Operating instructions

METRAMAX | 12 Set1:
- Same as above in HC20 case, and with WZ12A current clamp

CE

Type	Data Sheet No.	Article Number
METRAMAX 12	3-348-831-03	M212A
METRAMAX 12 Set1	3-348-831-03	M212D

GOSSEN METRAWATT

Made in Germany

METRAHIT I 1A, 2A

Compact, Basic Analog Multimeter for Training and Hobby, and for Electrical Applications – Class 2.5

- ■ Voltage measurement: 0…0.15 / 0…0.5 V=;
  0…1.5 / 5 / 15 / 50 / 150 / 500 V= / ~

- ■ Input impedance: 20 kΩ/V=, 4 kΩ/V~

- ■ Current measurement
  METRAHIT I 1A: 0…50 µA=, 0…0.5 / 5 / 50 / 500 mA / 5 A= / ~
  METRAHIT I 2A: 0…50 µA=; 0…1.5 / 15 / 150 mA / 1.5 / 15 A= / ~

- ■ Resistance measurement: 1 Ω…1 MΩ (4 ranges)

- ■ Level: −15…+56 dB (6 ranges)

- ■ METRAHIT I 2A: accuracy: class 2.5

- ■ Dimensions (W x H x D): 92 x 126 x 45 mm

- ■ Weight: approx. 0.25 kg without battery

- ■ Battery: 1.5 V IEC LR 6 (AA)

- ■ Manufacturer's guarantee: 1 year material and workmanship

- ❑ See optional accessories beginning on page 24

Scope of delivery:
- • Multimeter
  without measurement cable set and battery
- • Operating instructions

CE

Type	Data Sheet No.	Article Number
METRAHIT 1A	3-349-304-03	M100A
METRAHIT 2A	3-349-304-03	M101A

METRAmax 2

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

- ■ Voltage measurement: 0…100 / 300 mV / 1 V=
  0…3 / 10 / 30 / 100 / 300 V= / ~

- ■ Current measurement: 0…100 mA / 1 / 10 / 100 mA / 1 / 3 A = / ~

- ■ Zero point can be set to left or center

- ■ Outstanding overload capacity, automatic battery cutoff

- ■ Accuracy: class 2 = / 3 ~

- ■ Dimensions (W x H x D): 100 x 140 x 35 mm

- ■ Weight: approx. 0.3 kg with batteries

- ❑ See optional accessories beginning on page 24

Scope of delivery:
- • Multimeter without measurement cable set
- • 9 V flat cell battery per IEC 6LR61
- • Operating instructions

CE

Type	Data Sheet No.	Article Number
METRAmax 2	3-348-792-03	M102A

METRAmax 3

Analog Multimeter for Training Applications, and for Use in the Electrical Trades. Overload protection with integrated auto-fuse and high performance PTC thermistors.

- ■ Voltage measurement: 30 / 300 / 600 V= / ~

- ■ Current measurement: 0.3 / 3 / 15 A = / ~

- ■ Resistance measurement: 1 Ω…500 kΩ

- ■ Protective conductor

- ■ Accuracy: class 2.5

- ■ Dimensions (W x H x D): 100 x 140 x 35 mm

- ■ Weight: approx. 0.3 kg with batteries

- ❑ See optional accessories beginning on page 24

Scope of delivery:
- • Multimeter without measurement cable set
- • One 1.5 V AA battery
- • Operating instructions

CE

Type	Data Sheet No.	Article Number
METRAmax 3	3-349-117-03	M103A

Made in Germany

GOSSEN METRAWATT

METRAport | 40S

4¾-Place Folding Digital Multimeter for Universal Use in General Electrical and Electronics Applications, as well as for Automotive Service

- Precision multimeter (V, A, Ω, F, Hz, %, °C / °F),
  resolution: 10 µV, 10 nA, 10 mΩ
- TRMS measurement for V AC and I AC to 10 kHz
- Direct current measurement: 10 nA…10 A via a single connector jack and a single resetable auto-fuse, indication of overload and blown fuse
- Current measurement with current sensor clamps:
  The transformation ratio is adjustable from 1 mV : 1 mA to
  1 mV : 1 A, and is accounted for by the display.
- Temperature measurement with automatic Pt sensor recognition
- Temperature measurement with type K thermocouple
- Capacitance and diode measurement
- Frequency measurement via V AC or I AC to 10 kHz
- Frequency and duty cycle measurement at 2…5 V signals up to 1 MHz
- RPM measurement with inductive sensor (accessory)
- Automatic and manual measuring range selection
- Large backlit digital display with additional analog scale
- Measured value storage and Min – Max recording
- Dimensions (W x H x D): 146 x 118 x 44 mm
- Weight: approx. 450 g with batteries
- Manufacturer's guarantee: 3 years material and workmanship

❑ See optional accessories beginning on page 24

Scope of delivery:
- Multimeter including KS17 measurement cable set
- Carrying strap
- Two 1.5 V AA batteries
- Operating instructions
- Condensed operating instructions
- DKD calibration certificate

CE

Type	Data Sheet No.	Article Number
METRAport 40S	3-349-410-03	M234D

METRAport | 3A

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

- For measurement of voltage, current, resistance and level
- With reflective scale, accuracy class: 1.5 =
- High input resistance of 10 MΩ 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 measuring ranges for direct and alternating voltage:
  100 mV / 300 mV / 1 V / 3 V / 10 V / 30 V / 100 V / 300 V / 600 V
- 9 level measuring ranges: -40 dB…+62 dB
- 7 AC and DC current measuring ranges:
  10 µA / 100 µA / 1 mA / 10 mA / 100 mA / 1 A / 10 A
- 5 resistance measuring ranges: 1 Ω…2 kΩ / 10 Ω…20 kΩ /
  100 Ω…200 kΩ / 1 kΩ…2 MΩ / 10 kΩ…20 MΩ
- Scale can be tilted with folding lid which also provides protection during transport
- Recommended: NA2-9/20 mains power pack (highly isolated)
- Manufacturer's guarantee: 3 years material and workmanship

❑ See optional accessories beginning on page 24

Scope of delivery:
- Multimeter including KS17 measurement cable set
- Carrying strap
- 9 V flat cell battery per IEC 6LR61
- Operating instructions

CE

Type	Data Sheet No.	Article Number
METRAport 3A	3-349-302-03	M113A

GOSSEN METRAWATT   **Made in Germany**

METRAHIT I 27M

Milliohmmeter, 4¾-Place Multimeter and Data Logger, Temperature Measuring Instrument for On-Site Service and for Laboratory Tasks:
– General low-resistance measurements
– Measurement of low-value contact resistance at welded and riveted connections
– Ascertainment of low-value contact resistance on aircraft outer skin components (lightning protection and wick test).

■ Milliohmmeter: 3.000 mΩ...300.00 mΩ with 1 A measuring current and 30.00 mΩ...30.00 Ω with 200 mA measuring current

■ Kelvin connection (4-wire measurement)

■ Resistance measurement: 300 Ω...30 MΩ

■ Voltage measurement: 3 V...600 VDC and 3 V...600 VAC with ±30.000 digits

■ Frequency measurement: 300 Hz...3 kHz

■ DATA hold memory for up to 1200 measured values

■ Continuity and diode testing; overload protection

❏ See optional accessories beginning on page 24

Scope of delivery:
• Multimeter including KS17-S measurement cable set
• Rubber holster with carrying strap
• Three AA rechargeable NiMH batteries
• Condensed operating instructions
• Operating instructions
• DKD calibration certificate

CE

Type	Data Sheet No.	Article Number
METRAHIT 27M	3-349-206-03	M227A

METRAHIT I 27I, 27AS

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

■ Insulation resistance measurement: 30.00 MΩ...3.000 GΩ with selectable test voltages of 50, 100, 250 and 500 V

■ Milliohmmeter: 3.000 mΩ...300.00 mΩ with 1 A measuring current and 30.00 mΩ...30.00 Ω with 200 mA measuring current

■ Kelvin connection (4-wire measurement)

■ Resistance measurement: 300 Ω...30 MΩ

■ Voltage measurement: 3 V...600 VDC and 3V...600 VAC with ±30.000 digits

■ Frequency measurement: 300 Hz...3 kHz

■ DATA hold memory for up to 1200 measured values

■ Continuity and diode testing

■ Overload protection

■ LCD panel with background illumination

❏ See optional accessories beginning on page 24

Scope of delivery:
• Multimeter including KS17-S measurement cable set
• Rubber holster with carrying strap
• Three AA rechargeable NiMH batteries
• NA HIT 2x charger
• KC4 set of Kelvin clips (2 pieces)
• Condensed operating instructions
• Operating instructions
• DKD calibration certificate

Additionally in METRAHIT I 27AS Avionics Set:
• KC27 set of Kelvin probes (2 pieces)
• HC30 hard case
• USB pack (USB cable, CD ROM with drivers, METRA-win 10/METRAHIT software)

CE

Type	Data Sheet No.	Article Number
METRAHIT 27I	3-349-206-03	M227B
METRAHIT 27AS	3-349-206-03	M227C

Made in Germany

GOSSEN METRAWATT

METRAHIT | 27EX

4¾-Place Milliohmmeter for Use in 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)

■ Measuring ranges: 30 mΩ, 300 mΩ, 3 Ω, 30 Ω

■ Resolution: 10 μΩ

■ Measuring method: Kelvin connection (4-wire measurement)

■ DATA hold memory: 1200 measured values

■ Ex designation: Ex II 2 G EEx ia IIA T4

■ Prototype test certificate: INERIS 05ATEX0040

■ *Special variant for AIRBUS:*
Article no. M227G, same as M227F with AIRBUS logo
ID no. 97F92003500 per AMM (Aircraft Maintenance Manual)

❏ See optional accessories beginning on page 24

Scope of delivery:
• METRAHIT 27EX
• GH18 rubber holster (blue) including carrying strap
• 8 Ex approved rechargeable NiMH batteries
• KC27 Kelvin probe (1 piece)
• KC4 Kelvin clip (1 piece)
• HC30 hard case
• DKD calibration certificate
• Ex certificate: INERIS 05ATEX00401
• Operating instructions

Type	Data Sheet No.	Article Number
METRAHIT 27EX	3-349-335-03	M227F
METRAHIT 27EX AIRBUS	3-349-335-03	M227G

METRAmax 6

Resistance Measuring Instrument with Analog Display for use in the Plant, on Service Calls and for Installation Work

■ Measuring method: current measurement, class 1.5

■ Large variety of measuring ranges from 0.05 to 1 MOhm (5 measuring ranges)

■ Ranges for rough capacitance measurement from 0 to 30,000 uF

■ Integrated buzzer for continuity testing

■ Rugged, moving-coil mechanism with spring loaded bearing jewels allows for use under adverse operating conditions

■ Dimensions: 100 x 140 x 35 mm

■ Weight: approx. 3 kg without battery

■ Battery: 1.5 V, IEC LR 6 (AA)

❏ See optional accessories beginning on page 24

Scope of delivery:
• Multimeter without measurement cable set
• One 1.5 V AA battery
• Operating instructions

Type	Data Sheet No.	Article Number
METRAmax 6	3-349-372-03	GTM3060000R0001

GOSSEN METRAWATT   **Made in Germany**

METRA**HIT** I C<small>AL</small>

**Multifunctional Calibrator for Process Engineering –
18 Calibrator Functions**

The newly developed METRAHIT CAL 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 workshop and laboratory.

- Simulation function for voltage, resistance and frequency
- Current source and sink, especially for process quantities, for example 0 ... 20 mA
- Temperature simulation for resistance thermometers and thermocouples
- Simple adjustment of values with function keys and entry field
- Interval functions, ramp functions and procedures. Automatic sequences with adjustable time quantities can be generated for all simulation quantities.
- Infrared interface for data exchange and parameters configuration with a PC (optionally available IR-USB adapter and software)
- Handheld, battery powered instrument for use directly on-site with additional mains connection for continuous operation

Scope of delivery:
- Handheld calibrator including KS17-2 measurement cable set
- Rubber holster with carrying strap
- Two 1.5 V AA batteries
- Abbreviated operating instructions
- CD ROM with data sheet and operating instructions
- DKD calibration certificate

Included with METRAHIT I CAL Pack:
- Handheld calibrator with rubber holster
- METRAHIT I X-TRA with rubber holster
- Measurement cable set
- Batteries
- HC30 hard case
- Operating instructions
- DKD calibration certificate

Type	Data Sheet No.	Article Number
METRAHIT CAL	3-349-440-03	M244A
METRAHIT CAL Pack	3-349-440-03	M244B

Made in Germany

GOSSEN METRAWATT

Column groups across the top of the table:

	METRAHIT	METRAmax	METRAport
Device columns	EBASE, BASE, ETECH, TECH, EXTRA, X-TRA, ESPECIAL, PRO, OUTDOOR, T-COM, ISO, CAL, 2 WORLD ONE Plus, 22S/M, 23/24/25S, 26S/M, 28S, 29S, 30M, 16I/T/U, 27M/I, 28C, 28C light, 1A/2A	2, 3, 6, 12	32S/XS, 40S, 3A

Current Transformers

Type	Designation
NW300mA	Shunt resistor, 300 mA, 1Ω, class 0.5, 1 mV/mA
NW3A	Shunt resistor, 3 A, 10 Ω, class 0.5, 100 mV/A, 600 V CATIV
NW10A	Shunt resistor, 10 A/100 mV, class 0.5
WZ11A	AC current transformer clamp, 1...200 A~, 1 mA/A
WZ11B	AC current transformer clamp, 0.5...20/200 A~, switchable, 100/10 mV/A
WZ12A	AC current transformer clamp, 15...180 A~, 1 mA/A
WZ12B	AC current sensor clamp, 10 mA...100 A~, 1 mV/10 mA
WZ12C	AC current sensor clamp, 1 mA...10 A/120 A~, switchable, 1 mV/mA1/1 mV/A
WZ12D	AC current transformer clamp, 30 mA...150 A~, 1 mA/A
Z3511	AC current transformer clamp, 4...500 A~, 1 mA/A
Z3512	AC current transformer clamp, 0.5...1000 A~, 1 mA/A
Z3512A	AC current sensor clamp, 1 mA...1/10/100/1000 A~, switchable, 1000/100/10/1 mV/A
Z3514	AC current transformer clamp, 1...2000 A~, 1 mA/A
Z201A	DC-AC current sensor clamp, 0.01...30 A/...20 A~, 100 mV/A, battery
Z202A	DC-AC current sensor clamp, 0.1...30/300 A/...20/200 A~, switchable, 10/1 mV/A, battery
Z203A	DC-AC current sensor clamp, 1...300/1000 A/...200/1000 A~, switchable, 1 mV/A, battery
Z13B	DC-AC current sensor clamp, 0.4...60/600 A/...40/400 A~, switchable, 10/1 mV/A, battery
AF03A	Ampflex AC current sensor, 5...30/300 A~, switchable, 100/10 mV/A battery
AF11A	Ampflex AC current sensor, 5...1000 A~, 1 mV/A, with battery
AF33A	Ampflex AC current sensor, 5...300/3000 A~, switchable, 10 mV/1 mV/A battery
AF101A	Ampflex AC current sensor, 5...1000/10000A~, switchable, 1 mV/0.1 mV/A battery
METRAFLEX 3000A	AC current sensor, 30/300/3000 A, length: 26"; battery

High frequency probe

Type	Designation
Z3431-2	High frequency probe, 100 kHz...750 MHz, 0.25...50V~

Temperature Sensors and Probes

Type	Designation
TF400CAR	Dip-stick oil temperature sensor, Pt1000 classB, –50... +500° C,3 mm dia./L = 810 mm
TF400SURFACE	Fast reacting surface temperature sensor, type K thermocouple (NiCr-Ni), –50...+400°C
TF220	Pt1000 sensor, class B, for gases and liquids, –50 ... +220°C
TF550	Pt1000 oven sensor, class B, for ovens, refrigerators etc., –50 ... +550°C
TS Chipset	10 miniature Pt100 sensors, class B (2x2.3 mm) adhesive, –50 ... +550°C
Z3409	Standard Pt100 sensor, class A, for surface and immersion measurements, –40...+600°C
Z3431-3	Temperature probe with immersion sensor, type K thermocouple (NiCr-Ni), –20...+350°C
Z3431-9	Temperature probe without sensor, for type K thermocouple (NiCr-Ni), –20...+350°C
Z3431-4	Temperature probe without sensor, for type K thermocouple (NiCr-Ni), –25...+1150°C
Z3431-5	Standard plug-in immersion sensor, type K thermocouple, to +1100°C
Z3431-6	Plug-in surface sensor, type K thermocouple, to +850°C
Z3431-7	High temperature plug-in sensor tape, type K thermocouple, to +450°C
Z3431-8	Flexible, insulated plug-in sensor, type K thermocouple, to +250°C

Measuring Adapters

Type	Designation
SM16	Current measuring adapter, 16 A/230 V, for earth contact plugs
PMA16	Power measuring adapter (single-phase) 16 A/230 V, for earth contact plugs
EMA1	Energy measuring adapter for (3-phase) Ferraris meters

EMC Measuring Adapter

Type	Designation
FMA1	METRAHIT field measuring adapter for electrical and magnetic fields

Type	Designation	METRAHIT																										METRAmax				METRAport		
		EBASE	BASE	ETECH	TECH	EXTRA	X-TRA	ESPECIAL	PRO	OUTDOOR	T-COM	ISO	CAL	2 WORLD	ONE Plus	22S/M	23/24/25S	26S/M	28S	29S	30M	16I/T/U	27M/I	28C	28C light	1A/2A	2	3	6	12	32S/XS	40S	3A
Measuring Accessories																																	
KS17-ONE	Cable set for multimeter, 600 V CAT III 16 A	—	—	—	—	—	—	—	—	—	—	—	—	—	●	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	●	—
KS17-2	Cable set for multimeters, measurement cables, 1.5 m, 1000 V/CAT III, 600 V/CAT IV	—	●	●	●	●	●	●	●	●	—	●	●	●	●	●	●	●	●	●	●	●	●	●	—	●	●	●	●	●	●	●	—
KS17S	Cable set with 2 mm diameter steel tips and 120 cm cable, 1000 V/CAT III	●	●	●	●	●	●	●	●	●	—	●	●	●	●	●	●	●	●	●	●	●	●	●	—	●	●	●	●	●	●	●	—
KS-NTS	Cable set including test probes, clamps and US test probes, 1000 V/CAT III, 600 V/CAT IV 20 A	●	●	●	●	●	●	●	●	●	—	●	●	●	●	●	●	●	●	●	●	●	●	●	—	●	●	●	●	●	●	●	—
KS21T	Cable set for telecommunications applications, 150 V CAT II	—	—	—	—	—	—	—	—	—	●	—	—	—	—	—	—	—	—	—	●U	—	—	—	—	—	—	—	—	—	—	—	—
KS29	Safety cable set for power meters	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	●	●	—	—	—	—	—	—	—	—	—	—	—	—	—
KY94	Hook clips (1 pair) for KS17-2	●	●	●	●	●	●	●	●	●	—	●	●	●	●	●	●	●	●	●	●	●	●	●	—	●	●	●	●	●	●	●	—
KY95-1	Alligator clips (1 pair) for KS17-2, 300 V/CAT III	●	●	●	●	●	●	●	●	●	—	●	●	●	●	●	●	●	●	●	●	●	●	●	—	●	●	●	●	●	●	●	—
KY95-2	Alligator clips (1 pair) for KS17-2, 1000 V CAT III 19 A	●	●	●	●	●	●	●	●	●	—	●	●	●	●	●	●	●	●	●	●	●	●	●	—	●	●	●	●	●	●	●	—
KY96	Push-on lugs (1 pair) for KS17-2	●	●	●	●	●	●	●	●	●	—	●	●	●	●	●	●	●	●	●	●	●	●	●	—	●	●	●	●	●	●	●	—
Z3241	RS 232 interface cable, 2 m, (included with ch. packs and Z3231)	—	—	—	—	—	—	—	—	—	—	●	●	—	●	●	●	●	●	●	●	●	●	—	—	—	—	—	—	—	—	—	—
Kelvin Clips																																	
KC4	Kelvin clips (1 pair) with normal terminals	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	●	—	—	—	—	—	—	—	—
KC27	Kelvin probes (1 pair) with stainless steel tips	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	●	—	—	—	—	—	—	—	—
Power Packs, Chargers																																	
NA HIT 2x	Power pack, broad range input: 90…250 V AC / 5 V DC	—	—	—	—	—	—	●	—	—	—	●	●	—	—	—	—	—	—	●	●	●	●	—	—	—	—	—	—	—	●	●	—
NA X-TRA	Power pack: 90…253 V AC / 5 V DC, 600 V CAT IV	—	—	—	—	●	●	●	—	—	—	●	●	—	—	—	—	—	—	●	●	●	●	—	—	—	—	—	—	—	—	—	—
Z206D	Quick charger for NiMH/ NiCd batteries (AA, AAA)	—	—	—	●	●	●	—	—	—	—	●	●	—	—	—	—	—	—	●	●	●	●	—	—	—	—	—	—	—	—	—	—
PC Interfaces																																	
USB X-TRA	IR-USB bidirectional interface adapter	●	●	●	●	●	●	●	●	●	●	●	●	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
BD232	IR – RS 232 bidirectional interface adapter	—	—	—	—	—	—	—	—	—	—	—	—	—	●	●	●	●	●	●	●	●	●	●	—	●	●	—	—	—	●	●	—
BD-Pack1	1-channel pack: BD232 adapter, RS 232 cable, METRAwin 10 and installation instructions	—	—	—	—	—	—	—	—	—	—	—	—	—	●	●	●	●	●	●	●	●	●	●	—	●	●	—	—	—	●	●	—
USB-Hit	IR-USB bidirectional interface adapter	—	—	—	—	—	—	—	—	—	—	—	—	—	●	●	●	●	●	●	●	●	●	●	—	●	●	—	—	—	●	●	—
USB-Pack	Set: USB-HIT interface adapter, USB cable, METRAwin 10	—	—	—	—	—	—	—	—	—	—	—	—	—	●	●	●	●	●	●	●	●	●	●	—	●	●	—	—	—	●	●	—
SI232 II	IR – RS 232 bidirectional memory adapter	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	●	●	●	●	●	●	●	—	—	—	—	—	—	—	●	●	—
1-Ch. Pack II	1-channel pack: SI232 II adapter, RS 232 cable, METRAwin 10, installation instructions	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	●	●	●	●	●	●	●	—	—	—	—	—	—	—	●	●	—
4-Ch. Pack II	4-channel pack: four SI232 II adapters, RS 232 cable, METRAwin 10, installation instructions	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	●	●	●	●	●	●	●	—	—	—	—	—	—	—	●	●	—
Software																																	
METRAwin 10/Hit	METRAwin 10/METRAHit – system software for METRAHIT multimeters	●	—	●	●	●	●	●	●	●	●	●	—	—	●	●	●	●	●	●	●	●	●	●	—	●	●	—	—	—	●	●	—
METRAwin90-2	Calibration software: device control, evaluation of calibration results	—	—	—	—	—	—	—	—	—	—	—	●	—	—	—	—	—	—	—	—	—	—	—	●	—	—	—	—	—	—	—	—
Type	Designation	EBASE	BASE	ETECH	TECH	EXTRA	X-TRA	ESPECIAL	PRO	OUTDOOR	T-COM	ISO	CAL	2 WORLD	ONE Plus	22S/M	23/24/25S	26S/M	28S	29S	30M	16I/T/U	27M/I	28C	28C light	1A/2A	2	3	6	12	32S/XS	40S	3A
		METRAHIT																										METRAmax				METRAport		

Pouches – Hard Cases – Covers

| Type | Designation | Article Number | METRAHIT | | | METRAmax | | METRAport |
			STARLINE Series	ONE…30M	1A/2A	2/3/6	12	40S/3A
HitBag	Cordura belt pouch	Z115A	✓	✓	–	–	–	✓
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	GTY3172100P01	–	–	–	✓		–
F829	Carrying pouch	GTZ3301000R0003	✓	✓	–	–	✓	–
F836	Ever-ready case with cable compartment	GTZ3302000R0001	✓	✓	–	–	–	–
F840	Ever-ready case for 2 instruments, 2 adapters and accessories	GTZ3302001R0001	✓	✓	–	–	–	–
F841	Carrying pouch	Z104A	–	–	–	✓	–	–
GH X-TRA	Rubber holster	Z104C	✓	–	–	–	–	–
GH18	Rubber holster with carrying strap	GTZ3212000R0001	–	✓	–	–	–	–
GH185	Rubber holster	GTY3171185P01	–	–	✓	–	–	–
GH19	Rubber holster	Z104B	–	✓	–	✓	–	–
HC20	Hard case for 1 device, accessories	Z113A	✓	✓	–	–	–	–
HC30	Hard case for 2 devices, accessories	Z113B	✓	✓	–	–	–	–

HitBag   F809   F822   F823   F825   F829   F836   F840

F841   GH X-TRA   GH18   GH185   GH19   HC20 / HC30

Fuses for multimeters (shipped in package of 10)

Type	Designation	Article No.	For following devices:
FF(UR)16 A / 1k V 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, 2, WORLD, 28S, 29S
FF (UR)1.6 A / 1 kV AC/DC	Fuse link	Z109C	METRAHIT 23S … 26S, 27M / I, 28S, 29S
FF 1.6 A / 700 V AC	Fuse link	Z109E	METRAHIT ONE Plus / 2 / WORLD / 2A, 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 1A
FF 6.3 A / 500 V	Fuse link	Z109K	METRAHIT 1A
FF1.6 A / 700 V AC	Fuse link	Z109E	METRAHIT ONE Plus / 2A, METRAmax 12, METRAport 3A
FF16 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 1.6 A / 700 V AC	Fuse link	Z109E	METRAHIT ONE Plus / 2A, METRAmax 12, METRAport 3A
FF 16 A / 600 V AC	Fuse link	Z109A	METRAHIT 2A, METRAmax 12, METRAport 3A
F 500 mA / 250 V	Fuse, F1/F2 multimeter section	Z109F	METRAHIT 28C
M 125 mA / 250 V	Fuse, F3 calibrator section	Z109G	METRAHIT 28C and 28c light

GOSSEN METRAWATT   Made in Germany

USB│X-TRA

Bidirectional Infrared-USB Interface Adapter for Starline Multimeters with Serial IR Interface for Connection to a USB Port at a PC
Adapter for data transmission between the multimeter and the PC.

❐ **Usable with following instruments:**
METRAHIT│X-TRA, METRAHIT│OUTDOOR,
METRAHIT│EXTRA, METRAHIT│ETECH, METRAHIT│ESPECIAL,
METRAHIT│EBASE
METRAHIT│T-COM, METRAHIT│ISO, METRAHIT│CAL

Scope of delivery:
- Interface adapter
- CD with current drivers for Windows 98SE, ME, 2000 and XP

Type	Data Sheet No.	Article Number
USB X-TRA	–	Z216C

BD232

IR – RS 232 Snap-On Interface Adapter
The infrared interface allows for electrically isolated data transmission between PC and multimeter.
Data transmission is indicated visually by means of two LEDs.
The BD 232 interface adapter is above all recommended for multimeters with integrated memory. It can also be used for online data transmission with multimeters which do not have integrated memory. The BD-Pack is available as a user-friendly complete package for single-channel operation. In order to expand to 2, 3 or 4-channel operation, an additional BD232 is required for each channel, as well as the additionally required multimeters.

❐ **Usable with following instruments:**
METRAHIT│ONE PLUS, 16I, 16T, 16U
METRAHIT│22S/M, 23S, 24S, 25S, 26S/M, 28S, 29S, 30M,
METRAHIT│28C, 28C light
METRAHIT│27I, 27M, 27EX
METRAHit 1ASi

Included with BD232:
- Interface adapter

Included with BD-Pack 1:
- Interface adapter
- METRAwin10/METRAHit software
- RS 232 interface cable, Z3241
- Installation instructions

Type	Data Sheet No.	Article Number
BD232	–	GTZ3242100R0001
BD-Pack 1	–	Z215A

USB-HIT

IR – RS 232 Bidirectional Snap-On Interface Adapter
Data are transmitted from the multimeter to the adapter in an electrically isolated, bidirectional fashion, and to the USB interface for PCs and laptops.
METRAwin10/METRAHit software is included with the **USB-Pack** set.

❐ **Usable with following instruments:**
METRAHIT│22S/M, 23S, 24S, 25S, 26S/M, 28S, 29S, 30M,
METRAHIT│28C
METRAHIT│27I, 27M, 27EX
METRAHit 1ASi

Included with USB-HIT:
- Interface adapter
- USB-B cable (1m)
- CD with drivers

Included with USB-Pack:
- Same as USB-HIT but with METRAwin10/METRAHit software

Type	Data Sheet No.	Article Number
USB-HIT	–	Z216A
USB-Pack	–	Z216B

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SI232 II

IR – RS 232 Snap-On Memory Adapter

Converts IR measurement data received from the instrument and control signals received from the PC. Measurement data are recorded to the integrated memory with reference to real-time, and are transmitted to the PC after measurement has been completed.

The 128 kB memory can be partitioned into memory blocks as desired. The sampling interval can be set within a range of 50 ms to 10 minutes, or sampling can be triggered in a signal dependent fashion for optimum memory usage.

The 1Ch-Pack is available as a user-friendly complete package for single-channel operation. In order to expand to 2, 3 or 4-channel operation, an additional SI232 II is required for each channel, as well as the additionally required multimeters. The 4-Ch. Pack is recommended for simultaneous recording with 4 multimeters.

❒ **Usable with following instruments:**
METRAHIT I ONE PLUS, 16I, 16T, 16U
METRAHIT I 22S / M, 23S, 24S, 25S, 26S / M, 28S, 29S

Included with SI232-II:
• Memory adapter

Included with 1Ch. Pack II:
• Memory adapter
• METRAwin10/METRAHit software
• RS 232 interface cable, Z3241
• Installation instructions

Included with 4Ch. Pack II:
• Same as 1Ch. Pack II with
  4 memory adapters

Type	Data Sheet No.	Article Number
SI232 II	–	GTZ3242020R0001
1-Ch. Pack II	–	GTZ3231020R0001
4-Ch. Pack II	–	GTZ3234020R0001

FMA1

EE and B Field Measuring Adapter for Measurement of Low Frequency Alternating Fields

Field measuring adapter for measuring and recording electrical and magnetic fields

■ Suitable for short and long-term recording of EM fields and measurement data analysis at the PC in combination with METRAHIT 26M and 29S, and with the SI232 II memory interface

■ Orientation measurements in accordance with federal regulations (BIMSCHG)

■ Testing for radiation at CRT monitor workstations in accordance with MPRII and TCO

■ High dynamic range assures reliable measurement values, even at 100 % overranging

■ Recording of fluctuating field strengths and analysis of peak values with a multimeter and METRAwin10 software

■ E field: 0 … 300 V / m … 30 000 V / m, 10 %

■ B field: 0 … 3 µT … 300 µT, 5 %

■ Frequency: 15 Hz … 100 kHz with activatable low-pass filter, 2 kHz (METRAHIT 26 up to 20 kHz)

■ Dimensions (W x H x D), weight:
Control module: 97 x 135 x 39 mm, 210 g with batteries
Probe: 43 x 130 x 28 mm, 130 g

❒ **Usable with following instruments:** METRAHIT 26S/M, 28S, 29S

Scope of delivery:
• Field measuring adapter
• Field measuring probe with
  special conductive rubber handle
• Batteries: 2 ea. 1.5 V AA
• Operating instructions

Type	Data Sheet No.	Article Number
FMA1	3-348-854-03	Z108A

EMA1

Energy Measuring Adapter for Ferraris Meters

Plug-on adapter for energy measurement at Ferraris meters without altering the electrical installation.

Used to record energy curves (15-minute mean values), and is also an important tool for energy consultants for detecting power peaks and potential energy savings in large facilities, systems etc.

❒ **Usable with following instruments:** METRAHIT 29S

Scope of delivery:
• Energy measuring adapter
• Power pack
• Batteries: 2 ea. 1.5 V AA
• Operating instructions for control unit
• Operating instructions for sensor

Type	Data Sheet No.	Article Number
EMA1	3-348-994-03	Z112A

SM16, PMA16

SM16 Current Measuring Adapter
For safe, trouble-free measurement of current consumption via the mains plug of connected power consumers.
The cable with contact-protected connectors is connected directly to the current measurement sockets at the multimeter.

❑ **Usable with following instruments:**
METRAHIT I X-TRA, PRO, TECH, EXTRA, ETECH, ESPECIAL,
METRAHIT I OUTDOOR, T-COM, ISO,
METRAHIT I ONE PLUS, 23S, 24S, 25S, 26S / M, 28S, 29S, 1A, 2A,
METRAmax 2, 3, 12
METRAport 3A, 32S, 32XS, 40S

PMA16 Power Measuring Adapter
The power measuring adapter is an intermediate plug for the measurement of power consumption at single-phase consumers with an additional cable for connection to the multimeter's voltage path.

❑ **Usable with following instruments:**
METRAHIT I 29S

Included with SM16:
• Current measuring adapter

Included with PMA16:
• Power measuring adapter
• Operating instructions

Type	Data Sheet No.	Article Number
SM16	–	GTM9070190E0001
PMA16	–	Z228A

NA HIT 2x

Mains Power Pack: 90 ... 250 V AC / 5 V DC
The power pack allows for battery-saving mains operation, in particular for continuous measurement using multimeters with internal memory.
■ Modified plug connectors for below mentioned instruments manufactured as of 2004
■ Broad range input: 50 / 60 Hz – measuring category: CAT IV at 600 V

❑ **Usable with following instruments:**
METRAHIT I 27M, 27I, 28C, 28S, 29S, 30M

Scope of delivery:
• Power pack

Type	Data Sheet No.	Article Number
NA HIT 2x	–	Z218H

NA X-TRA

Mains Power Pack: 90 ... 250 V AC / 5 V DC
Power pack for battery-saving mains operation, for continuous measurement using multimeters with internal memory
■ Broad range input: 50 / 60 Hz
■ Measuring category: CAT IV at 600 V

❑ **Usable with following instruments:**
METRAHIT I X-TRA, EXTRA, OUTDOOR, T-COM, ISO, CAL, 27M, 27I

Scope of delivery:
• Power pack

Type	Data Sheet No.	Article Number
NA X-TRA	–	Z218G

Z206D

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

❑ **Usable with following instruments:**
METRAHIT I X-TRA, TECH, OUTDOOR, EXTRA, ETECH, T-COM, ISO,
METRAHIT I 27M, 27I

Included with Z206D:
• Quick charger

Type	Data Sheet No.	Article Number
Z206D	–	Z206D

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Shunts

Shunt Resistors for Multimeters Without Current Measuring Function

The shunt resistors serve as adapters for multimeters without their own current measuring function, or for extending the current range (NW10A).

■ **NW300mA:** 300 mA – 1 Ω – class 0.5 – 1 mV / mA

■ **NW3A:** 3 A – 0.1 Ω – class 0.5 – 600 V – CAT. IV – 100 mV / A

❏ **Usable with following instruments:**
METRAHIT I BASE, PRO, TECH, X-TRA, OUTDOOR,
METRAHIT I EBASE, ETECH, ESPECIAL, EXTRA, T-COM
METRAHIT I 16I, 16T, 16U, 22S, 22M

■ **NW10A:** 10 A / 100 mV – class 0.5

❏ **Usable with following instruments:**
METRAHIT I 16I, 16T, 16U, METRAmax 2, 3

Scope of delivery:
• Shunt resistor

Type	Data Sheet No.	Article Number
NW300mA	–	Z205C
NW3A	–	Z205B
NW10A	–	GTZ0156000R0001

AC / DC current sensors

AC-DC Current Sensors with Voltage Output, mV / A

Current within conductors can be conveniently and safely measured with current transformer clamps and multimeters.

Advantages:

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

■ Measurement of current up to 2000 A – no multimeter overloading due to current surges

❏ **Usable with following instruments:**
METRAHIT I BASE, PRO, TECH, X-TRA, OUTDOOR, T-COM,
METRAHIT I EBASE, ETECH, EXTRA, ESPECIAL
METRAHIT I 2, ONE Plus,
METRAHIT I 16I, 16T, 16U, 27M, 27I
METRAHIT I 22S/M, 23S, 24S, 25S, 26S/M, 28S, 29S, 30M
METRAmax 2, 12
METRAport 3A, 32S/XS, 40S

Z201A　　Z202A

Z203A

Z13B

Included with Z201A / 202A / 203A:
• Current sensor with connector cable
• 9 V flat-cell battery

Included with Z13B:
• Current sensor with connector cable
• 9 V flat-cell battery
• Operating instructions

Type	Data Sheet No.	Article Number
Z201A	–	Z201A
Z202A	–	Z202A
Z203A	–	Z203A
Z13B	3-349-085-03	Z213B

Type	Measuring Range	CAT at V	Wire Dia. in mm	Trans. Ratio	Frequency Range	Intrinsic Error ± (% rdg. + A)
Z201A	0.01 ... 30 A⎓ / 0.01 ... 20 A~	III at 300	19	100 mV/A	DC ... 400 Hz / ... 20 kHz	1 %
Z202A	0.1 ... 30/300 A⎓ / 0.1 ... 20/200 A~	III at 300	19	10 mV / A / 1 mV / A	DC ... 2 kHz / ... 10 kHz	1 % + 0.03 / 1 % + 0.3
Z203A	1 ... 300/1000 A⎓ / 1 ... 200/1000 A~	III at 300	31	1 mV/A	DC ... 10 kHz	1 % + 0.5
Z13B	0.5 ... 60/600 A⎓ / 0.2 ... 40/400 A~	IV at 300	50	10 mV / A / 1 mV / A	DC ... 65 Hz / ... 10 kHz	1.5 % / 2 %

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AC current sensors

AC Current Sensors with Voltage Output, mV / A

Current within conductors can be conveniently and safely measured with current transformer clamps and multimeters.
The following advantages result:

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

■ Measurement of current up to 2000 A –
  no multimeter overloading due to current surges

❒ **Usable with following instruments:**

WZ12B / WZ12C:

METRAHIT I BASE, PRO, TECH, X-TRA, OUTDOOR, T-COM,
METRAHIT I EBASE, ETECH, EXTRA, ESPECIAL,
METRAHIT I 2, WORLD, ONE Plus, 16I/T/U,
METRAHIT I 22S/M, 23S, 24S, 25S, 26S/M, 28C, 29S, 30M;
METRAport 3A

WZ11B:

METRAHIT I – same as WZ12B and METRAHIT 1A, 2A;
METRAmax 2, 12; METRAport 3A, 32S, 32XS, 40S

Z3512A:

METRAHIT I – same as WZ12B and METRAHIT 27I, 27M;
METRAmax 2, 12; METRAport 3A, 32S, 32XS, 40

Scope of delivery
- Current sensor
  with connector cable
- Operating instructions

WZ12B/C

WZ11B   **Z3512A**

Type	Data Sheet No.	Article Number
WZ12B	3-349-017-03	Z219B
WZ12C	3-349-017-03	Z219C
WZ11B	3-349-017-03	Z208B
Z3512A	–	Z225A

Type	Measuring Range	CAT at V	Wire Dia. in mm	Trans. Ratio	Frequency range	Intrinsic Error ± (% rdg. + A)
WZ12B	0.01…100 A AC	III at 300	15	0.1 mV / mA	45…65…500 Hz	1.5 % + 0.1 m
WZ12C	0.001…15 A AC / 1…150 A AC	III at 300	15	1 mV / mA /1 mV / A	45…65…500 Hz	3 % + 0.15 m / 2 % + 0.1
WZ11B	0.5…20 A AC / 5…200 A AC	III at 600	20	100 mV/A / 10 mV/A	30…48…65 / …500 Hz	1…3 %
Z3512A	0…1000 A AC	III at 600	52	1 mV / 1 V / A	10…48…65 Hz / …3 kHz	0.2 %…0.7 %

Flexible Current Sensors

Flexible Current Sensors with Voltage Output, mV / A

Current sensors for measuring alternating current at difficult to access places, highly insulated and can generally be switched at a ratio of 1:10 with a range selector. Maximum phase error is 2.5° at a frequency of up to 1 kHz.

❒ **Usable with following instruments:**

METRAHIT I EBASE, ETECH, EXTRA, ESPECIAL,
METRAHIT I BASE, PRO, TECH, X-TRA, OUTDOOR, ISO, T-COM
METRAHIT I 2, WORLD, ONE Plus,
METRAHIT I 16I/T/U, 27M, 27 I
METRAHIT I 22S/M, 23S, 24S, 25S, 26S/M, 28C, 29S, 30M
METRAmax 12
METRAport 3A, 32S, 32XS, 40S

AF11A
AF033A
AF33A
AF101A

METRAFLEX 3000

Scope of delivery
- AmpFLEX current sensor
- 9 V flat-cell battery
- Operating instructions

- Current sensor
  METRAFLEX 3000
- 2 ea. 1.5 V battery (AA)
- Operating instructions

Type	Data Sheet No.	Article Number
AF11A	3-348-845-03	Z207D
AF033A	3-348-845-03	Z207A
AF33A	3-348-845-03	Z207B
AF101A	3-348-845-03	Z207C
METRAFLEX 3000	–	Z207E

Type	Measuring Range, A DC, AC	CAT at V	Loop Circumf., mm	Trans. Ratio mV/A	Frequency Range	Intrinsic Error ± (% rdg. + mA)
AF11A	0.5…1 kA : 1 V	III at 1000	450	1	10…100 Hz / …20 kHz	1%±2
AF033A	0.5…30 A / 0.5…300 A : 3 V	III at 1000	600	100 / 10	10…100 Hz / …20 kHz	1%±50 / 1%+5
AF33A	0.5…300 A / 0.5…3000 A : 3 V	III at 1000	900	10 / 1	10…100 Hz / …20 kHz	1%±5 / 1%+2
AF101A	0.5…1 kA / 50…10 kA : 1 V	III at 1000	1200	1 / 0.1	10…100 Hz / …20 kHz	1%±2 / 1%+1
METRAFLEX 3000	30 / 300 / 3000 A	III at 1000 IV @ 600	610	100 / 10 / 1	10 Hz…10 kHz	1%±100

Made in Germany

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AC current transformer

AC Current Transformers with Current Output, mV / A

Current within conductors can be conveniently and safely measured with current transformer clamps and multimeters.
The following advantages result:

- ■ The electrical circuit need not be interrupted – no electrical connection to the conductor
- ■ Measurement of current up to 2000 A – no multimeter overloading due to current surges

❒ **Usable with following instruments:**

WZ12A:
METRAHIT I PRO, TECH, X-TRA, OUTDOOR, T-COM, ISO, METRAHIT I ETECH, EXTRA, ESPECIAL,
METRAHIT I 23S, 24S, 25S, 26S/M, 28C, 29S,
METRAport 3A

WZ12D:
METRAHIT I PRO, TECH, X-TRA, OUTDOOR, T-COM, ISO, METRAHIT I ETECH, EXTRA, ESPECIAL,
METRAHIT I ONE Plus, 23S, 24S, 25S, 26S/M, 28C, 29S,
METRAport 3A

WZ11A:
METRAHIT I PRO, TECH, X-TRA, OUTDOOR, T-COM, ISO, METRAHIT I ETECH, EXTRA, ESPECIAL,
METRAHIT I 23S, 24S, 25S, 26S/M, 28C, 29S, 1A, 2A
METRAmax 2, 12
METRAport 3A, 32S, 32XS, 40S

Z3511:
METRAHIT I PRO, TECH, X-TRA, T-COM, ISO, METRAHIT I ETECH, EXTRA, OUTDOOR, ESPECIAL,
METRAHIT I ONE Plus, 23S, 24S, 25S, 26S/M, 28S, 29S, 1A, 2A
METRAmax 2, 12
METRAport 3A, 32S, 32XS

Z3512:
METRAHIT I PRO, TECH, X-TRA, OUTDOOR, T-COM, ISO, METRAHIT I ETECH, EXTRA, ESPECIAL,
METRAHIT I ONE Plus, 23S, 24S, 25S, 26S/M, 28S, 29S, 1A, 2A
METRAmax 2, 12
METRAport 3A, 32S, 32XS, 40S

Z3514:
METRAHIT I PRO, TECH, X-TRA, OUTDOOR, T-COM, ISO, METRAHIT I ETECH, EXTRA, ESPECIAL,
METRAHIT I 23S, 24S, 25S, 26S/M, 28S, 29S,
METRAmax 2, 12
METRAport 3A, 32S, 32XS, 40S

Scope of delivery
- Current sensor with connector cable
- Operating instructions

WZ12A/D

Z3511

WZ11A

Z3512

Z3514

Type	Data Sheet No.	Article Number
WZ12A	3-349-017-03	Z219A
WZ12D	3-349-017-03	Z219D
WZ11A	3-349-017-03	Z208A
Z3511	–	GTZ3511000R0001
Z3512	–	GTZ3512000R0001
Z3514	–	GTZ3514000R0001

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

GOSSEN METRAWATT

High frequency probe

High Frequency Probe: 100 kHz – 750 MHz, 0.25 … 50 VAC
In combination with a multimeter, the Z3431-2 high frequency probe allows for measurement of alternating voltages with an amplitude of 0.25 V … 50 V within a frequency range of 100 kHz … 750 MHz.
The probe rectifies alternating voltages at a ratio of 1:1.
The measuring instrument must have an input impedance of 10 MΩ.

❒ **Usable with following instruments:**
METRAHIT I X-TRA, EXTRA, 2, WORLD, ONE Plus, 16I/T/U, 27M, 27I
METRAHIT I 22S/M, 23S, 24S, 25S, 26S/M, 28S, 29S, 30M
METRAmax 2, 12
METRAport 3A, 32S, 32XS, 40S

Scope of delivery
• High frequency probe

Type	Data Sheet No.	Article Number
Z3431-2	–	GTZ3431002R0001

Temperature Probes

Temperature Probes (type K / NiCr-Ni)
Z3431-3 with a permanently attached, standard immersion sensor.
Z3431-4 and **Z3431-9** for plugging onto Z3431-5 … 8 sensors.
Suitable for temperature measurement from −25° C to +1150° C.
The measurement output is connected to the mV / V measurement input at the multimeter.

❒ **Usable with following instruments:**
METRAHIT I TECH, ETECH, T-COM, ISO, ONE Plus, 16I/T/U, 27M, 27I
METRAHIT I 22S/M, 23S, 24S, 25S, 26S/M, 28S, 29S, 30M
METRAmax 2, 12
METRAport 32S, 32XS, 40S
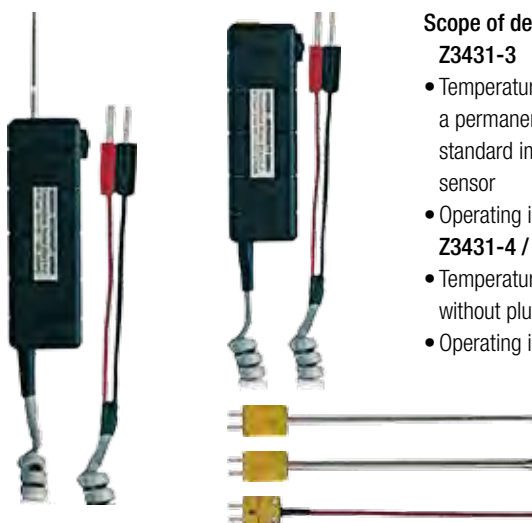
Scope of delivery
Z3431-3
• Temperature probe with a permanently attached, standard immersion sensor
• Operating instructions
Z3431-4 / Z3431-9
• Temperature probe without plug-in sensor
• Operating instructions

Type	Designation
Z3431-5	Standard plug-in immersion sensor, to +1100° C
Z3431-6	Standard plug-in immersion sensor, to +850° C
Z3431-7	High-temperature plug-in sensor tape, to +450° C
Z3431-8	Flexible, insulated plug-in sensor, to +250° C

Type	Data Sheet No.	Article Number
Z3431-3	–	GTZ3431003R0001
Z3431-4	–	GTZ3431004R0001
Z3431-9	–	GTZ3431009R0001
Z3431-5	–	GTZ3431005R0001
Z3431-6	–	GTZ3431006R0001
Z3431-7	–	GTZ3431007R0001
Z3431-8	–	GTZ3431008R0001

Type	Z3431-3	Z3431-9	Z3431-4
Measuring range	−20° C … +350° C		−25° C … +1150° C
Sensor type	NiCr-NiAl, type K thermocouple		
Accuracy (without sensor)	± (0.5 % rdg. + 0.5° C)		± (1 % rdg. + 1° C)
Required multimeter input impedance	> 10 KΩ		
Output voltage	1 mV / °C		
Operating temperature	5 C … 45° C		
Dimensions / weight (without sensor)	118 x 37 x 211 mm / 140 g		118 x 37 x 211 mm / 110 g
Power supply	1.5 V baby cell, 250 hour service life		

GOSSEN METRAWATT

Temperature sensor

Z3409: PT 100 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

☐ **TF400CAR usable with following instruments:**
METRAHIT I X-TRA, EXTRA, OUTDOOR, ISO, T-COM,
METRAHIT I ONE Plus, 16I/T/U,
METRAHIT I 22S/M, 23S, 24S, 25S, 26S/M, 28C, 28S, 29S, 30M
METRAport 32S, 32XS, 40S

☐ **Z3409 / TF220 / TF550 additionally with following instruments:**
METRAHIT I 27I/M

☐ **TF400SURFACE usable with following instruments:**
METRAHIT I BASE, PRO, TECH, X-TRA, OUTDOOR, ISO, T-COM,
METRAHIT I EBASE, ESPECIAL, ETECH, 2, WORLD
METRAHIT I 28C, 28S, 29S, 30M
METRAport 32S, 32XS, 40S
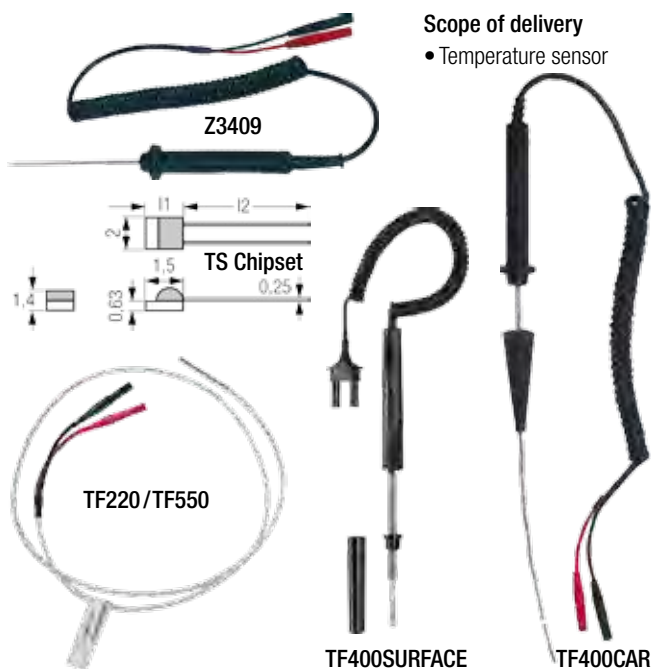
Scope of delivery
• Temperature sensor

Z3409

TS Chipset

TF220 / TF550

TF400SURFACE   TF400CAR

Type	Data Sheet No.	Article Number
Z3409	–	GTZ3409000R0001
TF550	–	GTZ3408000R0001
TF220	–	Z102A
TF400CAR	–	Z102C
TF400SURFACE	–	Z102E
TS Chipset	–	GTZ3406000R0001

Type	Z3409	TF550	TF220	TF400CAR	TF400SURFACE	TS Chipset
Sensor element	Pt100		Pt1000		K (NiCr-Ni)	Pt100
Length of sensor element / sensor in mm	130 / 1000	40 / 1500	39 / 1500	810 / 2310	280 / 130	2,3 / 10
Temperature range, °C	−40 … +600	−50 … +550	−50 … +220	−50 … +500	−50 … +400	−50 … +550
Accuracy per DIN EN 60751 / IEC 751	Class A	Class B			–	Class B
Intrinsic error in K at 0°C / … °C	0.15 / 600 : 1.35	0.3 / 550 : 3.1	0.3 / 220 : 1.4	–/–		0.4 / 550 : 3.1
Transient recovery, T90 water / air	5 s / 30 s	8 s / 33 s		–/–	2 s	0.3 s / 15 s
Lead	2 wires x 0.35 mm^2					0.25 mm dia. / Ni-Pt
Outer jacket / insulation	PVC / PVC	V4A / glass	Teflon / Teflon	PVC / PVC	PVC / PVC	–/–

Kelvin Clips / Kelvin Probes

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

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

KC27: Kelvin probes (1 set = 2 pieces) with 2 stainless steel tips for 4-pole connection of low-resistance DUTs, 120 cm cable length

☐ **Usable with following instruments:**
METRAHIT I 27I/M/EX, 28C, Calibrator Pack CP28, 30M
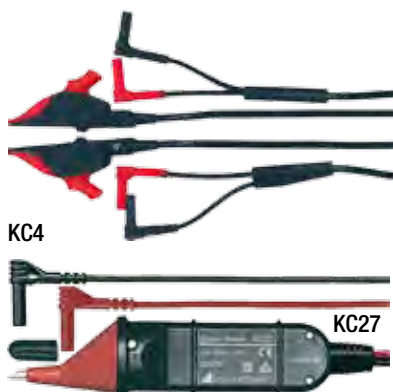
Scope of delivery
• KC4: 2 Kelvin clips
• KC27: 2 Kelvin probes

KC4

KC27

Type	Data Sheet No.	Article Number
KC4 Set	–	Z227A
KC27 Set	–	Z227B

GOSSEN METRAWATT

Cable Sets, Accessories

Cable Sets with Permanently Mounted Test Probes and Contact-Protected Angle Plugs for Safe Measuring.
Hook clips, alligator clips or push-on lugs can be attached to the test probes for special measuring tasks.

- **KS17-ONE** cable set: 600 V / CAT III, max. 16 A, 130 cm long
- **KS17-2** cable set: 1000 V / CAT III – 600 V / CAT IV, max. 16 A, 130 cm long
- **KS17S** cable set: 1000 V / CAT III, 120 cm long, 2 mm dia. steel tips
- **KS-NTS** cable set: 1000 V/CAT III – 600 V/CAT IV, max. 20 A, double insulated silicon measuring cables (1.2 m), with one pair each small test probes, alligator clips, clip hooks and North American test probes
- **KS21T** cable set: 150 V / CAT II, 200 cm long, for cable multimeters
- **KS29 cable set:** safety cable set for power meters
- **KY94** hook clip
- **KY95-1** alligator clip, 300 V / CAT III
- **KY95-2** alligator clip, 1000 V / CAT III, 19 A
- **KY96** push-on lug

☐ **Usable with following instruments:**
KS17-ONE:
METRAHIT I ONE Plus, 16I/T/U, 22S/M, 23S, 24S, 25S, 26S/M, METRAHIT I 27M/I, 28C, 28C light, 28S, 29S, 30M, 1A, 2A
METRAHIT I 2, WORLD
METRAmax 2, 3, 6, 12
METRAport 3A, 32S, 32XS, 40S

KS17-2 – KS17S – KS-NTS:
same instruments as KS17-ONE, plus:
METRAHIT I BASE, PRO, TECH, X-TRA, OUTDOOR, T-COM, ISO, CAL, METRAHIT I EBASE, ETECH, EXTRA, ESPECIAL

KS21T:
METRAHIT T-COM, CAL, 16U

KS29:
METRAHIT I 29S

☐ **KY94 / KY95-1 / KY95-2 / KY96 usable with**:
KS17-ONE, KS17-2, KS21T

KS17-ONE
KS17-2
KS29   KY94

KY95-1

KY96   KY95-2

KS17-S

KS-NTS

KS21-T

KS17-ONE
KS17-2

Scope of delivery
- KS17-ONE cable set
- KS17-2 cable set
- KS17S cable Set
- KS-NTS cable set including one pair each test probes, alligator clips, hook clips, North American test probes
- KS21T cable set consisting of one 2-conductor test cable (yellow/blue) and earth terminal cable (black) with test probes
- KS29 cable set
- KY94 hook clips (1 pair)
- KY95-1 alligator clips (1 pair)
- KY95-2 alligator clips (1 pair)
- KY96 alligator clips (1 pair)

Type	Data Sheet No.	Article Number
KS17-ONE	–	Z110K
KS17-2	–	GTY3620034P0002
KS17S	–	Z110H
KS-NTS	–	Z110W
KS21T	–	Z110U
KS29	–	Z229A
KY94	–	GTY3610094P01
KY95-1	–	GTZ3215000R0002
KY95-2	–	Z110J
KY96	–	GTY3610096P01

RS 232 interface cable

RS 232 Interface Cable for Connecting PC and Measuring Instrument
- **2 meters long, 9-pin subminiature plug/socket connector, 1:1 uncrossed**

☐ **Usable with following instruments:**
METRAHIT I ONE Plus, 16I/T/U, 22S/M, 23S, 24S, 25S, 26S/M, 27M/I/EX, 28S, 29S, 30M

Scope of delivery
- RS 232 interface cable

Type	Data Sheet No.	Article Number
Z3241	–	GTZ3241000R0001

Made in Germany

GOSSEN METRAWATT

METRAwin 10 / METRAHit

System Software for METRAHIT Multimeters

Any METRAHit multimeter can be transformed into a professional, PC-based universal recording system with METRAwin 10 and an interface adapter or a memory adapter.

Measured values are queried from the multimeters, managed at the PC and displayed as Yt or XY diagrams (up to 6 channels), or in tabular format (up to 10 channels) with METRAwin 10.

In the online mode, measurement data are displayed at up to 4 virtual indicator instruments or digital displays with adjustable limit values. High performance, online arithmetic functions allow for data analysis and evaluation. The sampling interval can be set within a broad range depending upon the type of utilized multimeter and the selected measuring function:

online: 50 ...100 ...200 ...500 ms – 1s ... – 60 min., or offline to the clipboard at max. 0.5 ms (METRAHIT 29S).

Measurement data can be imported to other Windows PC applications such as Word and Excel via the clipboard.

METRAwin 10 runs under Windows 95, 98, ME, NT, 2000 and XP.

■ **Multimeter and Indicator Instrument**
Uploaded measured values are displayed at the screen both digitally and at an analog scale.

■ **Data Logger**
Acquired measurement data are displayed chronologically at the screen in easy to read tabular format.

■ **Arithmetic Functions**
Measurement data from different channels can be linked and processed with high performance arithmetic functions.

■ **Yt Diagram**
Acquired measurement data are displayed at the screen as a time graph with a horizontal time axis, and are measured off with two cursors. Stored signals can be expanded or compressed along the amplitude or time axis (zoom function). The time axis can be scaled in absolute time, or in relative measuring time.

■ **Line Recorder**
Up to 10 channels can be printed out continuously as a Yt line graph at a color printer.

■ **XY Diagram**
Acquired data are displayed as an XY graph and are measured off with the cursors. As is the case with all display formats, all scales can be freely adjusted.

■ **Sampling**
Sampling can be started either manually (mouse click), automatically with an adjustable interval (50 ms to 1 hr.) or in a signal dependent fashion with adjustable signal hysteresis (0 to 500 digits). The minimum sampling interval for devices with integrated memory is 0.5 ms. Data can be controlled with time and window triggers, and can be saved automatically as multiple data files.

❒ **Usable with following instruments:**
METRAHIT I EBASE, ETECH, EXTRA, OUTDOOR, ESPECIAL, METRAHIT I X-TRA, T-COM, WORLD, ONE Plus, 16I/T/U, 27M/I/EX, METRAHIT I 22S/M, 23S, 24S, 25S, 26S/M, 28C, 28S, 29S, 30M, 1-Ch-Pack, 4-Ch-Pack, BD-Pack 1, calibrator pack CP28

Scope of delivery
- CD with system software, installation instructions, operating instructions and driver software
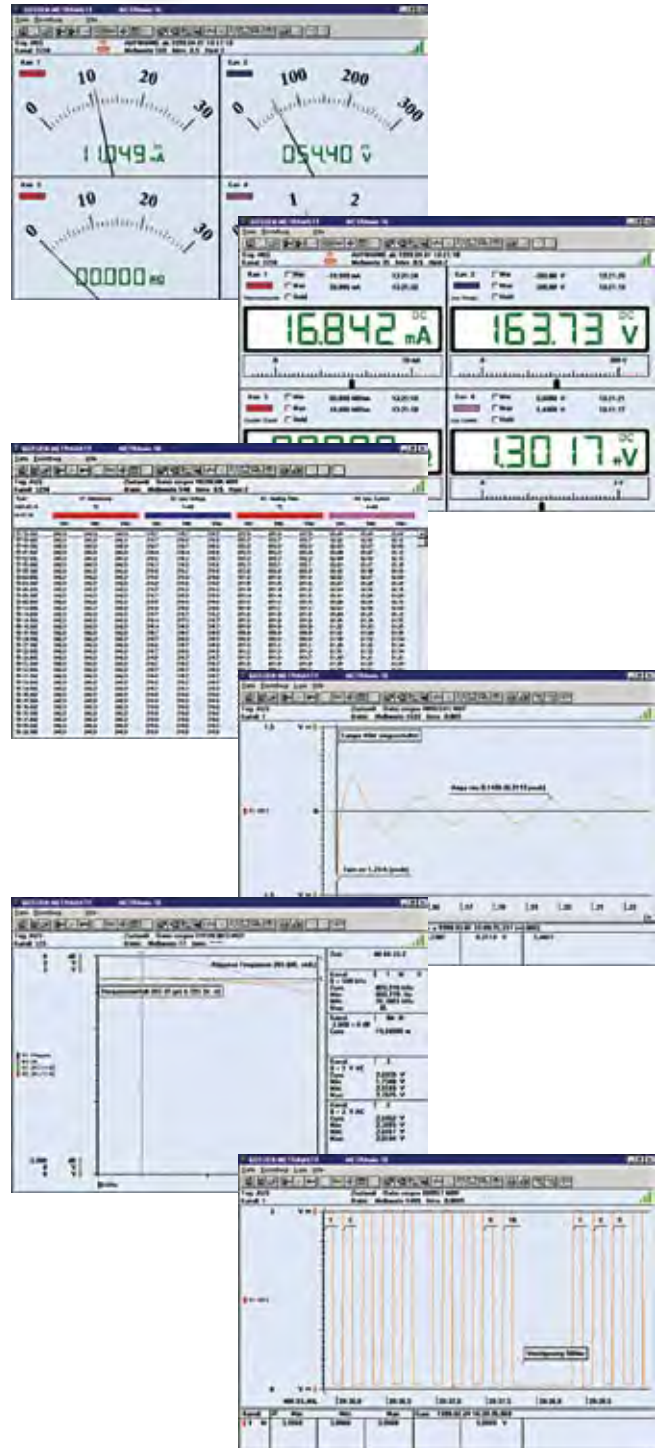
Type	Data Sheet No.	Article Number
METRAwin 10/METRAHit	–	GTZ3240000R0001

METRAwin 90-2

Calibration Software for Controlling the METRAHIT CAL and for Analysis of Calibration Results

The handheld calibrator with multimeter is transformed into a professional, PC-based calibration system for measuring transducers, indicators and recording instruments 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 BD232 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).

❐ **Usable with following instruments:**
METRAHIT I CAL, CAL Pack, 28C, 28C light, Calibrator Pack CP28
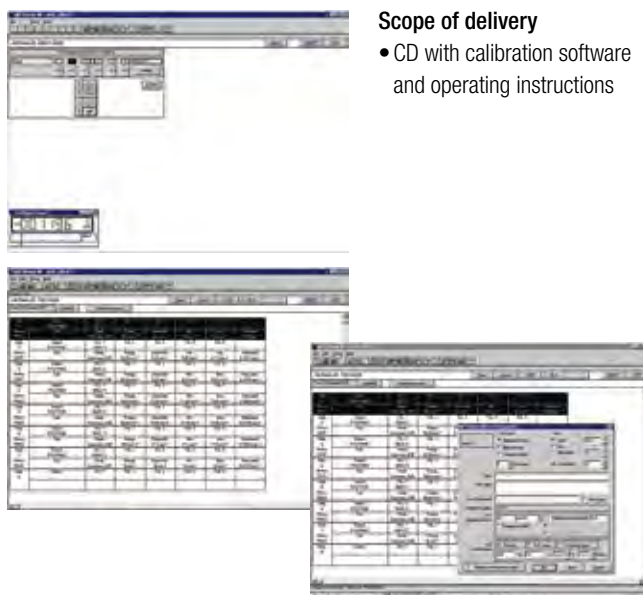
Scope of delivery
• CD with calibration software and operating instructions

Type	Data Sheet No.	Article Number
METRAwin 90-2	3-349-098-03	Z211A

METRAwin 90-F / -FJ

A universal, professional, automated closed-loop calibration system for METRAHIT multimeters can be set up with METRAwin 90-F / -FJ, an IEEE 488 interface at the PC and a Fluke 5500A, 5520A or 5700A calibrator.

Also suitable for for universal use for the calibration of analog and digital multimeters, recorders and power meters, power measuring transducers, amplifier modules, transducers etc. Calibration procedures are generated with METRAwin 90-F. Specified analog values are transmitted via the IEEE 488 interface from the PC to the calibrator and are fed to the device to be calibrated from the analog output at the calibrator. A BD232 adapter is coupled to the computer via an RS 232 cable for automatic transmission of measurement results from the METRAHIT multimeter to the computer. In the case of measuring transducers, the analog output value from the device to be calibrated is measured by a 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.

■ Automated calibration of multimeters with infrared interface

■ Adjustment of the METRAHIT 22-29S/M via RS 232 interface

■ Generation, testing and documentation of calibration procedures

■ Outstanding applications flexibility with calibration signal correction by means of key entry or via the interface

■ Documentation is printed out as a standard calibration report, or as a user-specific certificate

■ Dynamic data exchange with Microsoft Excel and Word

■ Documentation with all entries required for certificates in accordance with EN ISO 9000

■ "Determination of measuring uncertainty" in accordance with DKD-3 after a specified number of measurements

■ Specification of calculated measuring uncertainty in accordance with DKD-3 or TUR (test uncertainty ratio) included in the report
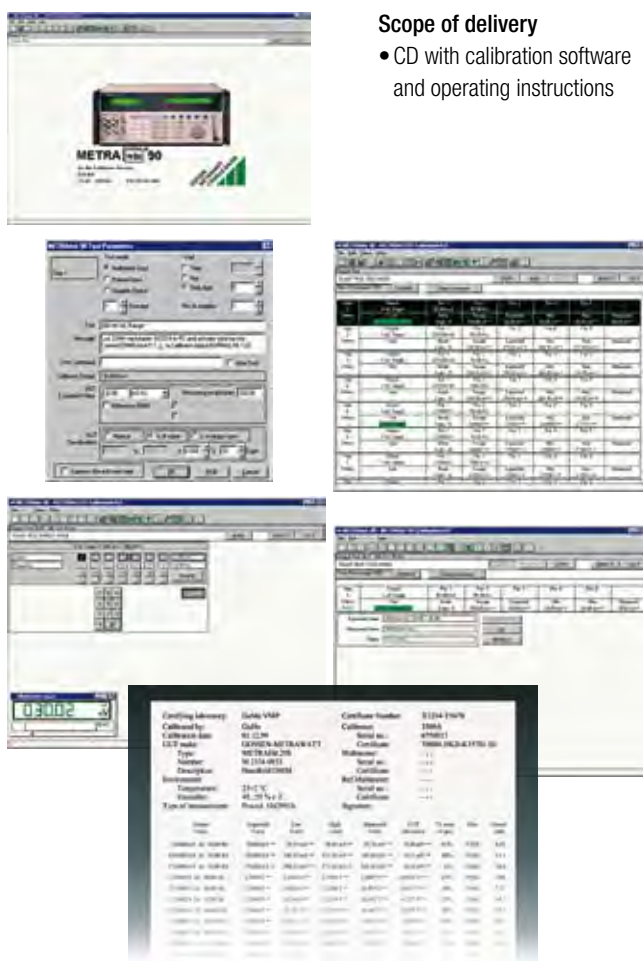
Scope of delivery
• CD with calibration software and operating instructions

Type	Data Sheet No.	Article Number
METRAwin 90-F	–	Z211C
METRAwin 90-FJ	–	Z211F

Made in Germany

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METRAHIT 1ASi

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

- ■ 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
- ■ Data transmission and management, as well as documentation of system parameters with optional software
- ■ Connection with jack plugs

- ❐ **Optional accessories**
  Z206B: battery set with 4 rechargeable NiMH batteries, 1600 mAh, and charger
  Z231G: module base
  Z113A: HC20 hard case for METRAHit 1ASi

Scope of delivery:
- • ASi addressing device and tester
- • 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
- • Operating instructions

Type	Data Sheet No.	Article Number
METRAHIT 1ASi	3-349-434-03	M235H
1ASi battery set	–	Z206B
Module base	–	Z231G
HC20	–	Z113A

GOSSEN METRAWATT

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METRAT**HERM** I **1**

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, for scientific experiments, manufacturing processes in the field of semiconductor technology, contacts in electrical control cabinets, and food monitoring and processing

- Infrared temperature measuring range: -50 ... 1000° C (-58 ... 1832° F)
- Exact positioning with laser sighting (can be activated if desired)
- High distance-to-spot size ratio (D:S): 50:1
- Emissivity adjustable from 0.1 to 1.00 in steps of 0.01
- Additional contact measurements with type K thermocouple
- Selectable unit of measure: °C or °F
- Individual/continuous measurements, 10 memory locations for individual measurements
- Storage of current measured temperature, lowest and highest temperature or maximum temperature difference ΔT
- Illuminated LCD panel
- Alarm function: acoustic signal if selectable limit values are exceeded or fallen short of
- USB port for data transmission to a PC
- Software for displaying and recording measured values (data logger)

Software included for:
- Display of measured infrared temperature values with date and time
- Adjustment of the sampling interval for recording measured values
- Recording of measured values to a text file which can be exported to Microsoft Excel for evaluation
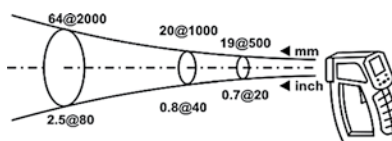
Scope of delivery
- Measuring instrument
- 9 V battery per 6LR61
- Carrying strap
- Type K thermocouple
- USB adapter cable
- CD ROM with installation program for PC display and recording software (data logger)
- Operating instructions in English and German

Type	Data Sheet No.	Article Number
METRATHERM 1	3-349-390-03	M680A

MobIR M3 / MobIR M4

Infrared Thermal Imaging Camera

Thermal Imaging Camera – Multi-Talent in Cell-Phone Format
- Thermal imaging for the building industry
- Leak finding
- Error diagnosis for equipment and machinery

Type	MobIR M3	MobIR M4
Thermal sensor	160 x 120 pixels Uncooled microbolometer (FPA)	
Spectral range	8 ... 14 μm	
Image display	8 different color ranges	
Sensitivity	Thermal: <= 120 mK at 30° C	
Electronic zoom	2 power	
Optical sensor	Thermal image	CMOS, 640 x 480 pixels, 16 million colors, thermal and actual image
Color LCD	2.2" TFT	2.2" TFT, high resolution
Laser pointer	−20° C ... +250° C	
Measuring range	Yes	
Interface	USB 1.1	
Memory	Flash memory 100 image files	1 GB
Dimensions / weight	120 x 60 x 30 mm / 0.265 Kg	

Scope of delivery
- Infrared camera
- 2 rechargeable Li-Ion batteries
- Charger
- USB cable
- USB driver software
- Camera software
- IR analyzer
- Earphone
- Leather holster
- Pouch with carrying strap
- Operating instructions

Type	Data Sheet No.	Article Number
MobIR M3	3-349-464-03	M680B
MobIR M4	3-349-464-03	M680C

Made in Germany

GOSSEN METRAWATT

MAVOLUX 5032 C / ..B *USB*

Precision Digital Measuring Instrument for Measuring Illuminance in Lux (lx) or Footcandles (fc)

Digital luxmeter for inspecting light sources and street illumination, for monitoring the illumination of workstations and public buildings, as well as sports and parking facilities, quality control for light sources, quality assurance for the production of lamps and light fixtures, as well as for agriculture and forestry applications. Very strong light can be measured with these instruments without the use of any accessories.

With a very high initial sensitivity of 0.01 lux, the MAVOLUX 5032 B USB is very well suited for measuring extremely minimal illumination intensities as well, for example emergency lighting. High precision in accordance with class B allows for use in certification applications and for inspection. The instruments can also be used as luminance meters with the help of a luminance attachment; the measuring angle is approximately 20°. Luminance indicates the perceived brightness of a luminous or reflecting surface, and is measured in candelas per square meter (cd/m²) or footlamberts (fL).

Scope of delivery:
- Measuring instrument in carrying case
- CD ROM with gLux software including device drivers
- USB cable
- 1.5 V AA battery
- Operating instructions

- ■ Precision measuring instrument for measuring illuminance in lux or footcandles

- ■ Measurement of luminance in cd/m² or fL by means of accessory luminance attachment; adapter disc for avoiding obliquely incident light

- ■ Large measuring ranges – high resolution – classified in accordance with DIN 5032-7 and CIE no. 69

- ■ Color corrected silicon photodiode, i.e. spectral sensitivity is matched to that of the human eye V(l) – the difference between the MAVOLUX 5032 C and the 5032 B is the accuracy of this matching

- ■ Cosine correction for obliquely incident light

- ■ Storage of up to 100 measured values

- ■ USB 1.1 interface

- ■ The instruments are also available with measurement cables in special lengths of 3, 5 or 10 meters for an additional fee (please specify when ordering)

- ❑ **Optional accessories:**
  Luminance attachment, cd/m² and fL (5908V0120)
  Adapter disc (M499G)
  Factory calibration certificate (H997B)

Type	Data Sheet No.	Article Number
MAVOLUX 5032 C *USB*	–	M502G
MAVOLUX 5032 B *USB*	–	M503G
Luminance attachment	–	5908V0120
Adapter disc	–	M499G
Factory calibration certificate	–	H997B

Model	MAVOLUX 5032 C *USB*	MAVOLUX 5032 B *USB*
Units of measure	Illuminance: Lux (lx) or footcandles (fc), luminance with attachment: candelas/m² (cd/m²) or footlamberts (fL)	
Measuring Ranges	0.1 … 199,900 lx / 0.01 … 19,990 fc 1 … 1,999,000 cd/m² / 0.1 … 199,900 fL in 4 ranges	0.01 … 199,900 lx / 0.001 … 19,990 fc 0.1 … 1,999,000 cd/m² / 0.01 … 199,900 fL in 5 ranges
Class	C per DIN 5032-7	B per DIN 5032-7
Display	3 ½-place LCD	3 ½-place LCD with background illumination
Receiver	Silicon photodiode with V (λ) filter	
Memory / sampling rate	100 individual measured values / 2 measurements per second	
Interface	USB 1.1	
Operating / storage temperature	0° C … + 50° C per EN 61010-1: 2001, section 1.4.1 / − 20° C … + 70° C	
Power supply	1.5 V AA (IEC LR 6)	
Software	gLux and other applications	
Measurement cable	Permanently attached, 1.5 m long	Plug-in cable, 1.5 m long
Dimensions / weight	Measuring instrument: 65 x 120 x 19 mm, probe: 31 x 105 x 30 mm / weight: approx. 200 g without battery	

GOSSEN METRAWATT

Made in Germany

MAVO-MONITOR *USB*

Luminance Meter for Class B Contact Measurement
Precision digital measuring instrument for measuring luminance.
In direct contact with self-luminous and transilluminated surfaces such as monitors (CRT / LCD background illumination), TV screens, light tables, trough luminaires, illuminated advertising surfaces, traffic signs and viewing screens.
A handy, special measuring instrument for professional use in industrial, commercial and service applications, for special approvals testing and inspection in accordance with existing safety regulations for example, and above all, at workstations with monitor screens, and in the fields of medical engineering and office technology.

- Precision measurement of luminance classified per DIN 5032-7, class B and EN 13032-1, appendix B
- The silicon photodiode is color corrected, i.e. its spectral sensitivity is matched to that of the human eye in daylight $V(\lambda)$.
- Measurement of luminance in cd/m² or fL
- Adapter disc for avoiding obliquely incident light
- Automatic and manual measuring range selection
- Storage of up to 100 measured values
- USB 1.1 interface

- **Optional accessories:**
  Factory calibration certificate (H997B)

Scope of delivery:
- Measuring instrument in carrying case
- CD ROM with gLux software including device drivers
- USB cable
- Adapter disc
- 1.5 V AA battery
- Operating instructions

Type	Data Sheet No.	Article Number
MAVO-MONITOR *USB*	–	M504G
Factory calibration certificate	–	H997B

Model	MAVO-MONITOR *USB*
Measuring methods / units of measure	Contact measurement, measuring area: 6.5 x 6.5 mm / either candelas/m² (cd/m²) or footlamberts (fL)
Measuring Ranges	0.01 … 19,990 cd/m² or 0.001 … 1999 fL in 4 ranges, automatic and manual measuring range selection
Class	B per DIN 5032-7 and DIN EN 13032-1, appendix B
Display	3½-place LCD with background illumination
Receiver	Silicon photodiode with V (λ) filter (f1 < 3%)
Memory / sampling rate	100 individual measured values / 2 measurements per second
Operating / storage temperature	0° C … + 50° C per EN 61010-1: 2001, section 1.4.1 / − 20° C … + 70° C
Power supply	1.5 V AA (IEC LR 6)
Software / interface	gLux and other applications / USB 1.1
Measurement cables / miscellaneous	Plug-in cable, 1.5 m long / tripod mounting thread
Dimensions / weight	Measuring instrument: 65 x 120 x 19 mm, probe: 31 x 105 x 30 mm / weight: approx. 265 g without battery

Please send RFQs, orders and requests for additional information to the address listed below.

Made in Germany

GOSSEN METRAWATT

Mains Quality – Energy – Power
MAVO**LOG** – MAVO**WATT** Series

Mains Quality – Always on the Safe Side with Clean Electrical Networks

Industry, commerce, health care services, banks and other service providers are extremely dependent upon electrical and electronic systems. These systems influence mains quality themselves in many ways, but they react extremely sensitively to disturbances as well. It's the entrepreneurial responsibility of all modern business operations to keep their own electrical systems under control – 24 hours a day under all possible conditions.

Action should be taken as soon as the first signs of poor mains quality appear such as overheated transformers and cables, excessive current in neutral conductors without any explicable cause, tripped protective devices, flickering lights, computer failures and data network problems, interference in telephone lines or inexplicably increased energy costs. Causes can be pinpointed and the elimination of faults can be implemented through the use of suitable measuring equipment.

There's a single convincing response to the numerous challenges faced by users in the area of electrical power supply: highly versatile MAVOWATT and MAVOLOG mains quality analyzers – power tools for mains quality assurance. With the help of these innovative products, all relevant measured quantities can be acquired which are decisive for the quality of electrical supply power. Disturbances and events can be easily pinpointed, documented and analyzed with reference to applicable standards – the perfect foundation for sustainable optimization. Optimization increases operating reliability, keeps product quality stable and assures high levels of cost effectiveness. And a stable electrical system provides a true sense of security.

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.

- ■ Determination of reactive power
- ■ Measurement of phase-to-phase voltage(s)
- ■ Ideal instrument for manufacturing, service and installation
- ■ Phase sequence indicator
- ■ cos φ measurement

❐ **Optional accessories:**
KS28 **cable set** consisting of:
5 measurement cables with test probe and cable lug,
5 alligator clips,
5 cable lugs

❐ **Optional:**
factory calibration certificate

Scope of delivery:
- Power meter
- Batteries
- Operating instructions

Type	Data Sheet No.	Article Number
MAVOWATT 4	3-348-801-03	GTM3033000R0001
KS28 cable set	–	GTY3620065P0001

Technical Data		
Direct current	Active power	12.5 kW
Single-phase alternating current	Active power	12.5 kW
3-wire, 3-phase, balanced load	Active power	25 kW
	Reactive power	25 kVar x √3
Nominal current		0.25 A / 0.01 A / 5 A / 1 A
Nominal Voltage		50, 100, 250, 500 V
Frequency range		10 Hz ... 400 Hz
AC-DC voltage measurement		50, 100, 250, 500 V
AC-DC current measurement		0.25 A / 0.01 A / 5 A / 1 A
Accuracy class		1.5 (2.5 P –, U, I)
Power supply		2 ea. 9 V flat cell, IEC 6 F 22, 6LF22 or 6LR61
Protection		Housing: IP 50 / terminals: IP 20
Dimensions / weight		W x H x D: 110 x 181 x 62 mm / 0.8 kg

GOSSEN METRAWATT

MAVOLOG|20P

The MAVOLOG 20P acquires and evaluates low voltage quality characteristics with nearly unlimited measuring and recording time.

Monitored quantities include line frequency, line voltage, asymmetry, flicker, THD, voltage dips, short and long voltage interruptions, as well as transient and power-frequency overvoltages. A traffic light display indicates whether or not voltage quality is OK or events have occurred, and if the permissible number of events has been exceeded. Limit values, measuring intervals and observation time periods can be freely configured with PQmonitor software, making measurement with preset parameters in accordance with EN 50160 possible, as well as adaptation to any desired customer-specific measuring tasks. After measurement has been completed, evaluation can be executed with the software at a PC and an official test report can be printed.

- ■ Simple quality control for electrical energy
- ■ Measurement in single and 3-phase systems, UN = 100 to 250 V TRMS
- ■ Power supply via the measurement inputs in the measuring mode
- ■ Predefined measuring parameters per EN 50160
- ■ Clear-cut traffic light display for mains quality
- ■ Data analysis and archiving via PQAmonitor software
- ■ Results report – printable test report for voltage quality
- ■ Fits into building terminal boxes, mains power distributors and mains switchgear
- ■ Functional compliance with standards: EN 50160, EN 61000-4-15
- ■ Compact design: 157 x 72 x 55 mm, minimal weight: 210 g

❒ **Optional accessories**
  Z864D accessory set
  Z864E NH adapter set
  Z864F programming set

❒ **PQAmonitor software for MAVOLOG 20P**
  Configuration, analysis and documentation software.
  User and application-specific adaptations can be executed before each measurement in the configuration mode with the help of PQA-monitor software. In addition to various graphic overview displays, a detail view indicating date, time and the extent to which the limit value has been exceeded is also available in the analysis mode. Information which is not required can be cleared from the graphic results overviews (display of frequencies) at any time.
  A test report can be printed out which documents the measurement of selected parameters and limit values, right on up to a detailed results overview.

Scope of delivery:
- • Tester
- • Operating instructions

Accessory set:
- • Carrying case
- • 3 fuse adapters
  for high-performance fuses
- • 10 fuses:
  500 mA / FF / 700 V, 50 kA
- • Safety pick-off clips:
  3 black, 1 blue
- • Safety measurement cables:
  1 x 200 cm, blue, 3 x 150 cm and
  3 x 50 cm, black
- • 1 start / stop transmitter

NH adapter set:
- • 3 measuring pick-offs, can be
  plugged onto l.v.h.b.c. fuses
  (sizes 00 … 3),
  integrated high-power fuse
- • 10 fuses:
  500 mA / FF / 700 V, 50 kA

Programming set:
- • PQAmonitor software
- • RS 232 adapter cable
- • Mains power pack: 90 … 264 V AC

Type	Data Sheet No.	Article Number
MAVOLOG 20P	3-337-173-03	M831A
Accessory set	3-337-173-03	Z864D
NH adapter set	3-337-173-03	Z864E
Programming set	3-337-173-03	Z864F

GOSSEN METRAWATT

MAVOWATT 30 Power Visa	MAVOWATT 40 Power Guide	MAVOWATT 70 Power Xplorer	MAVOWATT 50 Power Xpert
Measured Parameters			
4 differential voltage inputs, 1 to 600 V TRMS, AC/DC, +0.1% rdg. + 0.05% range, 256 samples per period, 16 bit ADC			4 differential voltage inputs, 1 to 150, 300, 600, 900 V TRMS, AC/DC, 0.1% rdg., 100 KHz sampling, 16 bit ADC
4 inputs for current sensors, 0.1 to 6000 A TRMS depending on sensor, AC/DC, +0.1% rdg. + CTs, 256 samples per period, 16 Bit ADC			
—	—	1 MHz high-speed sampling, 14 bit ADC, 1% FS	0.1 MHz high-speed sampling, 16 bit ADC, 0.2 % FS
Frequency range: 45 to 65 Hz and 15 to 20 Hz		Frequency range: 45 to 65 Hz and 15 to 20 Hz, 45 to 65 Hz and 380 to 420 Hz (MW 70-400 only)	Frequency range: 15 to 1000 Hz (fundamental)
			Suitable for frequency converters
Phase lock loop – standard PQ mode		Phase lock loop – standard PQ mode, generator correction	—
Interval function features			
Monitoring / Compliance			
EN50160 electrical supply quality / IEC 61000-4-30 class A / IEEE 1159			
Long-term monitoring / continuous data logging with min., max. and mean values			
—	In-rush current / making	In-rush current / making	—
—	Voltage error recording	Voltage error recording	—
—	-	Testing per military standard 1399 (MW 70-400 only)	—
Mains Quality Trigger			
Analyzes period by period			
RMS values in ½ period steps			10 µs sampling rate, RMS values in ½ period steps
L-L, L-N, N-PE changes in RMS values: voltage dips, overvoltages, voltage interruptions			
RMS value recording of voltage + current, 30 pre-cycles, 100 post-cycles	RMS value recording of voltage + current, 30 pre-cycles, 10,000 post-cycles		RMS value recording, 1750 values, adjustable pre-cycles / post-cycles
Waveform recordings, 2 / 6 / 2 cycles			Waveform recordings, 3500 values, 10, 20, 41, 82 or 164 µs sampling rate, adjustable
Low and medium frequency voltage/current transients			Medium frequency voltage/current transients
—	—	High-frequency voltage/current transients as of 1µs – 3% FS trigger	High frequency voltage/current transients
Parameters for evaluating harmonics			Parameters for evaluating harmonics
Trigger link for voltage and current channels			—
Characterization of RMS value events per IEC / EN 61000-4-30 or IEEE 1159			—
—	Answer modules for mains quality		—
—	—	Characterization of transients	—
Distortion / Power / Energy			
W, VA, VAR, TPF, DPF, consumption, energy etc.			
—	—	Parameters for distorted and asymmetrical systems per IEEE 1459	—
"THD / harmonic spectrum (U, I, P), sub-harmonics TID / sub-harmonic spectrum (U, I) up to 63rd per IEC / EN 61000-4-7"			THD / harmonic spectrum (U, I, P), sub-harmonics TID / sub-harmonic spectrum (U, I) up to 50th per IEC / EN 61000-4-15
Flicker Pst, Plt, floating Plt per IEC / EN 61000-4-15			Flicker Pst, Plt per IEC / EN 61000-4-15
Crest factor, K factor, transformer derating factor, telephone interference factor			Crest factor
Asymmetry (max. deviation from RMS value) and sequence components			Asymmetry
—	—	5 from user defined harmonics or signal frequencies	—
—	—	Vector/arithmetic parameters	—
Inputs / Outputs			
—	—	—	1 relay alarm output, 8 digital inputs – status, counter, synchronization to power utility's measuring interval, start/stop recording
Interfaces and Software			
Optical interface (optional connections for: RS 232, USB or Ethernet, including NodeLink for data transmission)			Ethernet, web server
DranView software (optional)			DranView or METRAWin 10 software (optional)
Available languages			
German, English, French, Italian, Spanish, Swedish, Finnish, Chinese (simple and traditional), Japanese, Korean			German, English
General Data			
Size (HxWxD): 203x300x64 mm / weight: 1.9 kg			Size (HxWxD): 290x245x140 mm, weight: 2.4 kg
Protective holster			—
Carrying case (optional)			Carrying case
Operating temperature: 0 to +50° C, storage temperature: -20 to 55° C, humidity: 10 to 90%, no condensation			Operating temperature: -10 to +50° C, storage temperature: -20 to 70° C, humidity: 10 to 95%, no condensation
System clock with quartz movement, resolution: 1 second			System clock with quartz movement, resolution: 10 ms, drift: < 5 sec. per month
Power pack / batter charger: 90 to 264 V AC, 47 to 63 Hz, battery operation time: 3 hours			Power pack: 85 to 250 V AC, 45 to 400 Hz / DC and 12 V DC input, 12 V DC output for accessories, battery operation time: 30 minutes
Display: color LCD touch-screen			Display: color LCD touch-screen, 4 quick access keys
Memory options (one is required): special compact flash card, 32 to 256 MB, interchangeable, 256 MB compact flash card is included			50 MB internal memory, can be expanded with USB hard disk or memory stick, CF slot – compact flash card

MAVOWATT | 30 | 40 | 70

3-Phase Energy and Power Disturbance Analyzers

MAVOWATT 30: The three-phase energy and power disturbance analyzer fulfills EN50160, EN61000-4-7 and EN61000-4-15 standards which are relevant for mains quality measurement, as well as EN61000-4-30, which specifies measuring procedures for voltage quality.

The class A device simultaneously monitors RMS values, harmonics, flicker and transients down to a time range of approximately 80 µs. The instrument has 8 measuring channels: 4 for voltage and 4 for current. The measuring configuration and the type of electrical circuit is selected automatically based upon detected measured quantities. Type of utilized monitoring with automatic limit value definition is easy to select. Acquired data are saved to CompactFlash memory cards. The instruments can be operated intuitively with the help of icons which appear at the color touch-screen, and selection can be made from amongst German, English, French, Spanish, Italian, Swedish, Finish, Japanese, Chinese and Korean.

- Power and energy analysis in power supply systems
- Harmonic analysis per EN61000-4-7
- Mains quality per EN50160 with statistical bar graph
- Flicker analysis in accordance with EN61000-4-15
- 8 measuring inputs, 4 voltage (differential), 4 current (current transformer), for measurement at line frequencies of 50/60 Hz and 16⅔ Hz
- Power supply via charger: 90…264 V/47…63 Hz
- Installed rechargeable battery for up to 3 hours operating time

MAVOWATT 40 – same as MAVOWATT 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 MAVOWATT 40, plus:
- Expanded mains analysis functions
- Characterization of transients
- Rapid transient measurement as of 1 µs sampling rate with storage of the waveshape
- Parameters for distorted and asymmetrical systems per IEE 1459
- Vector/arithmetic parameters

MAVOWATT 70-400
- Frequency range: 50/60 Hz
- Testing per military standard 1399

☐ See page 134 for training seminars: GTT1645

☐

Type	Article Number
—	—
MAVOWATT 30 Set 1	M817E
MAVOWATT 30 Set 2	M817I
MAVOWATT 30 Set 3	M817M

Type	Article Number
MAVOWATT 40	M817B
MAVOWATT 40 Set 1	M817F
MAVOWATT 40 Set 2	M817J
MAVOWATT 40 Set 3	M817N

Type	Article Number	Data Sheet No.
MAVOWATT 70	M817C	3-337-181-03
MAVOWATT 70 Set 1	M817G	3-337-181-03
MAVOWATT 70 Set 2	M817K	3-337-181-03
MAVOWATT 70 Set 3	M817O	3-337-181-03
MAVOWATT 70-400	M817D	3-337-181-03
MAVOWATT 70-400 Set1	M817H	3-337-181-03
MAVOWATT 70-400 Set2	M817L	3-337-181-03
MAVOWATT 70-400 Set 3	M817P	3-337-181-03

MAVOWATT 30

MAVOWATT 40

MAVOWATT 70
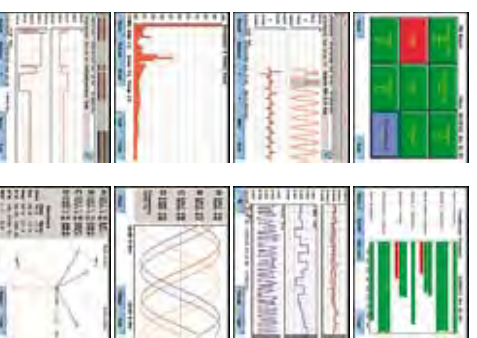
Scope of delivery:

MAVOWATT 30/40/70 Set 1
- Basic device
- Set of measurement cables
- Battery + charger
- Compact flash
- Dranview Pro software
- Carrying pouch
- Condensed instructions (German)
- Operating instructions (English)

MAVOWATT 30/40/70 Set 2
Same as set 1 but with:
- Three TR-2510A current clamps (1…10 A)

MAVOWATT 30/40/70 Set 3
Same as set 1 but with:
- 3 current sensors DRANFLEX 3XL/24 (30/300/3000 A)
- Mains power pack: RR/PS/4EU

MAVOWATT 40
- MAVOWATT 40 basic device
- Set of measurement cables
- Battery + charger
- Compact flash

MAVOWATT 70
- MAVOWATT 70 basic instrument for 50/60 and 16⅔ Hz
- Set of measurement cables
- Battery + charger
- Compact flash

MAVOWATT 70-400
- MAVOWATT 70-400 basic device for 50/60 and 400 Hz, set contents same as above

- Three TR-2500A current clamps (10…500 A)

Made in Germany

GOSSEN METRAWATT

Go to www.gossenmetrawatt.com and download the instrument simulation. Decompress the file to any desired folder – no installation is required. Run the SimMV30.exe, SimMV40.exe or SimMV70.exe file and operate the simulated instrument at your monitor screen. The simulation can be ended be clicking the right-hand mouse key.

MAVO**WATT** | 50

3-Phase Energy and Power Disturbance Analyzer

The energy and power disturbance analyzer measures electrical quantities in DC systems, as well as in single and three-phase AC systems with any load. Broadband measurement is laid out for line frequencies of up to 1 kHz, and covers everything from railway power at $16\,^2/_3$ Hz through mains power with 50/60 Hz, right on up to onboard electrical systems with 400 Hz. Eight isolated measuring circuits prevent equalizing current and allow for simultaneous measurement of phase and neutral conductor voltage and current. By connecting a measuring transducer, the fourth channel can be used alternatively for the measurement of other physical quantities, e.g. the temperature of a transformer, or wind speed at a wind power turbine. Measurements at frequency converter outputs are possible within a broad range.

The range of possible applications extends from acquisition, display and recording of mains quantities to logging and analysis of energy consumption, right on up to calculation and statistical analysis of characteristic voltage quality from power supply systems in accordance with EN50160.

In industrial applications, the measuring instrument is used to determine characteristic quantities of electrical consumers and generators in steady-state, as well as during dynamic processes.

It also functions as a test instrument and compares harmonic current generated by electrical equipment, as well as voltage fluctuation, with specified limit values.

The transient measuring function makes it possible to measure and analyze voltage transients of up to 1.3 kV as of a duration of 10 µs.

- ■ Complete power disturbance analysis with simultaneous measurement of all relevant mains quantities
- ■ Power and energy analysis in power supply systems, as well as at the outputs of frequency converters
- ■ Harmonic analysis up to the 50th harmonic including sub-harmonics
- ■ Mains quality per EN50160 with statistical bar graph
- ■ Flicker analysis in accordance with EN 61000-4-15
- ■ 8 isolated measuring circuits (4 voltage and 4 current), 100 kHz sampling rate
- ■ Color touch-screen display, 5½", ¼ VGA
- ■ Storage of measurement data to plug-in CF memory card or USB stick
- ■ USB ports for PC, external memory
- ■ Ethernet TCP/IP with web server for remote control and read-out
- ■ 4 digital status inputs indicate consumer operating states
- ■ 4 digital control inputs for synchronizing the measuring interval, and as meter inputs
- ■ 1 relay output for alarms
- ■ Power supply output for active current sensors
- ■ Integrated rechargeable battery for power failures
- ■ Worldwide use thanks to broad range variable power pack (85…250 V AC/DC)
- ■ Functional compliance with:
  EN 50160, EN 61000-3-2, 3-3, 3-12, 4-7, 4-15 and 4-30
- ❏ **See optional accessories on page**
- ❏ **METRAwin/MAVOLOG 50, DranView software**
- ❏ **See page 134 for training seminars: GTT1643, GTT1644**
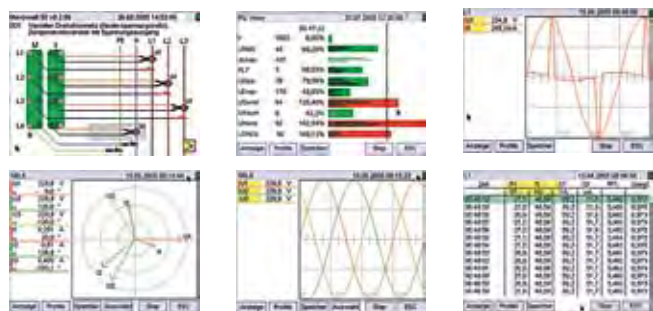
Scope of delivery:
- • MAVOWATT 50
- • Set of measurement cables
- • Mains power cable
- • USB cable
- • Network cable (crossed)
- • Carrying case
- • Operating instructions, printed and on CD ROM

CE

Type	Data Sheet No.	Article Number
MAVOWATT 50	3-349-342-03	M816A
Pack of 3 touch-screen wands	–	Z7753A

GOSSEN METRAWATT

Accessories for MAVO**WATT** | 30 | 40 | 70

Type	Description	Article Number
TR-2510A	Current sensor clamp: 1 … 10 A AC RMS, 40 Hz … 5 kHz, 15 mm dia.	Z817A
TR-2500A	Current sensor clamp: 10 … 500 A AC RMS, 40 Hz … 5 kHz, 50 mm dia.	Z817B
TR-2520A	Current sensor clamp: 100 to 3000 A AC RMS, 40 Hz … 5 kHz, 72 mm dia.	Z817C
TR-2021	Current sensor clamp: 1 … 30 A AC RMS, 40 Hz … 10 kHz, 20 mm dia.	Z817D
TR-2019B	Current sensor clamp: 50 … 300 A AC RMS, 30 Hz … 5 kHz, 52 mm dia.	Z817E
TR-2022	Current sensor clamp: 10 … 1000 A AC RMS, 30 Hz … 5 kHz, 54 mm dia.	Z817F
TR-2023	Current sensor clamp: 200 … 3000 A AC RMS, 30 Hz … 5 kHz, 65 mm dia.	Z817G
PR150/SP2	Current sensor clamp: 150 A AC / DC, 9 V battery operation	Z817N
PR1500/SP8	Current sensor clamp: 1500 A AC / DC, 9 V battery operation	Z817O
PR1500/SP1	Current sensor clamp: 150 A AC / DC, operation with power pack (included)	Z817P
PR1500/SP7	Current sensor clamp: 1500 A AC / DC, operation with power pack (included)	Z817Q
DRANFLEX 3XL / 24	Current sensor: 30 / 300 / 3000 A, loop circumference: 600 mm, 10 Hz … 10 kHz (−3 dB)	Z817V
COMM-RS232	RS 232 adapter including NodeLink	Z818A
COMM-OEA	Ethernet adapter including NodeLink	Z818B
COMM-OUA	USB adapter including NodeLink	Z818C
256MDATA	Selected CF card, 256 MB	Z818F
BP-PX5	Rechargeable battery pack	Z818G
SCC-4300	Carrying pouch for measuring instrument, current clamps and manuals	Z818H
4 mm adapter	Adapter for current clamps with 4 mm safety plugs	Z817T
CA4300	TR-20xx adapter cable for current sensor clamps	Z817H

See price list for further accessories

Accessories for MAVO**WATT** | 50

Plug-in shunt resistors a = long-term measurement, b = harmonic measurement

Type	Description	Appli-cation	Measuring Category	Usable Range	Output Signal	Article Number
Z860A	50 Ω, 0.2%, 1.5 W	a, b	600 V CAT III	50 µA … 20 mA	50 mV / mA	Z860A
Z861A	1 Ω, 0.2%, 1.5 W	a, b	600 V CAT III	1 mA … 1.2 A	1000 mV/A	Z861A
Z862A	0.05 Ω, 0.2%, 1.5 W	a, b	600 V CAT III	0.02 … 6 A	50 mV/A	Z862A
Z863A	0.01 Ω, 0.2%, 1.5 W	a, b	600 V CAT III	0.1 … 16 A	10 mV/A	Z863A
STP 100K SET 3 x	Set (3 pieces) 100 kΩ, 0.2%	a, b	600 V CAT III	Low-pass filter, f3dB ~ 900 kHz		Z865B

Z860A … Z863A   Z865B

Made in Germany

GOSSEN METRAWATT

Accessories for MAVO**WATT** I 50

Flexible AC current sensors

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

Type	Description	Max. Cable Circumf.	Applica-tions	Measuring Category	Usable Range	Output Signal	Article Number
METRAFLEX 3001	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 pro A (AC coupled)	Z207F
METRAFLEX 3003	3-phase set, switchable: 10 Hz…20 kHz, with batteries or external power supply	3 x 61 cm					Z207G

METRAFLEX 3001   METRAFLEX 3003

Current Sensor Clamps

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

Type	Description	Max. Cable	Applica-tions	Measuring Category	Usable Range	Output Signal	Article Number
Z821B	AC, 30 Hz … 5 kHz	64 mm	a, b, (c)	600 V / CAT II	3…3000 A~	0.33 mV/A	Z821B
Z3512A	AC, switchable, 10 Hz … 3 kHz	52 mm	a, b, c	600 V / CAT III	0.001 …1.2 A~ 0.01 …120 A~ 0.1 …120 A~ 1 …1200 A~	1000 mV/A 100 mV/A 10 mV/A 1 mV/A	Z225A
WZ11B	AC, switchable, 30 …500 Hz	20 mm	a, (c)	600 V / CAT III	0.5…20 A~ 5 …200 A~	100 mV/A 10 mV/A	Z208B
Z13B	AC / DC, switchable, DC …10 kHz, with 9 V battery (operating hours: approx. 50)	50 mm	b, c	300 V / CAT IV	0.2…40 A~ / 60 A– 0.5 …400 A~ / 600A–	10 mV/A 1 mV/A	Z213B
Z201A	AC / DC, DC …20 kHz, with 9 V battery (operating hours: approx. 30)	19 mm	b, c	300 V / CAT III	0.01 …20 A~ / 30 A–	100 mV/A	Z201A
Z202A	AC / DC, switchable, DC …10 kHz, with 9 V battery (operating hours: approx. 50)	19 mm	b, c	300 V / CAT III	0.1 …20 A~ / 30 A– 1 …200 A~ / 300 A–	10 mV/A 1 mV/A	Z202A
Z203A	AC / DC, switchable, DC …10 kHz, with 9 V battery (operating hours: approx. 50)	31 mm	b, c	300 V / CAT III	1 …200 A~ / 300 A– 1 …1000 A~ / 1000 A–	1 mV/A	Z203A

Z201A   Z202A   Z203A

Z821B   Z3512A   WZ11B   Z13B

GOSSEN METRAWATT   Made in Germany

DranView 6 Software

Evaluation and analysis software for MAVOWATT 30 / 40 / 50 / 70
Data from power disturbance and power analyzers are evaluated and documented with diverse and convenient PC software.

- ■ Intuitive, easy to handle user interface – delivers quick results, even for first-time users
- ■ Optimized for high speed and large volumes of data – takes advantage of available computer power
- ■ Measured and calculated parameters are sorted into categories – simple location and selection of data
- ■ Explanatory texts in several languages – supports graphic views
- ■ Simple dragging and zooming of diagrams with rotatable graphic axes – precise pinpointing of problems and quick help.
- ■ Flexibility throughout the entire package – adjustable, customer-specific appearance and performance
- ■ Unique analysis support with simulator for harmonics and separate scaling of voltage, current and power harmonics.
- ■ Rescue kit for correcting time stamps, reversing the measuring probes, changing incorrect connection types and modifying scaling factors without having to gather data all over again.
- ■ Export of any data source in PQDIF format (IEEE 1159.3), and DranView Enterprise can even import COMTRADE files from protective relays.
- ■ Two versions: Pro for standard users – Enterprise for advanced experts
- ■ The software runs under Windows 98, 2000, NT and XP.
- ■ Upgrade from DranView Pro to Enterprise

❒ **See page 134 for training seminars: GTT1645**
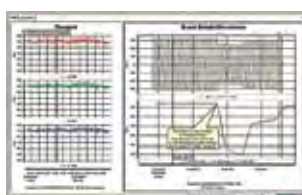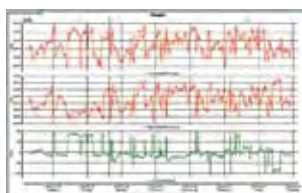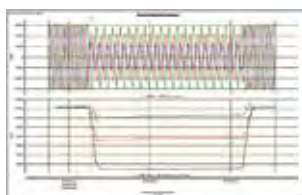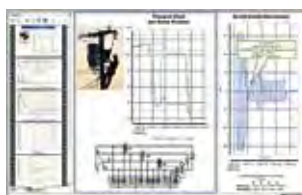
Scope of delivery:
- DranView Pro including USB hardware dongle

- DranView Enterprise including USB hardware dongle

Type	Data Sheet No.	Article Number
DVP-PX	3-337-181-03	Z818D
DVE-PX	3-337-181-03	Z818E
DVP-TO-DVE	3-337-181-03	Z818J

GOSSEN METRAWATT

METRAwin10 / MAVOWATT50

Data Transmission and Analysis Software for MAVOWATT 50
Saved measurement data from the MAVOWATT 50 energy and power disturbance analyzer can be visualized in various views, analyzed and documented with METRAwin10 / MAVOWATT50 software.
Recorded measurement data are transferred from the instrument to a PC with the help of a CF card or a memory stick, and are displayed at a browser.

MAVOWATT 50 permits execution of the following functions via the browser:

■ Retrieve and display current LCD content (e.g. live measured values) per mouse click or cyclically

■ Remote control of all functions which can be executed via the instrument's touch-screen per mouse click in the LCD panel shown in the browser (exceptions: touch-screen settings, network parameters and administrator functions)

■ Downloading of measurement profiles and memory profiles stored at the instrument for subsequent reuse or transfer to another instrument

■ Downloading of recorded measurement data stored at the instrument for subsequent analysis with METRAwin 10

The browser can be started from METRAwin10 with the instrument's URL address. However, there is no direct communication between the software and the MAVOWATT 50, which takes place instead via the instrument's integrated web server. Recording of live measurement data at the PC is thus not possible.

■ METRAwin10/MAVOWATT50 runs under: Windows 95, 98, ME, NT 4.0, 2000 and XP

■ German, English or French can be selected as the user interface language.

❐ **See page 134 for training seminars: GTT1643**
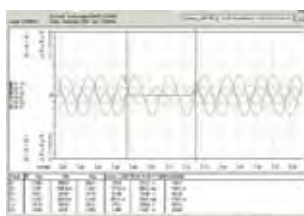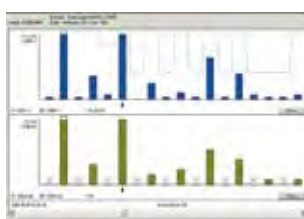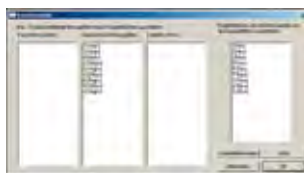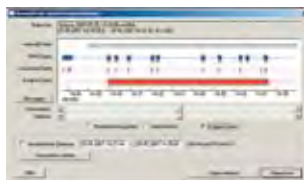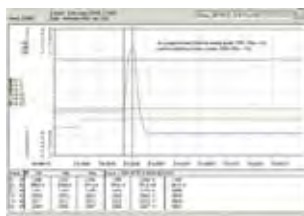
Scope of delivery:
- METRAwin10 / MAVOWATT50
- Operating instructions
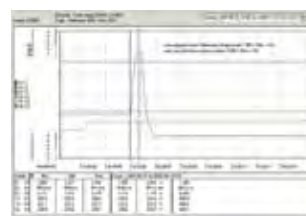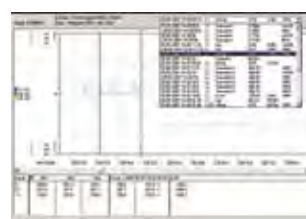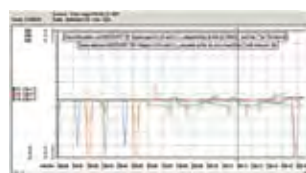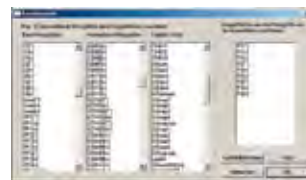
Type	Data Sheet No.	Article Number
METRAwin10 / MAVOWATT50	–	Z852C

GOSSEN METRAWATT

Made in Germany

Testers for Testing Electrical Systems /
Installations, Machines, Earthing,
Insulation and Low-Resistance
PROFI**TEST** – METRISO – GEOHM series

Above all, the effectiveness of protective measures in electrical systems / installations and machines is tested with PROFITEST and METRISO test instruments. Primarily, this involves tests in accordance with VDE regulations including VDE 0100 (IEC60364), VDE 0105 (EN 50110) and VDE 0113 (EN 60204).

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

Calibration certificates included with new instruments guarantee a successfully completed final inspection, as well as adherence to the technical data specified in the data sheet.

In particular, tests conducted with PROFITEST and METRISO instruments involve:

- Low-resistance measurement of earthing conductors, protective conductors and equipotential bonding
- Measurement of insulation resistance
- Measurement of loop resistance / loop impedance with ascertainment of short-circuit current
- Testing of residual current devices (RCDs) in TT and TN systems
- Measurement of earth resistance
- Measurement of direction of rotation

PROFITEST C

Test Instruments – DIN VDE 0100 / IEC 364-6-61
Protective measures test instrument for loop resistance measurement, calculation of short-circuit current and display of suitable fuse ratings. In addition to complete testing for the effectiveness of RCCBs, the instrument is also capable of phase sequence analysis, as well as the measurement of voltage and frequency.

- Rugged 2-component housing with integral impact guard – perfect for use by on-site installation teams and an ideal supplement to the PROFITEST 204 in accordance with the new EN 60204 standard.
- Large, illuminated, anti-glare graphic display allows for clear, intuitive, menu-driven operation.
- Quick, easy operation with the help of just 5 keys
- Integrated measured value memory can be read out via the IrDa interface which is included as a standard feature.
- Print-outs / reports can be generated via the interface.
- The instrument can always be kept current thanks to the update option.
- Stored measured values can be accurately assigned to their respective electrical circuits, distributors and buildings with the alphanumeric keypad.
- Go / No-Go indication via LEDs, and instructions at the display
- The desired language can be selected.
- Integrated phase tester
- Carrying strap, stand, holders for test probes and cables and a recharging socket for NiCd/NiMH batteries
- Dimensions: 275 x 140 x 65 mm (H x B x T); weight: 1.2 kg with batteries
- Power supply: 4 AA batteries per IEC LR 14

Software:
- PS3: software for test instruments including systems and equipment management, and reports generating (see page **110**)
- PC.doc-WORD/EXCEL / PC.doc-ACCESS: documentation and management software for measurements per DIN VDE 0701-0702 and 0100 (see page **109**)
- WinProfi: for communication between the test instrument and the PC (included)

❒ **See optional extras and accessories beginning on page 57: PROFITEST DC-II, IrDa 0100S, IrDa-USB converter**

❒ **PS3 PC analysis software, WinProfi, PC.doc-WORD/EXCEL, PC.doc-ACCESS (beginning on page 115)**

❒ **See page 134 for training seminars: GTT1210, GTT1224K, GTT1226, GTT1227B**

The product range includes variants for England (UK+GB), Sweden, Italy, Czech Republic, Netherlands, Spain, France, Portugal, Norway, Finland, Poland and Denmark.

Scope of delivery:

PROFITEST C:
- Tester
- Shoulder Strap
- Batteries
- WinProfi PC software on the PS3 CD ROM
- Operating instructions
- Factory calibration certificate

PROFITEST C-CH:
Same as PROFITEST C
- With plug for Switzerland (SEV)

PROFITEST C / METRISO C set:
Consisting of
- PROFITEST C
- METRISO C
- 3-pole adapter
- IrDa 0100 adapter cable
- KS17 measurement cables
- HC 40 hard case
- Neck straps
- Batteries
- WinProfi PC software on the PS3 CD ROM
- Operating instructions
- Factory calibration certificates

PROFITEST C / METRISO C-CH set:
Same as PROFITEST C / METRISO C set
- With plug for Switzerland (SEV)

Type	Data Sheet No.	Article Number
PROFITEST C	3-349-075-03	M521A
PROFITEST C-CH	3-349-075-03	M521B
PROFITEST C/METRISO C set	3-349-075/-086-03	M508A
PROFITEST C/METRISO C-CH set	3-349-075/-086-03	M508B

GOSSEN METRAWATT   **Made in Germany**

PROFITEST | MASTER

Range of test instruments for VDE 0100 / IEC 364-6-61

A broad-range measuring device 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.

- Loop and line impedance measurement
- Measurement of insulation resistance using nominal voltage, with variable or rising test voltage
- Low-resistance measurement
- Earth resistance measurement
- Standing-surface insulation measurement
- Universal connector system

Special features:

- Display of approved fuse types for electrical systems
- Energy meter start-up testing
- Calculation of cable lengths for common copper wire cross-sections
- Measurement of biasing, leakage and circulating current of up to 1 A, as well as working current of up to 150 A with W>Z12C current sensor clamp
- Phase sequence measurement (including highest line-to-line voltage)

Testing of residual current devices (RCCBs)

- Measurement of contact voltage without tripping the RCCB. Contact voltage is measured with reference to nominal residual current using 1/3 of the nominal residual current value.
- Tripping test with nominal residual current, tripping time measurement

Special Testing for Systems and RCCBs

- Testing of equipment and RCCBs with rising residual current including indication of tripping current and contact voltage at the moment the RCCB is tripped
- Testing of RCCBs with: $\frac{1}{2} \times I_{\Delta N}$, $1 \times I_{\Delta N}$, $2 \times I_{\Delta N}$, $5 \times I_{\Delta N}$
- Testing of RCCBs which are suitable for pulsating residual direct current; testing is conducted with positive or negative half-waves
- Testing of RCCBs with adjustable residual current for determining contact voltage

Testing of special RCCBs with PROFITEST MTECH and PROFITEST MXTRA

- Selective S, SRCDs, PRCDs (Schukomat, Sidos and others), type G/R, type AC, type A; type B

Testing of RCCBs in IT systems

- ❏ **Optional accessories:**
  Master case, instrument: stackable with inserts for instrument + accessories
  Master case, earth: stackable with inserts + accessories for earth measurement + 2 clamps
  Master battery set: 8 rechargeable batteries, 2300 mAh each, in battery holder
  Master charger: automatic, broad-range charger for 4 … 10 cell battery packs Input: 100 … 240 V AC + 12 … 32 V DC Output: 4.8 … 12 V
  See additional accessories beginning on page 57

- ❏ **PS3 PC analysis software, PC.doc-WORD/EXCEL, PC.doc-ACCESS, ELEKTROmanager beginning on page 115**

- ❏ **See page 134 for training seminars:** GTT1210, GTT1224K, GTT1226

Scope of delivery:

- Tester
- Earthing contact plug insert (PRO-Schuko)
- 2-pole measuring adapter and
- cable for expansion into a 3-pole adapter (PRO-A3-II)
- Alligator clips
- Shoulder strap
- Set of batteries (8 ea. LR6)
- Condensed operating instructions
- Operating instructions (on CD ROM)
- DKD calibration certificate
- ETC software for communication with the tester

Additionally for PROFITEST MPRO and PROFITEST MXTRA

- PRO-RE adapter

iF product design award 2009

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Type	Data Sheet No.	Article Number
PROFITEST MBASE	3-349-471-03	M520M
PROFITEST MPRO	3-349-471-03	M520N
PROFITEST MTECH	3-349-471-03	M520O
PROFITEST MXTRA	3-349-471-03	M520P
Master Case, Instrument	3-349-471-03	Z502A
Master Case, Earth	3-349-471-03	Z502B
Master Battery Set	3-349-471-03	Z502C
Master Charger	3-349-471-03	Z502D

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Overview – Characteristics, Features	for PROFITEST type➜	MBASE	MPRO	MTECH	MXTRA
RCD measurements	UB measurement without tripping the RCCB	●	●	●	●
	Tripping time measurement	●	●	●	●
	Tripping current measurement	●	●	●	●
	Selective, SRCDs, PRCDs, type G/R	●	●	●	●
	AC/DC sensitive RCDs, type B	—	—	●	●
Loop impedance Z_{L-PE} / Z_{L-N}	Fuse table for systems without RCD	●	●	●	●
	Without tripping the RCD, fuse table	—	—	●	●
	With 15 mA test current without tripping the RCD	●	●	●	●
Earth resistance R_E	I/U measuring method, mains powered	●	●	●	●
	Selective earth resistance with probe, earth electrode and current clamp	—	●	—	●
	Earth loop resistance R_{ELOOP} with 2 clamps	—	●	—	●
Meas. of equipotential bonding R_{LO}	Automatic polarity reversal	●	●	●	●
Insulation resistance R_{ISO}	Variable or rising test voltage	●	●	●	●
Voltage Measurement	U_{L-N} / U_{L-PE} / U_{N-PE} / f	●	●	●	●
Special measurements	Leakage current (clamp meter measurement)	●	●	●	●
	Meter start-up	●	●	●	●
	Phase sequence	●	●	●	●
	Standing-surface insulation ZST	●	●	●	●
	Ground leakage resistance $R_{E (ISO)}$	●	●	●	●
Features	Selectable user interface language	●	●	●	●
	Memory (database for up to 50,000 objects)	●	●	●	●
	RS 232 port for scanner	●	●	●	●
	USB port for data transmission	●	●	●	●
	ETC user software for PC	●	●	●	●
	Measuring category: CAT III 600 V / CAT IV 300 V	●	●	●	●
	DKD calibration	●	●	●	●

ETC Software

Report software for PROFITEST MASTER series test instruments

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

- The software acquires all important data for reports in accordance with DIN VDE 0100, part 600.
- Test reports (ZVEH) can be generated automatically.
- 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.
- Data can be exported to Excel, CSV and XML.
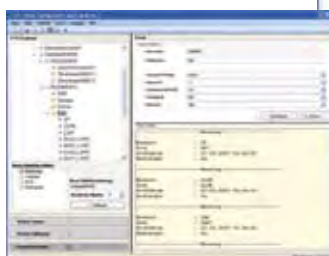
Scope of delivery:
- The free software is included with the PROFITEST MASTER series.

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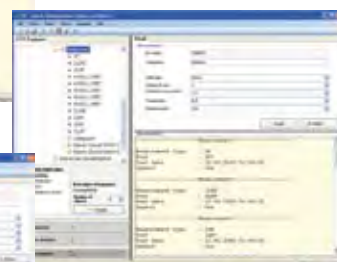
PROFITEST 2

Universal Protective Measure Test Instrument for DIN VDE 0100 (EN 61557), Parts 1 through 7

The PROFITEST 2 provides you with an inexpensive test instrument for testing the effectiveness of safety measures in electrical systems per VDE 0100, part 600.

- Low-resistance measurement per VDE 0413, part 4
- Insulation measurement per VDE 0413, part 2
- Complete RCD testing per VDE 0413, part 6
- $Z_{LOOP} + I_K$ + fuse type per VDE 0413, part 3
- Earthing measurement per VDE 0413, part 5
- Phase sequence indicator per VDE 0413, part 7
- Test instrument per VDE 0413, part 1
- Testing via earthing contact plug or 2-pole adapter

❏ See optional accessories beginning on page 57

❏ See page 134 for training seminars:
  GTT1210, GTT1224K, GTT1226, GTT1227B

Scope of delivery:
- PROFITEST 2 test instrument
- Earthing contact plug insert (PRO-Schuko)
- Cable for expansion into a 3-pole adapter
- 2 alligator clips
- 2-pole measuring adapter
- Shoulder strap
- Set of batteries
- Operating instructions
- Factory calibration certificate

CE

Type	Languages
PROFITEST 2a	D, GB, F, I, E, NL
PROFITEST 2b	GB, DK, S, FIN, D, N
PROFITEST 2c	E: Castellan, Catalan, Gallic, Basque, P, GB
PROFITEST 2d	CZ, SLO, HR, D, PL

Type	Data Sheet No.	Article Number
PROFITEST 2-a	3-349-490-03	M520W
PROFITEST 2-b	3-349-490-03	M520X
PROFITEST 2-c	3-349-490-03	M520Y
PROFITEST 2-d	3-349-490-03	M520Z

PROFITEST S1

Simulation model for testing the effectiveness of safety measures in low-voltage systems per DIN VDE 0100

This model can be used to simulate TT and TN systems with overcurrent protective devices, as well as with RCDs (systems with overcurrent protective devices can be equipped with normal and selective RCCBs). In combination with the appropriate measuring and test instruments, all measurements and tests can be executed which are stipulated for safety testing of electrical systems of up to 500 V with various system types and protective measures.

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

❏ **Optional accessories:**
  S1A-4/10 contact protected jumper (package of 10)

❏ **Usable with following instruments:**
  PROFITEST MASTER, PROFITEST 0100S-II+, PROFITEST ONE

❏ See page 128 for training seminars:
  GTT1210, GTT1224K, GTT1226, GTT1227B

Scope of delivery:
- PROFITEST S1

Optional accessories:
- S1A-4/10 contact protected jumper (package of 10)

Type	Data Sheet No.	Article Number
PROFITEST S1	–	GTM5101000R0001
S1A-4/10	–	GTZ3216000R0001

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BASE Starter Package

Consisting of:
- ■ PROFITEST MBASE
- ■ Variable plug adapter set
- ■ F2000 universal carrying pouch

TECH Starter Package

Consisting of:
- ■ PROFITEST MTECH
- ■ Variable plug adapter set
- ■ F2000 universal carrying pouch

TECH Master Package

Consisting of:
- ■ PROFITEST MTECH
- ■ Variable plug adapter set
- ■ F2020 carrying pouch
- ■ SP350 earth drill
- ■ TR50 metal drum
- ■ PRO-RLO II adapter

PRO Package E

Consisting of:
- ■ PROFITEST MBASE
- ■ METRAFLEX 3000

XTRA Package E

Consisting of:
- ■ PROFITEST MTECH
- ■ METRAFLEX 3000

XTRA Package XL

Consisting of:
- ■ PROFITEST MTECH
- ■ METRAFLEX 3000
- ■ Battery set
- ■ Battery charger
- ■ SP350 earth drill
- ■ TR50 metal drum
- ■ PRO-RLO II adapter
- ■ F2020 carrying pouch

Scope of delivery:
- ● See description
  of the test packages

PROFITEST MBASE

Variable plug adapter set

TR50 metal drum

PRO-RLO II adapter

PROFITEST MTECH

Without photos:
MASTER Battery Set
MASTER Battery Charger

METRAFLEX 3000

SP350 Earth Drill

F2000 carrying pouch

F2020 carrying pouch

Type	Data Sheet No.	Article Number
BASE Starter Package	–	M500M
TECH Starter Package	–	M500N
TECH Master Package	–	M500P
PRO Package E	–	M500R
XTRA Package E	–	M500S
XTRA Package XL	–	M500T

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PROFITEST PSI-E, -BC / SI-BC

PROFITEST PSI-E
Printer / memory / interface module for saving all measurement data from the PROFITEST, printing it out immediately and processing it at a PC

PROFITEST PSI-BC
Printer / memory / interface module for saving all measurement data from the PROFITEST, printing it out immediately and processing it at a PC

■ Electrical circuits can be classified hierarchically

■ Electrical circuits can also be classified with barcodes

■ Error comments can be added

PROFITEST SI-BC (without printer)
All measurement data from PROFITEST test instruments is collected and transferred to a PC with suitable software by means of the memory / interface module.

■ Memory capacity for data from approx. 200 electrical circuits

■ IRDa interface to the test instrument

■ RS 232 interface to the PC

■ A barcode scanner can be connected

❒ **See optional accessories on page 73:**
Barcode label printer and scanner, RS 232 – Centronics printer adapter, printer ribbon cartridges and recording charts for the printer module

❒ **Usable with following instruments:**
PROFITEST 0100S-II+, PROFITEST ONE

Scope of delivery:

PROFITEST PSI-E or -BC
• Printer / memory / interface module
• 2 rolls of recording chart
• 1 ribbon cartridge
• 4 AA batteries per IEC LR 6
• Operating instructions

PROFITEST SI-BC
• Memory / interface module
• 4 AA batteries per IEC LR 6
• Operating instructions

Type	Data Sheet No.	Article Number
PROFITEST PSI-E	3-348-976-03	M522A
PROFITEST PSI-BC	3-348-976-03	M522D
PROFITEST SI-BC	3-348-976-03	M522E

PROFITEST	PSI-E	PSI-BC	SI-BC
Printer function	Yes	Yes	No
Entry for building	3-place numeric	6-place alphanumeric	
Entry for distributor	–	3-place alphanumeric	
Entry for RCD identification	–	2-place alphanumeric	
Entry for electrical circuit	3-place numeric	3-place alphanumeric	
Entry of ID numbers	–	Via B3261 barcode scanner (optional accessory)	
Number of measured values for insulation resistance measurement	1 per electrical circuit	2 per electrical circuit	
Option for entering defects	–	3 selectable options	
Entry option: number of electrical circuits	–	3-place numeric	

PROFITEST DC II

Test Instrument for AC/DC Sensitive RCCBs

■ Testing of the DC branch for AC/DC sensitive RCCBs – measurement of tripping current and time to trip for 30 and 300 mA RCCBs

■ Measurement of loop impedance within the system without tripping the RCCB

■ Dimensions (H x W x D): 205 x 120 x 100 mm, weight: 1.5 kg

❒ **Accessories:**
Adapter with 3 test leads for systems without earthing contact sockets

❒ **Usable with following instruments:**
PROFITEST 2, PROFITEST 0100S-II+, PROFITEST ONE

Scope of delivery:
• PROFITEST DC II

Type	Data Sheet No.	Article Number
PROFi TEST DC II	3-348-974-03	M523A
3-pole adapter for DC-II	3-348-974-03	Z523A

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PRO-A3 Measuring Adapter

Measuring Adapter for Systems, 3-Phase Current, Phase Sequence
The adapter is included with the PROFITEST 0100S-II+.

❒ **Usable with following instruments:**
PROFITEST 2, PROFITEST 0100S-II+

Scope of delivery:
• Measuring Adapter
• 2 alligator clips

Type	Data Sheet No.	Article Number
PRO-A3	–	GTZ3214000R0001

PRO-... Plug Inserts

PRO-SCHUKO:
Plug insert for Germany and other countries with appropriate plug systems

PRO-CH:
Plug insert for Switzerland in accordance with SEV

PRO-RLO:
Plug inserts for PE and other similar measurements

PRO-UNI:
Plug inserts with 3 connector cables for any connection standards

❒ **Usable with following instruments:**
PROFITEST MASTER, PROFITEST 2, PROFITEST 0100S-II+
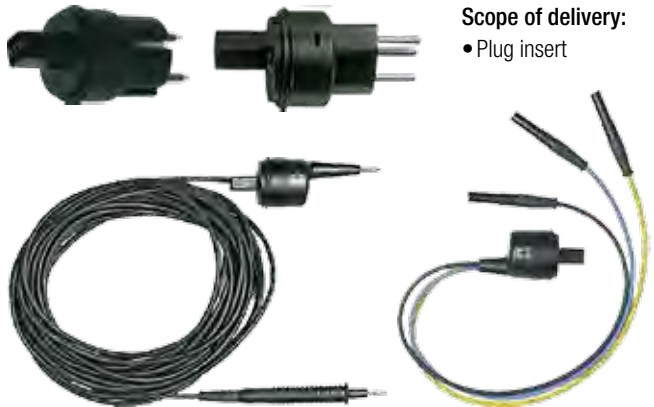
Scope of delivery:
• Plug insert

Type	Data Sheet No.	Article Number
PRO-SCHUKO	–	GTZ3228000R0001
PRO-CH	–	GTZ3225000R0001
PRO-RLO	–	GTZ3214000R0002
PRO-UNI	–	GTZ3214000R0003

A3-16...63 Three-Phase Current Adapter

3-Phase Current Adapter for Connecting Test Instruments to 5-Pole CEE Outlets

■ The adapter corresponds to the 5-pole CEE outlet with appropriate nominal current
■ For16 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

❒ **Usable with following instruments:**
PROFITEST MASTER, PROFITEST 2, PROFITEST 0100S-II+, PROFITEST ONE, PROFITEST C

Scope of delivery:
• 3-phase current adapter

Type	Data Sheet No.	Article Number
A3-16	–	GTZ3602000R0001
A3-32	–	GTZ3603000R0001
A3-63	–	GTZ3604000R0001

GOSSEN METRAWATT

AC Current Sensor Clamps

Z3512A: Current sensor clamp, 0.1 / 1 / 10 / 100 / 1000 AAC, switchable

WZ12C: Current sensor clamp, 1 mA … 15 AAC, 1 mV / mA
1 A … 150 AAC, 1 mV / A , switchable

Clip 0100S: Current transformer clamp,1 mA … 15 A (1 mV / mA, ± 3 %),
1 … 150 A (1 mV / A, ± 2 %)

Clip-on adapter cable: Cable with banana plugs for connecting current clamps to jack plugs at the PROFITEST

❒ **Usable with following instruments:**
Z3512A:
PROFITEST MASTER, PROFITEST 2, PROFITEST 0100S-II+,
PROFITEST ONE

WZ12C:
PROFITEST MASTER

Clip 0100S:
PROFITEST 2, PROFITEST 0100S-II+,PROFITEST ONE

Scope of delivery:
• AC current sensor clamp

WZ12C

Clip 0100S

Z3512A

Type	Data Sheet No.	Article Number
Z3512A	–	Z225A
WZ12C	3-349-017-03	Z219C
Clip 0100S	–	Z501E
Clip-on adapter cable	–	Z501G

E-Clip 2

Generator clamp: 0.2 … 1200 A, 1 mA / A, 40 Hz to 5 kHz, 52 mm dia.

■ Measuring range: 0.2 A … 1200 A
■ Measuring category: 600 V CAT III
■ Max. cable diameter: 52 mm
■ Transformation ratio: 1000 A / 1A
■ Frequency range: 40 Hz … 5 kHz
■ Output signal: 0.2 mA … 1.2 A

❒ **Usable with following instruments:**
PROFITEST MASTER

Scope of delivery:
• Generator clamp with laboratory safety plug inputs

Type	Data Sheet No.	Article Number
E-Clip 2	–	Z591B

SCAN**BASE** / SCAN**WRITE** | RFID

RFID Reader / Scanner
The RFID identification system is used to mark and identify tools and equipment.

See page 104 for further details.

❒ **Usable with following instruments:**
PROFITEST MASTER

Scope of delivery:
• RFID reader/scanner
• Operating instructions
or
• RFID reader/writer
• Operating instructions

Applications:

LED	Function	Meaning
Red	Lights up	Check configuration!
Green	Continuous	Ready
Yellow	Continuous	Ready to read
	Blinking	Reading data

Type	Data Sheet No.	Article Number
RFID reader/writer, Bluetooth	–	Z751F
RFID reader/scanner, RS 232	–	Z751G

GOSSEN METRAWATT

METRA**HIT** I Iso

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

- ■ Insulation resistance measurement with adjustable test voltage (50 V / 100 V / 250 V / 500 V / 1000 V) and detection of interference voltage
- ■ Multimeter with diverse functions (V, A, Ω, °C / °F, Hz, continuity etc.)
- ■ Data logger function with 512 kB data memory for up to 15,400 measured values
- ■ Infrared interface for data exchange and parameters configuration with a PC (optionally available IR-USB adapter and METRAwin10 software)
- ■ Power pack connector socket for operation without batteries
- ■ TRMS AC and AC+DC voltage measurement, bandwidths of up to 10 kHz
- ■ 1 kHz low-pass filter can be activated for measurement of V_{AC}
- ■ TRMS AC and AC+DC current measurement with a bandwidth of up to 2 kHz
- ■ Adjustable clamp factor for measurement with current sensor and current transformer clamps

❒ See optional accessories beginning on page 24

Scope of delivery:
- Multimeter including KS17-2 measurement cable set
- Protective rubber cover
- Two 1.5 V AA batteries
- Condensed operating instructions
- CD ROM with data sheet and operating instructions (German and English)
- DKD calibration certificate

CE

Type	Data Sheet No.	Article Number
METRAHIT ISO	3-349-415-03	M246B

METRAHIT I 27I / I 27AS

Insulation resistance tester, milliohmmeter, 4¾-place multimeter and data logger.
In addition to the milliohmmeter and the multimeter, an insulation tester for measurements in the giga-ohm range has also been integrated. Where service and repairs in the field of aviation technology are involved, the instrument can be used in a broad range of applications.

- ■ Insulation resistance measurement: 30.00 MΩ … 3.000 GΩ with selectable test voltages of 50, 100, 250 and 500 V
- ■ Milliohmmeter: 3.000 mΩ … 300.00 mΩ with 1 A measuring current and 30.00 mΩ … 30.00 Ω with 200 mA measuring current
- ■ Kelvin connection (4-wire measurement)
- ■ Resistance measurement: 300 Ω … 30 MΩ
- ■ Voltage measurement: 3 V … 600 V DC and 3V … 600 V AC with ±30.000 digits
- ■ Frequency measurement: 300 Hz … 3 kHz
- ■ DATA hold memory for up to 1200 measured values
- ■ Continuity and diode testing
- ■ Overload protection
- ■ LCD panel with background illumination

❒ See optional accessories on page 24

❒ See METRAwin10 / METRAHit PC analysis software on page 35

Scope of delivery:
- Multimeter including KS17-S measurement cable set
- Rubber holster with carrying strap
- Three AA rechargeable NiMH batteries
- NA HIT 2x charger
- KC4 set of Kelvin clips (2 pieces)
- Condensed operating instructions
- Operating instructions
- DKD calibration certificate

Additionally in METRAHIT I 27AS Avionics Set:
- KC27 set of Kelvin probes (2 pieces)
- HC30 hard case
- BD pack 1 including adapter, cable, METRA-win 10/METRAHIT and METRAwin 90-2 software on CD ROM

CE

Type	Data Sheet No.	Article Number
METRA HIT 27I	3-349-206-03	M227B
METRA HIT 27AS	3-349-206-03	M227C

GOSSEN METRAWATT

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METRAOHM 413

Digital Low-Resistance Measuring Instrument in accordance with DIN VDE 0 413 Part 4 and EN 61 557 Parts 1 and 4
- Two measuring ranges from 0.01 to 1999 kΩ
- Zero balancing for measurement cables
- Compact and rugged – for service calls and laboratory use
- Overvoltage protection – protects the instrument in the event of inadvertent connection to mains power
- Indication of interference voltage
- Measuring category: CAT III 300 V / CAT II 600 V
- IP 65 protection

❒ See optional accessories beginning on page 69

❒ See table on next page for characteristic values.

Scope of delivery:
- Low-value resistance measuring instrument
- Plug-in measurement cable
- 9 volt block battery per IEC 6 LR61
- Operating instructions

$C\epsilon$

Type	Data Sheet No.	Article Number
METRAOHM 413	3-348-810-03	M630A

METRISO C

Battery Powered Insulation Resistance Tester per DIN VDE 0413, Parts 2 and 4, for Measurements in Systems with Nominal Voltages of up to 1000 V.
- 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 contact current
- Voltage and frequency measurement
- Optional temperature measurement, measurement of relative humidity
- All measurements are in compliance with the following regulations: DIN VDE 0100 part 610, DIN VDE 0413 (= EN 61557) parts 1, 2 and 4, DIN VDE 0701-0702, EN 344, EN 1081, IEC 1340-4-1 / -5-1
- 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
- Dimensions: 275 x 140 x 65 mm (H x B x T); weight: 1.2 kg with batteries
- Power supply: 4 AA batteries per IEC LR 14

❒ See optional accessories beginning on page 69

❒ PS3 PC analysis software, WinProfi, PC.doc-WORD/EXCEL, PC.doc-ACCESS (beginning on page 115)

❒ See page 134 for training seminars: GTT1224H, GTT1226

Scope of delivery:
- METRISO C insulation measuring instrument
- Shoulder strap
- Measurement cables
- Batteries
- WinProfi software (on PS3 CD ROM)
- Operating instructions
- Factory calibration certificate

PROFITEST C / METRISO C set
Same as above, plus:
- PROFITEST C
- 3-pole adapter
- IrDa 0100 adapter cable
- KS17 measurement cables
- HC 40 hard case

Type	Data Sheet No.	Article Number
METRISO C	3-349-086-03	M541A
PROFITEST C/ METRISO C set	3-349-086-03	M508A

Characteristic Values

Function	Measuring Range	Measuring Voltage	Nominal current
Insulation resistance R_{ISO}	000 kΩ … 99.9 GΩ	100 V … 1000 V	1 mA (R_N = 1 kΩ/V)
Resistance R_{LO}	0.00 Ω … 99.9 Ω	4.5 V (U_0)	$\geq$ 200 mA (R < 10 Ω)
Voltage U_{ISO}/U~	0 V … 1200 V	–	–
Contact current I_B	0.00 mA … 9.99 mA	–	–

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METRISO ® 500 D

Classical, Digital Insulation Measuring Instrument for Electrical Systems with up to 500 V in accordance with EN 61 557 Parts 1, 2 and 4 (DIN VDE 0413 parts 1 and 4) with a Measuring Voltage of 500 V

- ■ Digital and analog display
- ■ Warning for hazardous shock voltages
- ■ Quick-test with signal lamp in test probe
- ■ Measuring voltage: 500 V
- ■ Measuring range up to 30 GΩ
- ■ Low-resistance measurement to 30 Ω per DIN VDE 0413, part 4

❒ See optional accessories beginning on page 69

Scope of delivery:
- Insulation measuring instrument with permanently connected measurement cables
- 2 alligator clips
- Carrying strap with test probe holders
- Set of batteries (6 mono-cells)
- Replacement fuse
- Operating instructions

Type	Data Sheet No.	Article Number
METRISO 500D	3-349-115-03	GTM5040000R0001

METRISO ® 1000 D (1000IR)

Digital Insulation Measuring Instrument for Electrical Systems with up to 1000 V in accordance with EN 61 557 Parts 1, 2 and 4 (VDE 0413 parts 1 and 4) with a Measuring Voltage of 500 V

- ■ Digital and analog display
- ■ Three nominal voltages: 100 V (1000IR: 250 V), 500 V, 1000 V
- ■ Warning for hazardous shock voltages
- ■ Voltage measurement to 1000 V
- ■ Quick-test with signal lamp in test probe
- ■ Low-resistance measurement per DIN VDE 0413, part 4
- ■ Three measuring voltages: 100 V, 500 V, 1000 V
- ■ Measuring ranges up to 30 GΩ
- ■ Low-value resistance measurement up to 30 Ω

❒ See optional accessories beginning on page 69

Scope of delivery:
- Insulation measuring instrument with permanently connected measurement cables
- 2 alligator clips
- Carrying strap with test probe holders
- Set of batteries (6 mono-cells)
- Replacement fuse
- Operating instructions

Type	Data Sheet No.	Article Number
METRISO 1000D	3-349-115-03	GTM5050000R0001
METRISO 1000IR	3-349-115-03	GTM5050000R0002

Characteristic Values

Type	METRISO 500D	METRISO 1000D	METRISO 1000IR	METRISO 1000A	METRAOHM 413
Display	Digital	Digital	Digital	Analog	Digital
Insulation resistance	0…3 GΩ	0…30 GΩ		0…400 MΩ	–
Number of ISO measuring ranges	6	7		15	
Intrinsic error	±(1.5 % + 2 digits)				±(1.5 % + 4 digits)
Max. nominal voltage	500 V	100/500/1000 V	250/500/1000 V	50 V…1000 V	
Nominal current	1 mA			≥ 1 mA/200 mA	200 mA (20 mA)
Limit value signal Lamp	■	■	■	■	■
Acoustic	■	■	■	–	■
Low-resistance measuring range	0.01…30 Ω			0…4 Ω	0.01…20 Ω (200 Ω)
Voltage (AC / DC)	0…500 V	0…1000 V	0…1000 V	0…1000 V	Interference voltage display
Power Supply	6 ea. 1.5 V mono-cell, IEC R 20				9 V block, IEC 6 LR 61
Dimensions	165 x 125 x 110 mm				60 x 230 x 40 mm
Weight					

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METRISO ® 5000D-PI

Digital High-Voltage Insulation Measuring Instrument to 5000 V DC, Test Voltages to 5000 V

For non-destructive measurement of insulation resistance in electrical systems, as well as at machines, transformers, cables and electrical equipment utilized in, for example, locomotives, street cars and ocean going vessels, with selectable test voltages of up to 5 kV.

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 by test voltage, are discharged by the measuring instrument. The falling voltage value can be observed at the display.

Measurements per EN 61557, Parts 1 and 2 (VDE 0413)

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

Highly Insulated Measuring Cables

The highly insulated measuring cables are permanently connected for safety reasons in order to avoid danger resulting from an inadvertently disconnected cable, for example in the event of charging caused by capacitive devices under test.

Polarization Index

A polarization index test 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.

- ■ Extensive measuring range: $0.1\ M\Omega \dots 1\ T\Omega$
- ■ Variable test voltage, or in fixed steps:
  100 V, 250 V, 500 V, 1 kV, 1.5 kV, 2 kV, 2.5 kV, 5 kV
- ■ Polarization index and absorption ratio
- ■ Voltage measurement to 1000 V
- ■ Frequency measurement: 15 Hz … 1 kHz
- ■ Capacitance measurement: 0.1 … 5 mF
- ■ Measurement of electrical discharge
- ■ Guard terminal for the elimination of surface current
- ■ 5 m extension cable as accessory
- ■ Supply power from mains, battery pack or external 12 V power supply
- ■ Backlit dot matrix display
- ■ Digital display of measured values and limit values, characteristic curve display for polarization index
- ■ Timer function: 1 s … 100 min

❒ **See optional accessories beginning on page 69**

❒ **See WinProfi PC analysis software on page 116**

METRISO 5000D-PI with Optional PSI Module (SECUTEST PSI)

Scope of delivery:
M5810-V001 standard variant (available from stock) including:
- Basic device with permanently connected measurement cables and test probes – user interface in German
- Alligator clips (5 kV version)
- Battery Level
- Mains power cable
- Interface cable
- Operating instructions
- DKD calibration certificate

Refer to the features list in the data sheet or the price list for models which deviate from the M5810-V001 standard variant.

CE

Type	Data Sheet No.	Article Number
METRISO 5000D-PI standard	3-349-209-03	M5810-V001
METRISO 5000D-PI basic instrument	3-349-209-03	M5810

METRISO ® 1000A

Low-Cost Analog Insulation Measuring Instrument for Electrical Systems with up to 1000 V in Accordance with EN 61 557, Parts 1, 2 and 4 (DIN VDE 0413, parts1 and 4).

- Five nominal voltages: 50 , 100 , 250 , 500 and 1000 V
- Voltage measurement to 1000 V
- Signal lamp for battery level
- Low-resistance measurement per
  DIN VDE 0413, part 4 / EN 61557-1 / -2 / -4

☐ See optional accessories beginning on page 69

Scope of delivery:
- Insulation measuring instrument
- Carrying pouch
- Operating instructions

Type	Data Sheet No.	Article Number
METRISO 1000A	3-348-807-03	M540C

METRISO ® 5000A

METRISO 5000A: Analog high-voltage insulation measuring instrument with following measuring voltages: 100, 250, 500 and 1000 V (per EN 61 557 part 1), as well as1500, 2000, 2500 and 5000 V

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

- Large 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
- Dimensions: 290 x 250 x 140 mm, weight: 3.4 kg (with batteries)

☐ See optional accessories beginning on page 69

METRISO 5000A + Generator 5000A = METRISO 5000AK

Scope of delivery:

METRISO 5000A:
- High-voltage insulation measuring instrument with permanently connected measurement cables and test probes
- 2 alligator clips (5 kV version)
- Battery module
- Batteries
- Carrying strap
- Operating instructions

METRISO 5000AK,
same as above but instead of battery module:
- Crank generator

METRISO 5000A-Set
METRISO 5000AK-Set
  Same as above, plus:
- KY 5000A
- GUARD 5000A
- F2000 universal carrying pouch

Type	Data Sheet No.	Article Number
METRISO 5000A	3-348-858-03	M580A
METRISO 5000AK	3-348-858-03	M580C
METRISO 5000A Set	3-348-858-03	M580S
METRISO 5000AK Set	3-348-858-03	M580T

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Made in Germany

METRISO 5024

Analog Insulation Measuring Instrument per VDE 0413, part1/2/4, Low-Resistance Measuring Instrument and Voltmeter with Buzzer for Quick, Two-Hand Operation

- Insulation measurement with 100, 250 and 500 V measuring voltages
- With analog display, LED scale illumination for insulation and low resistance measurement
- 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

Mechanical design:
- IP 40 protection per DIN VDE 0470, part 1 / EN 60 529
- Dimensions: 98 x 310 x 40 mm
- Weight: approx. 0.5 kg with batteries
- Batteries: 4 ea. 1.5 V AA per IEC LR6

Scope of delivery:
- Insulation and resistance measuring instrument, and voltmeter
- Carrying pouch
- Replacement fuse
- Operating instructions

CE

Type	Data Sheet No.	Article Number
METRISO 5024 in pouch	3-349-347-03	M540E

Characteristic values:

Insulation Resistance Measurement, Measuring Voltages: 100/250/500 V				
Measuring Range	Intrinsic Error	Overload	Measuring current	Short-circuit current
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				
Measuring Range	Intrinsic Error	Overload	Measuring current	
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)				
Measuring Range	Intrinsic Error	Overload	Internal Resistance	
0 ... 500 V	2.5 %	600 V AC	450 kΩ	
Measuring error under reference conditions relative to scale length (l = 73.3 mm)				

ISO CALIBRATOR 1

Calibration Adapter for Insulation and Resistance Measuring Instruments

Calibration 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 / sockets: IP 20
- Dimensions: (L x W x H) 122 x 60 x 53 mm
- Weight: 0.13 kg
- ❏ **Usable with following instruments:**
  METRISO 5024, PROFITEST MASTER

Scope of delivery:
- ISO calibrator

CE

Type	Data Sheet No.	Article Number
ISO Calibrator 1	14206	M662A

Made in Germany

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GEOHM C

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

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 kΩ
- Voltage measurement from 10 to 250 V
- Frequency measurement: 45 … 200 Hz
- Battery monitoring and self-test
- Integrated memory with IrDA interface
- Earth tester per DIN VDE 0413, part 5
- Extremely rugged 2-component housing
- Dimensions: 275 x 140 x 65 mm (H x W x D)
- Weight: 1.2 kg with batteries

Variants are available for England (UK+GB), Sweden, Italy, Czech Republic, Netherlands, Spain, France, Portugal, Norway, Finland, Poland and Denmark.

❐ **See page 67, and beginning on page 69, for optional accessories**

❐ **See WinProfi PC analysis software on page 116**

Scope of delivery:
- GEOHM C test instrument
- Shoulder strap
- Batteries:
  4 ea. AA per IEC LR 14
- WinProfi PC software
- Operating instructions
- Factory calibration certificate

Type	Data Sheet No.	Article Number
GEOHM C	3-349-088-03	M590A

GEOHM 5

Earth Tester for All Known Measuring Methods

In accordance with DIN VDE 0413, part 5, for measuring earth resistance. 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.

- 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)
- Digital display
- Rugged housing
- 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
- Software for measured value storage and report generation at a PC (optional, in preparation)

❐ **See page 67, and beginning on page 69, for optional accessories**

Scope of delivery:
- GEOHM 5 test instrument
- Black test cable, 4.5 meters
- Green test cable, 4.5 meters
- Red test cable, 15 meters
- Blue test cable, 20 meters
- 4 earth spikes
- 4 batteries per LR14
- Carrying strap
- Stackable system case
- Test report
- Operating instructions

Type	Data Sheet No.	Article Number
GEOHM 5	3-349-417-03	M591A

GOSSEN METRAWATT

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E-Set 5

Measuring Accessory Set for Earth Testers
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
- ❏ **Usable with following instruments:**
  GEOHM C

Scope of delivery:
- E-Set 5

Type	Data Sheet No.	Article Number
E-Set 5	–	Z590B

E-Set 3

Measuring Accessory Set for Earth Testers
Moderately priced measuring accessories for measurements with earth spikes.

- ■ Measuring accessories set consisting of:
  - 2 reels
  - 2 measurement cables, 25 m ea.
  - 1 measurement cable, 40 m
  - 2 measurement cables, 3 m ea.
  - 4 earth drills (zinc plated), 2 spike pullers
  - 1 hammer
- ❏ **Usable with following instruments:**
  GEOHM C, GEOHM 5

Scope of delivery:
- E-Set 3

Type	Data Sheet No.	Article Number
E-Set 3	–	GTZ3301005R0001

E-Set 4

Measuring Accessory Set for Earth Testers
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 ea.
  - 1 measurement cable, 40 m
  - 2 measurement cables, 3 m ea.
  - 4 earth drills
- ❏ **Usable with following instruments:**
  GEOHM C, GEOHM 5
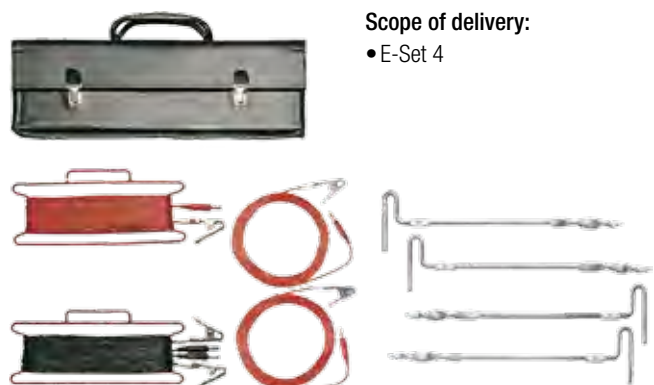
Scope of delivery:
- E-Set 4

Type	Data Sheet No.	Article Number
E-Set 4	–	Z590A

Made in Germany

GOSSEN METRAWATT

General Accessories

TR25   Reel with 25 m measurement cable, cable ends are equipped with banana plugs.

TR50   Metal drum with 50 m measurement cable; connection to the inside end of the cable is made possible with a socket integrated into the drum, the other end is equipped with a banana plug. The drum axle with handle can be removed.

SP350   Earth drill, 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.

❐ **Usable with following instruments:**
     GEOHM C, GEOHM 5, PROFITEST 2, PROFITEST MASTER
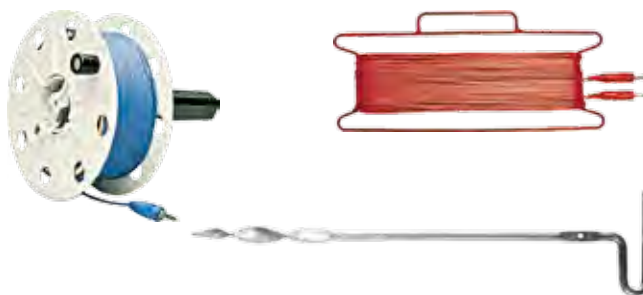
Type	Data Sheet No.	Article Number
TR25	–	GTZ3303000R0001
TR50	–	GTY1040014E34
SP350	–	GTZ3304000R0001

E-Clip 1 / E-Clip 2

E-Clip 1:
Current clamp: 1 mA … 1200 A, 1 mA / A, 40 Hz to 5 kHz, 52 mm dia.

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

E-Clip 2:
Generator clamp: 0.2 … 1200 A, 1 mA / A, 40 Hz to 5 kHz, 52 mm dia.

■ Measuring range: 0.2 A … 1200 A
■ Measuring category: 600 V CAT III
■ Max. cable diameter: 52 mm
■ Transformation ratio: 1000 A / 1A
■ Frequency range: 40 Hz … 5 kHz
■ Output signal: 0.2 mA … 1.2 A

❐ **Usable with following instruments:**

     E-Clip 1: GEOHM 5
     E-Clip 2: GEOHM 5, PROFITEST MASTER

Scope of delivery:

E-Clip 1:
• Measuring clamp with connector cable (1.5 m) and laboratory safety plug

E-Clip 2:
• Generator clamp with laboratory safety plug inputs

CE

Type	Data Sheet No.	Article Number
E-Clip 1	–	Z591A
E-Clip 2	–	Z591B

Z591C power pack

Charger with 4 NiMH rechargeable batteries
Battery charging is indicated by means of a charging display.

■ Input: 230 V AC / 50 Hz
■ Output: 4.8 V DC / 350 mA

❐ **Usable with following instruments:**
     GEOHM 5

Scope of delivery:
• Charger
• 4 rechargeable NiMH batteries

Type	Data Sheet No.	Article Number
Z591C power pack	–	Z591C

GOSSEN METRAWATT

RS 232 – USB converter

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

❒ **Usable with following instruments:**
PROFITEST 0100S-II+, PROFITEST ONE,
METRISO 5000D-PI

Scope of delivery:
• Interface converter
• CD ROM with interface drivers
• Operating instructions

Type	Data Sheet No.	Article Number
RS 232 – USB converter	–	Z501L

IrDa-USB converter

Interface Adapter for Connecting Test Instruments to a PC (IrDA-USB)
Electrically isolated infrared interface for data transmission between test instrument and a PC (USB). Data transfer to and from the IrDa interfaces of our test instruments with a PC.

❒ **Usable with following instruments:**
PROFITEST 0100S-II+, PROFITEST ONE, PROFITEST C,
METRISO C, GEOHM C

Scope of delivery:
• IrDa-USB converter
• CD ROM with interface drivers for Windows 98SE, ME, 2000 and XP

Type	Data Sheet No.	Article Number
IrDa-USB converter	–	Z501J

Z541A T/H sensor

Adapter for temperature and atmospheric humidity measurement with infrared interface to the measuring instrument.
For determining ambient temperature and atmospheric humidity during floor measurements including:

■ Leakage, insulation and surface resistance

■ Temperature range: -10 ... +50° C

■ Humidity measuring range: 10 ... 90 % relative humidity

❒ **Usable with following instruments:**
PROFITEST 0100S-II+, PROFITEST ONE, METRISO C, GEOHM C

Scope of delivery:
• Z541A T/H sensor

Type	Data Sheet No.	Article Number
T/F sensor	–	Z541A

Variable Plug Adapter Set

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 to 12 mm, e.g. CEE, Perilex sockets etc.
For example, the test probes also fit the square PE jacks on Perilex sockets.
Maximum allowable operating voltage: 600 V per IEC 61010.

❑ **Usable with following instruments:**
PROFITEST 2, PROFITEST MASTER, PROFITEST 0100S-II+,
PROFITEST ONE, PROFITEST C
METRISO 5000D-PI, PROFITEST 204, METRAPHASE 1

Scope of delivery:
• Variable plug adapter set (3 pieces)

Type	Data Sheet No.	Article Number
Variable plug adapter set	–	Z500A

KS24 Cable Set

Cable set for test instruments
The KS24 cable set includes a 4 m long extension cable with a permanently attached test probe at one end and a contact protected socket at the other end, as well as two alligator clips which can be plugged onto the test probe.

❑ **Usable with following instruments:**
PROFITEST MASTER, PROFITEST 2, PROFITEST 0100S-II+,
PROFITEST ONE,
METRISO C, METRISO 500D, METRISO 1000D, METRISO 1000IR,
METRISO 1000A, METRISO 5024

Scope of delivery:
• KS24 cable set

Type	Data Sheet No.	Article Number
KS24	–	GTZ3201000R0001

NA101 / NA102 Battery Sets

NA101:
Charger for 0100S battery set

0100S battery set:
6 special rechargeable NiMH batteries in a battery holder (1300 mAh)

NA102:
Charger for rechargeable battery set

❑ **Usable with following instruments:**

NA101, 0100S battery set:
PROFITEST 2, PROFITEST 0100S-II+, PROFITEST ONE

NA102, battery set:
PROFITEST C, METRISO C, GEOHM C

Scope of delivery:
• NA101 charger
• 0100S battery set:
  6 rechargeable NiMH AA in battery holder
• NA102 charger
• 4 NiCd rechargeable baby cells

Type	Data Sheet No.	Article Number
NA101	–	Z501M
0100S battery set	–	Z501B
NA102	–	Z501N

GOSSEN METRAWATT

Made in Germany

TR25, TR50

TR25 Reel with 25 m measurement cable, cable ends are equipped with banana plugs.

TR50 Metal drum with 50 m measurement cable coiled onto a metal drum. Connection to the inside end of the cable is made possible with a socket integrated into the drum. The other end is equipped with a banana plug. The drum axle with handle can be removed.

❒ **Usable with following instruments:**
PROFITEST MASTER, PROFITEST 0100S-II+, PROFITEST ONE, METRISO C, METRISO 500D / 1000D / 1000IR, METRISO 1000A, METRAOHM 413
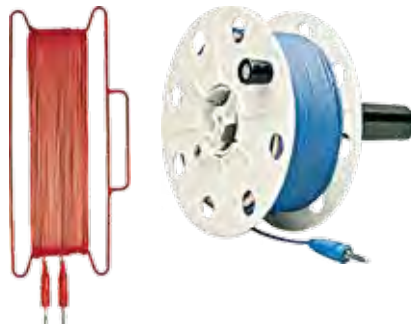
Scope of delivery:
- TR25: Reel with 25 m measurement cable
- **TR50**: Metal drum with 50 m measurement cable

Type	Data Sheet No.	Article Number
TR25	–	GTZ3303000R0001
TR50	–	GTY1040014E34

SP350

Earth Drill, 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.

❒ **Usable with following instruments:**
PROFITEST MASTER, PROFITEST 0100S-II+, PROFITEST ONE, GEOHM 5

Scope of delivery:
- Earth spike

Type	Data Sheet No.	Article Number
SP350	–	GTZ3304000R0001

Telearm 1

Telescoping rod with test probe, and with a socket in the handle for quick and safe testing of, for example, lamps installed at excessive heights for the measurement of protective conductor resistance.
The rod is 53 cm long and can be telescoped to a working length of 120 cm and locked.
Max. allowable voltage to earth: 1000 V.

❒ **Usable with following instruments:**
PROFITEST MASTER, PROFITEST 2, PROFITEST 0100S-II+, PROFITEST ONE,
METRISO C, METRISO 500D / 1000D / 1000IR, METRISO 1000A, METRAOHM 413

Scope of delivery:
- Telearm 1

Type	Data Sheet No.	Article Number
Telearm 1	–	GTZ3232000R0001

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1081 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, part 610

Usable with following instruments:
PROFITEST MASTER, PROFITEST 0100S-II+, PROFITEST ONE, METRISO C, METRISO 500D / 1000D / 1000IR, METRISO 1000A

Scope of delivery:
- 1081 probe

Type	Data Sheet No.	Article Number
1081 probe	–	GTZ3196000R0001

KY 5000 A

Alligator Clips, 5 kV Variant

Usable with following instruments:
METRISO 5000DP-I, METRISO 5000A

Scope of delivery:
- 2 alligator clips

Type	Data Sheet No.	Article Number
KY 5000 A	–	Z580B

Guard 5000 A, Leadex 5000

Guard 5000A:
Guard cable and 1 alligator clip

Leadex 5000:
Extension cable, 5m

Usable with following instruments:
METRISO 5000DP-I, METRISO 5000A

Scope of delivery:
- 1 guard cable and 1 alligator clip
- 5 m extension cable

Type	Data Sheet No.	Article Number
Guard 5000 A	–	Z580C
Leadex 5000	–	Z580D

Generator 5000 A

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

Usable with following instruments:
METRISO 5000A

Scope of delivery:
- Crank generator

Type	Data Sheet No.	Article Number
Generator 5000 A	–	Z580A

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Pouches, Cases

F2000 Universal carrying pouch for measuring and test instruments, as well as accessories.
Dimensions: 380 x 310 x 200 mm

K2000 Aluminum case with foam inserts and adjustable compartments for test instrument and accessories. Dimensions: 590 x 475 x 125 mm

Z504J Aluminum case. Dimensions: approx. 470 x 378 x 168 mm

HC30-C Hard case for series C test instruments and accessories.
Dimensions: 394 x 294 x 106 mm

HC40 Hard case for 2 series C test instruments and accessories.
Dimensions: 450 x 361 x 140 mm

❏ **Usable with following instruments:**
F2000:
PROFITEST MASTER, PROFITEST 2, PROFITEST 0100S-II+,
PROFITEST ONE, PROFITEST 204
METRISO 5000D-PI, METRISO 5000A

K2000:
PROFITEST 2, PROFITEST 0100S-II+, PROFITEST ONE,
PGS117T / 210 / 211

Z504J:
PGS2000

HC30-C, HC40:
PROFITEST C, METRISO C, GEOHM C

Scope of delivery:
• Pouch or case

F2000

K2000

Z504J

HC30-C
HC40

Type	Data Sheet No.	Article Number
F2000	3-349-126-02	Z700D
K2000	–	Z504K
Z504J	–	Z504J
HC30-C		Z541C
HC40	–	Z541D

Barcode Scanner and Label Printer

B3261: Barcode Scanner for Test Instruments with RS 232 Interface
For identifying devices and system components. Devices and system components are logged by our test instruments, and acquired measured values are allocated to them with the scanner. The barcode scanner is configured for use with the following codes: EAN13, CODE 39 and CODE 128.
The device can be operated as is with the SECUTEST... and the SECUTEST PSI. For operation with the PROFITEST PSI-BC, PROFITEST SI-BC and PROFITEST 204, it must first be configured with the codes included in the respective instructions – with code 128 only.

Z721D Barcode and label printer including software for connection to a PC. The barcode labels are self-adhesive and smudge-proof.

Z722D Label set for Z721D barcode and label printer
(qty. x width: 3 x 24 / 1 x 18 / 1 x 9 mm, 8 m long each)
Z722E Label set for Z721D barcode and label printer
(qty. x width: 5 x 18 mm, 8 m long each)

❏ **Usable with following instruments:**
PROFITEST MASTER, PROFITEST 0100S-II+, PROFITEST ONE,
PROFITEST PSI-BC, PROFITEST SI-BC,
PROFITEST 204, MetraMachine 204/2.5 and 439/5.4

Scope of delivery:
• Barcode scanner
• Barcode and label printer with software
• Label set

Type	Data Sheet No.	Article Number
B3261	3-349-338-15	GTZ3261000R0001
Z721D	–	Z721D
Z722D	–	Z722D
Z722E	–	Z722E

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PROFITEST 204+ / 204L+

Test Instruments for VDE 0113, EN 60204-1

Portable test instrument for all measurements per EN 60204, VDE 0113 and similar regulations (e.g. VDE 0701, 0700 etc.) for machines and their electrical systems.

Measuring instrument for:

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

Additional features:

- PC communication
- Measured value storage and reporting
- Dimensions (W x D x H): 255 x 133 x 240 mm, weight: approx. 5.1 kg

Software:

- Remote 204: control software for series testing at a PC
- WinProfi: for transmitting the desired language from a PC to the test instrument (included)
- PS3: modular universal software
- ELEKTROmanager
- PC.doc WORD/EXCEL
- PC.doc ACCESS

❏ See optional extras beginning on page 76

❏ See optional accessories beginning on page 77

❏ PS3 PC analysis software, WinProfi, PC.doc-WORD/EXCEL, PC.doc-ACCESS, ELEKTROmanager (beginning on page 115)

❏ See page 134 for training seminars: GTT1215

PROFITEST 204+ with Optional PSI Module

PROFITEST 204+ with Optional SI Module and Optional High-Voltage Module
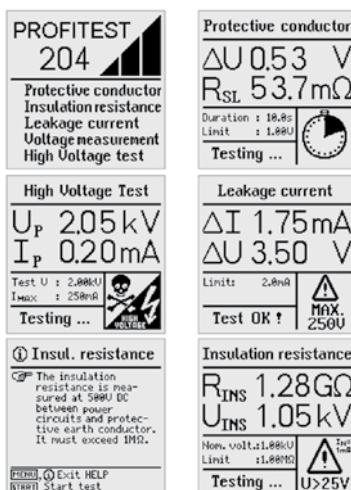
Scope of delivery:
PROFITEST 204+:

- Tester
- 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
- 1 factory calibration certificate
- 1 RS 232 bus cable for connection to the COM port
- Operating instructions
- WinProfi PC software
- **PROFITEST 204L+:** same as PROFITEST 204, with permanently connected 12 meter measurement cable including START/STORE function activation in the test plug

Type	Data Sheet No.	Article Number
PROFITEST 204+	3-348-802-03	GTM5027000R0001
PROFITEST 204L+	3-348-802-03	M505C

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MetraMachine 204/2.5+
MetraMachine 439/5.4+

MetraMachine 204/2.5+: Test Instrument for VDE 0113, EN 60204-1

Portable test system for all tests per EN 60204-1 (VDE 0113) and similar regulations (e.g. VDE 0701, 0700 etc.) for machines and their electrical systems.

PC communication, measured value storage and reports.

MetraMachine 439/5.4+: Test system for VDE 0660 T 500, EN 60439-1

Portable test system for testing low-voltage switchgear combinations per VDE 0660 T 500, EN 60439-1.

❒ **See page 128 for training seminars: GTT1215**

Scope of delivery:

MetraMachine 204/2.5+
- PROFITEST 204+
- PROFITEST 204HP
- Signal 204
- Leadex 204
- Caddy 204
- Test report

MetraMachine 204/2.5I+
- PROFITEST 204+
- PROFITEST 204HP
- Caddy 204
- Test report

MetraMachine 439/5.4+
- PROFITEST 204
- PROFITEST 204HV
- Signal 204
- Leadex 204
- Caddy 204
- Test report

Type	Data Sheet No.	Article Number
MetraMachine 204/2.5+	3-348-802-03	M504D
MetraMachine 204-I/2.5+	3-348-802-03	M504E
MetraMachine 439/5.4+	3-348-802-03	M504F

PROFITEST 204HP-2.5 kV
PROFITEST 204HV-5.4 kV

PROFITEST 204 HP-2.5

2 KV high-voltage module for connection to the PROFITEST 204+ and expanded measuring options for high-voltage testing with 2 x UN or 1000 V, from 500 VA transformer (max. 700 VA). Adjustable high-voltage: 1000 V ... 2000 V.

PROFITEST 204 HV-5.35

5 KV high-voltage module for connection to the PROFITEST 204+ and expanded measuring options for high-voltage testing for EN 60439 and similar regulations.

Adjustable high-voltage: 1000 V ... 5000 V (max. 100 VA).

■ Dimensions: 254 x 130 x 285 mm,
  fully mounted to the caddy: 380 x 250 x 650 mm,
  weight: approx. 8 kg

❒ **Usable with following instruments:**
  PROFITEST 204+, MetraMachine 204/2.5+ and 439/5.4+
  METRISO 5000D-PI

Scope of delivery:
- PROFITEST 204HP
- PROFITEST 204HV

Type	Data Sheet No.	Article Number
PROFITEST 204HP-2.5kV	3-348-802-03	M505A
PROFITEST 204HV-5.4kV	3-348-802-03	M505B

Made in Germany

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SECUTEST SI / SECUTEST PSI

SECUTEST SI – Memory and Input Module

Test results from the test instruments are transmitted to the SI module directly via the interface. Test results are saved on-site as clear-cut, reliably documented measurement and test reports with date and time. Stored data can be transmitted to a PC at a later point in time independent of the test instrument, and can be processed with PS3 or PC.doc-WORD/EXCEL software (ELEKTROmanager, PROTOKOLLmanager in preparation).

Optional Barcode Scanner – The B3261 barcode scanner (accessory) can be connected to the SI module, and existing barcodes are transferred to the test reports for information purposes – time-saving, inexpensive acquisition of large volumes of data, e.g. for series measurements performed on devices.

■ With the **PROFITEST 204+** and the **METRISO 5000D-PI**, the SI module serves strictly as an on-site input device for additional information regarding the system, the device under test, the customer or repairs.

SECUTEST PSI – Printer-Memory 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 200 to 1000 test reports can be stored to memory. Test results can be printed out on-site in the form of documented reports which can be furnished with date, time and text entered at the keypad.

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

■ Batteries: 4 ea. 1.5 V IEC LR 6 (AA) if operated with batteries

■ SECUTEST PSI consumable materials:
   PS-10P = pack of 10 six meter recording charts,
   Z3210 = pack of 10 printer ribbon cartridges

❒ **Usable with following instruments:**
   SECUTEST SII+, SECUTEST SIII+,
   PROFITEST 204+, MetraMachine 204/2.5+ and 439/5.4+
   METRISO 5000D-PI

Scope of delivery:

SECUTEST SI
• SI module
• Operating instructions

SECUTEST PSI
• PSI module
• 2 rolls of recording chart
• 1 ribbon cartridge
• Operating instructions including interface description

Type	Data Sheet No.	Article Number
SECUTEST SI	3-349-400-03	M702F
SECUTEST PSI	3-348-785-03	GTM5016000R0001
PS-10P	3-348-785-03	GTZ3229000R001
Z3210	3-348-785-03	GTZ3210000R001

Remote 204

Remote Control Software for Machine Tests

For testing protective measures via remote control –
helpful tool for small series machinery manufacturers and control cabinet fabricators, as well as manufacturers of low-voltage switchgear.

■ Editing and storage of test sequences

■ Control of the test instrument via the PC

■ Measured values can be imported from the test instrument and archived.

■ Measured values can be evaluated based upon preprogrammed limit values.

■ Test reports can be printed put.

■ Compatible with Windows 95, 98, NT4 and 2000

❒ **Usable with following instruments:**
   PROFITEST 204+, MetraMachine 204/2.5+ and 439/5.4+

Scope of delivery:
• Remote 204

Type	Data Sheet No.	Article Number
Remote 204	3-348-802-03	Z532A

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Accessories for PROFITEST 204+

Signal 204

Scope of delivery
- Article number
  as it appears in the
  description

Signal 204
- Combination indicator - signal lamp on a magnetic base plate for high-voltage tests in accordance with DIN VDE 0104

Cable Lug 204 (no photo)
- Adapter for PE and ISO tests – plug-on cable lug for secure attachment of the test probe to terminals

Leadex 204
- 12 meter extension for cable with test probe to which the measuring circuit fuse is installed

Leadex 204

Caddy 204
- Trolley for basic instrument combined with high-voltage module, includes cover with side pockets

Stop 204
- Emergency stop switch for MetraMachine 204

Claim 204
- Set of various items used to warn unauthorized persons and for securing large areas, machines or machine components during the performance of high-voltage testing.

Stop 204   Caddy 204

PROFI-MFII
- Interface adapter for PC keyboards

RS 232 – USB Converter
- Interface adapter cable for connecting the RS 232 interface 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

RS 232 – USB   PROFI-MFII

F2000
- Universal carrying pouch for test instrument and accessories

F2000

Claim 204

Type	Data Sheet No.	Article Number
Signal 204	3-348-802-03	Z504D
Cable Lug 204	3-348-802-03	Z504E
Leadex 204	3-348-802-03	Z504C
Caddy 204	3-348-802-03	Z504A
STOP 204	3-348-802-03	Z504F
Claim 204	3-348-802-03	Z504G
PROFI-MFII	3-348-802-03	Z504H
RS 232 – USB converter	3-348-802-03	Z501L
F2000	3-348-802-03	Z700D

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MetraPhase 1

Phase Sequence Indicator with Electronic Rotary Dial, Frequency Display and Nominal Line Voltage Display –Complies with Safety Regulations

The mechanical rotary dial based upon 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.

- DIN VDE 0413 / EN 61557 compliant
- Indicates direction of rotation and phase, as well as nominal line frequency and voltage
- Nominal range of use: 70 ... 690 V / 50 ... 400 Hz
- Power supply: 4 ea. AA battery per IEC LR 6
- Dimensions: 84 x 95 x 35 mm, weight: 0.3 kg

❒ **Optional accessories:**
GH18: rubber holster
Z500A: variable plug adapter set, 3.5 ... 12 mm dia.

CAT IV

Scope of delivery
- Phase sequence indicator
- 3 plug-in measurement cables with contact-protected plugs
- 3 plug-on test probes
- 1 alligator clip
- 4 batteries
- Carrying case
- Operating instructions

CE

Type	Data Sheet No.	Article Number
MetraPhase 1	3-348-992-03	M620A
GH18	–	GTZ3212000R0001
Z500A	–	Z500A

PhaseCop 2

Phase Sequence Indicator with LEDs and Contact Protected Plugs

Instrument for the determination of the direction of rotation, or 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.

- DIN VDE 0413 / EN 61557 compliant
- Indicates direction of rotation and phase
- Nominal range of use: 90 ... 660 V / 45 ... 1000 Hz
- Dimensions: 70 x 105 x 38.5 mm, weight: 0.3 kg

❒ **Optional accessories:**
F801 ever-ready case

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

CE

Type	Data Sheet No.	Article Number
PhaseCop 2	3-348-846-03	GTM5202000R0001
F801	–	GTY3172070P01

ProfiSafe 400, ProfiSafe 690

Voltage, Phase, Continuity, Polarity and Phase Sequence Indicator for up to 400 or 690 V
Rugged IP 65 voltage tester with 9 LEDs

- ■ Voltage measurement – phase, continuity and polarity testing
- ■ Phase sequence indicator
- ■ Supply power via durable solar cell with rechargeable lithium battery
- ■ Dielectric strength: > 5 kV (1.2/50 ms pulse wave), 5 kV test voltage
- ■ Dimensions: 50 x 230 x 35 mm + 1 m cable, weight: 0.17 kg

ProfiSafe ...	400	690
Nominal Voltage	12 ... 400 V	24 ... 690 V
Display levels	12 / 24 / 50 V	24 / 50 / 120 V
	120 / 230 / 400 V	230 / 400 / 690 V
Input impedance	117 kΩ	202 kΩ
Frequency Range	0 ... 2000 Hz	
Current	3.4 mA	
On-Time	30 s	
Continuity Test	0 ... 500 kΩ	

Scope of delivery
- • Voltage and continuity tester
- • Operating instructions

CAT IV

Type	Data Sheet No.	Article Number
ProfiSafe 400	3-349-402-03	M630E
ProfiSafe 690	3-349-402-03	M630F

METRAVOLT 7A, 12D

METRAVOLT 7A – Voltage Tester with Phase, Polarity and Phase Sequence Indicator per EN 61243-3 (VDE 0682 T 410)
2-pole voltage tester with LCD indicator, high quality moving-iron measuring element and LED display for testing direct and alternating voltage within the nominal voltage range, and for determining polarity, phase and direction of rotation. The rubber housing (IP 65 protection) protects the measuring movement against impacts, water and dust.

- ■ Dimensions: 50 x 230 x 35 mm + 1 m cable, weight: 0.17 kg

METRAVOLT 12D – Voltage, Phase, Continuity and Polarity Tester Plus Phase Sequence Indicator for up to 1200 V

- ■ Rugged IP 65 voltage tester with digital display
- ■ Voltage measurement: 8 ... 1200 V AC/DC
- ■ Phase testing, display of direction of rotation and continuity testing
- ■ Frequency range: 15 ... 10,000 Hz
- ■ Dielectric strength: 10 kV (1.2/50 µs pulse wave), 6 kV test voltage
- ■ Supply power provided by 9 V flat-cell battery
- ■ Dimensions: 50 x 230 x 35 mm + 1 m cable, weight: 0.17 kg

Scope of delivery
- • Voltage testers
- • Operating instructions

Type	Data Sheet No.	Article Number
METRAVOLT 7A	3-349-301-03	M630D
METRAVOLT 12D	3-349-201-03	M630C

Made in Germany

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METRACLIP 50

Clamp Meter with Analog Display
Measured value storage by means of mechanically arrested pointer.
Electrical safety per IEC 61010.

- AC measurement: 1.5 A ... 300 A
- Continuous current to 1200 A, intermittent to 4000 A
- Alternating voltage measurement: 150 V ... 600 V
- Clamp opening: 28 mm

Scope of delivery
- Current clamp with carrying strap
- 1 hard case
- 2 measurement cables
- Operating instructions

Type	Data Sheet No.	Article Number
METRACLIP 50	3-349-049-03	M300A

METRACLIP 51

Clamp Meter with Analog Display
Measured value storage by means of electrically arrested pointer.
Electrical safety per IEC 61010.

- AC measurement: 15 A ... 3000 A
- Continuous current to 1200 A, intermittent to 4000 A
- Alternating voltage measurement: 150 V ... 600 V
- Clamp opening: 60 mm

Scope of delivery
- Current clamp with carrying strap
- 2 pre-installed lithium batteries
- Hard case
- 2 measurement cables
- Operating instructions

Type	Data Sheet No.	Article Number
METRACLIP 51	3-349-049-03	M300B

METRACLIP 61

Digital Leakage Current Clamp
DATA HOLD and maximum / minimum display.

- Measurement of leakage and charging current
- Display: digital and bar graph
- 2 measuring ranges: 30 / 300 mA and 30 / 300 A
- Insensitive to external magnetic fields
- Clamp opening: 40 mm
- Compact, handy and lightweight

Scope of delivery
- Current clamp
- 2 button cell batteries
- Imitation leather pouch
- Operating instructions

Type	Data Sheet No.	Article Number
METRACLIP 61	–	M311D

METRACLIP 62

Current Clamp for Leakage and Charging Current
Leakage current clamp meter with specially shielded clamp opening for
protection against external influences.

- Leakage current measurement with following measuring ranges:
  200 mA, 2000 mA, 10 A TRMS AC / DC with Hall sensor
- Automatic zeroing
- Max. hold, min. hold, data hold, automatic shutdown
- Accuracy: ± 1 % ± 5 digits (50 / 60 Hz)
- LCD, 3½ digits, up to 1999
- Rugged housing

Scope of delivery
- Clamp meter
- Imitation leather pouch
- Batteries
- Operating instructions

Type	Data Sheet No.	Article Number
METRACLIP 62	3-349-392-03	M311F

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METRACLIP 63/64

Milliampere Current Clamp 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, a data interface, indication of exceeded measuring ranges and a flexible current sensor, and can be used even under very unfavorable mechanical conditions.

- ■ Measuring ranges:
  DC 100 mA / 1000 mA
  AC 100 mA / 1000 mA / 10 A
- ■ With digital display
- ■ Switching back and forth between DC and AC measurements
- ■ Zero balancing for DC measurements
- ■ Measured value storage (Data Hold)
- ■ Power Saving Circuit
- ■ Current clamp with 1.2 meter cable length
- ■ Connections for data loggers
  (max. output: 100 mV DC),
  e.g. multimeter with memory

METRACLIP 63
- ■ Clamp opening: 5 mm dia.

METRACLIP 64
- ■ Clamp opening: 30 mm dia.

Scope of delivery
- • Measuring instrument
- • Current clamp
- • 4 IEC LR6 batteries (AA)
- • Carrying pouch
- • Data recording cable
- • Operating instructions

Type	Data Sheet No.	Article Number
METRACLIP 63	3-349-487-03	M311G
METRACLIP 64	3-349-487-03	M311H

METRACLIP 70

Clamp Meter with 4½-Place Digital Display

Automatic or manual measuring range selection, DATA HOLD and maximum / minimum display.

Clamp functions
- ■ AC measurement: 200 mA … 1000 A$_{TRMS}$
- ■ DC measurement: 200 mA … 1400 A

Multimeter functions
- ■ Alternating voltage measurement: 200 mV … 600 V$_{TRMS}$
- ■ Direct voltage measurement: 200 mV … 600 V
- ■ Resistance measurement: 0.5 Ohm … 4 MOhm
- ■ Acoustic continuity test, diode testing
- ■ Frequency measurement: 1.00 Hz … 4 kHz

Scope of delivery
- • Current clamp including battery
- • Pouch
- • 2 measurement cables with test probes
- • Operating instructions

Type	Data Sheet No.	Article Number
METRACLIP 70	3-349-064-03	M312A

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METRACLIP 72

Digital Current Clamp
- DC and AC measurement: 0.2 … 400 A DC / AC RMS

Multimeter functions
- Direct and alternating voltage measurement: 0.2 … 600 V AC/DC RMS
- Frequency measurement: 10 … 19.99 kHz, frequency range … 1 kHz
- Continuity / buzzer: 1 … 40 Ω
- Resistance: 0.2 … 40.00 kΩ

Power measurement
- Active power: 5 … 240 kW, power factor: 0.20 … 1.00

Additional information
- Digital display: 4000 digits, accuracy: typically 1 % + 2 digits
- Min, Max and Hold
- Phase sequence, 2-wire at 50 / 60 Hz
- Clamp opening: < 26 mm dia.
- Overvoltage category III at 600 V, protection: IP 40

Scope of delivery
- Clamp multimeter including battery
- 2 measurement cables with contact-protected plugs and test probe
- 1 alligator clip
- Carrying pouch with hand strap
- Operating instructions

Type	Data Sheet No.	Article Number
METRACLIP 72	3-349-250-03	M312E

METRACLIP 75

Digital Current Clamp
- DC and AC measurement: 0.2 … 400 A DC / AC RMS

Multimeter functions
- Direct and alternating voltage measurement: 0.2 … 600 V AC/DC RMS
- Frequency range: … 1 kHz
- Continuity / buzzer: 1 … 40 Ohm
- Resistance: 0.2 … 4000 Ohm

Additional information
- Digital display: 4000 digits, accuracy: typically 1 % + 2 digits
- Min, Max and Hold
- Phase sequence, 2-wire at 50 / 60 Hz
- Clamp opening: < 26 mm dia.
- Overvoltage category III at 600 V, protection: IP 40

Scope of delivery
- Clamp multimeter including battery
- 2 measurement cables with contact-protected plugs and test probe
- 1 adapter for type K thermocouple
- Carrying pouch with hand strap
- Operating instructions

Type	Data Sheet No.	Article Number
METRACLIP 75	3-349-250-03	M312H

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METRACLIP	50	51	61	62	63	64	70	72	75
Clamp opening (mm)	28	60	40	18	5	30	42	26	26
CAT / Vmax (V)	III / 600	III / 1000	III / 300	III / 300	II / 600 – III / 300	II / 600 – III / 300	III / 600	III / 600	III / 600
Display, digits	Analog	Analog	Digital + bar graph	Digital	Digital	Digital	Digital	4000	4000
Current (A)	1.5 – 300 AC	15 – 3000 AC	0 – 0.3 / 0 – 300 AC	200 m AC / DC 2000 m AC / DC 10 AC / DC	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 – 1400 DC 0.2 – 1000 AC RMS	0.2 – 400 DC/AC RMS	0.1 – 200 AC TRMS 0.2 – 400 DC / AC RMS
Voltage (V)	150 – 600	150 – 600	–	–	–	–	0.2 – 600 DC 0.4 – 600 AC	0.2 – 600 DC/AC RMS	0.2 – 600 DC / AC RMS
Frequency range for U / I (Hz)	48 – 52 40 – 100 / 40 – 400	40 – 60	50 – 60	50 – 120	–	–	45 – 450	1 k	1 k
Peak memory	–	–	Min / Max	Min / Max HOLD	DATA HOLD	DATA HOLD	Min / Max	Min / Max HOLD	Min / Max HOLD
Frequency measurement (Hz)	–	–	–	4 k … 19.99 k	–	–	… 2 k	–	–
Harmonic analysis	–	–	–	–	–	–	–	–	–
Continuity	–	–	–	Ohm / diode	–	–	1 – 40	< 30	–
Resistance (Ohm)	–	–	–	0.5 – 4 M	–	–	0.2 – 40 k	2 k	–
Active power (W)	–	–	–	5 – 240 k	–	–	… 200 k	–	–
Apparent power (VA)	–	–	–	… 200 k	–	–	–	–	–
Reactive power (Var)	–	–	–		–	–	–	… 200 k	–
Power factor	–	–	0.1 – 1	0 … 1	–	–	–	–	–
Energy (kWh)	–	–	… 2000	–	–	–	–	–	–
Datalog, memory	Mechanical	■	–	–	–	–	■	–	–
Analog output	–	–	–	–	–	–	–	–	–
Interface	–	–	–	–	–	–	–	–	–
Accuracy	Class 2.5	Class 2.5	± (1.2 % + 5 d) (– 5 % ± 5 d)	1 % ± 3 / 5 / 10 digits	1 % ± 10 digits	1 % ± 10 digits	–	1 % + 2 digits	1 % + 2 digits
Power Supply	–	3 V, 850 mAh	2 ea. LR44 / SR44	2 ea. LR6 (AA)	4 ea. LR6 (AA)	4 ea. LR6 (AA)	9 V, IEC 6 LR61	9 V, IEC 6 LF22	9 V, IEC 6 LF22
Dimensions (mm)	88 x 220 x 40	112 x 313 x 60	64 x 176 x 23	76 x 194 x 30	19 x 113 x 28	33 x 124 x 24	97 x 254 x 46 mm	70 x 193 x 37 mm	70 x 193 x 37 mm
Weight with battery	0.5 kg	0.9 kg	0.125 kg	0.35 kg	0.28 kg	0.28 kg	0.6 kg	0.26 kg	0.26 kg

GOSSEN METRAWATT

Made in Germany

Modules, adapters, plugs, plug inserts, cable sets

Type	Designation	PROFITEST ... MBASE	MPRO	MTECH	MXTRA	2	0100S-II+	ONE	C	204+	204L+	METRAOHM 413	METRISO C	500D	1000D(IR)	5000D-PI	1000A	5000A	5024	GEOHM C	GEOHM 5	Article Number
PROFITEST SI-BC	Memory and interface module	—	—	—	—	—	●	●	—	—	—	—	—	—	—	—	—	—	—	—	—	M522E
PROFITEST PSI-BC	Printer/memory/interface module	—	—	—	—	—	●	●	—	—	—	—	—	—	—	—	—	—	—	—	—	M522D
PROFITEST PSI-E	Printer/memory/interface module	—	—	—	—	—	●	●	—	—	—	—	—	—	—	—	—	—	—	—	—	M522A
PROFITEST DC-II	Test instrument for AC/DC sensitive RCCBs	—	—	—	—	●	●	●	—	—	—	—	—	—	—	—	—	—	—	—	—	M523A
PROFITEST S1	Simulation model per DIN VDE 0100	●	●	●	●	—	●	●	—	—	—	—	—	—	—	—	—	—	—	—	—	GTM5101000R0001
SECUTEST PSI	PSI module (printer, memory, RS 232 interface)	—	—	—	—	—	—	—	—	●	●	—	—	—	—	●	—	—	—	—	—	GTM5016000R0001
SECUTEST SI	PSI module (memory, RS 232 interface)	—	—	—	—	—	—	—	—	●	●	—	—	—	—	●	—	—	—	—	—	M702F
DA-II	Printer adapter for external printer	—	—	—	—	—	●	●	—	—	—	—	—	—	—	●	—	—	—	—	—	Z745M
A3-16	5-pole 3-phase adapter for 16 A CEE outlets	●	●	●	●	●	●	●	●	●	—	—	—	—	—	—	—	—	—	—	—	GTZ360200R001
A3-32	5-pole 3-phase adapter for 32 A CEE outlets	●	●	●	●	●	●	●	●	●	—	—	—	—	—	—	—	—	—	—	—	GTZ360300R001
A3-63	5-pole 3-phase adapter for 63 A CEE outlets	●	●	●	●	●	●	●	●	●	—	—	—	—	—	—	—	—	—	—	—	GTZ360400R001
3-pole adapter	3-phase measuring adapter for Schuko plug, or for CH, UK	—	—	—	—	●	—	—	—	●	—	—	—	—	—	—	—	—	—	—	—	Z521A, B, C
VARIO-STECKER	Plug set, 3.5 to 12 mm dia. (3 pieces)	●	●	●	●	●	●	●	●	●	—	—	—	—	—	—	—	—	—	—	—	Z500A
Telearm1	Telescoping rod for PE measurement	●	●	●	●	●	●	●	●	●	—	—	●	●	●	●	—	●	—	—	—	GTZ3232000R0001
TR25	Reel with 25 m measurement cable	●	●	●	●	●	●	●	●	●	—	—	●	●	●	●	—	●	—	—	●	GTZ3303000R0001
TR50	Drum with 50 m measurement cable	●	●	●	●	●	●	●	●	●	—	—	●	●	●	●	—	●	—	—	●	GTY1040014E34
SP350	Earth drill, 35 cm long	●	●	●	●		●	●	●	●	—	—	—	—	—	—	—	—	—	—	●	GTZ3304000R0001
KS24	Extension cable, 4 m	●	●	●	●	●	●	●	—	—	—	—	●	●	●	—	●	—	●	—	—	GTZ3201000R0001
KS-C	Cable set: high-resistance measurement cable for measurements in the GΩ range	—	—	—	—	—	—	—	—	—	—	—	●	—	—	—	—	—	—	—	—	Z541F
PRO-Schuko	Plug insert for PRO-A3 adapter in Germany	●	●	●	●	●	●	●	—	—	—	—	—	—	—	—	—	—	—	—	—	GTZ3225000R0001
PRO-CH	Plug insert for PRO-A3 adapter in Switzerland	●	●	●	●	●	●	●	—	—	—	—	—	—	—	—	—	—	—	—	—	GTZ3226000R0002
PRO-RSA	Plug insert for PRO-A3 adapter in South Africa	●	●	●	●	●	●	●	—	—	—	—	—	—	—	—	—	—	—	—	—	Z501A
PRO-A3	Measuring adapter for systems, 3-phase current, phase sequence	—	—	—	—	●	●	—	—	—	—	—	—	—	—	—	—	—	—	—	—	GTZ3214000R0001
PRO-RLO	Plug inserts for PE and other similar measurements	—	—	—	—	—	●	—	—	—	—	—	—	—	—	—	—	—	—	—	—	GTZ3214000R0002
PRO-UNI	Plug inserts with 3 connector cables for any connection standards	—	—	—	—	●	●	—	—	—	—	—	—	—	—	—	—	—	—	—	—	GTZ3214000R0003
IrDa-USB	IR to USB interface	—	—	—	—	—	●	●	●	—	—	—	●	—	—	—	—	—	—	●	—	Z501J
RS 232 – USB	Adapter cable, RS 232 to USB interface	—	—	—	—	—	●	●	—	—	—	—	—	—	—	—	●	—	—	—	—	Z501L
Clip-on adapter cable	Adapter cable for current clamps, banana plugs to jack plugs	—	—	—	—	—	●	●	—	—	—	—	—	—	—	—	—	—	—	—	—	Z501G
Z580A	Crank generator	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	—	—	—	Z580A
KY 5000A	Alligator clips, 2 ea.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	—	●	—	—	—	Z580B
Guard 5000A	Guard cable, 1 ea. with 1 alligator clip	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	—	●	—	—	—	Z580C
Leadex 5000	Extension cable, 5 m	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	—	●	—	—	—	Z580D

Made in Germany

GOSSEN METRAWATT

Type	Designation	PROFITEST ... MBASE	MPRO	MTECH	MXTRA	2	0100S-II+	ONE	C	204+	204L+	METRAOHM 413	METRISO C	500D	1000D(IR)	5000D-PI	1000A	5000A	5024	GEOHM C	GEOHM 5	Article Number
Clip-on ammeters, temperature sensors																						
WZ12C	Current clamp sensor: 1mA ... 15 A/1A ... 150 A AC, switchable	●	●	●	●	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Z219C
Z3512A	Current clamp sensor: 0.1/1/10/100/1000 A AC, switchable	●	●	●	●	—	●	●	—	—	—	—	—	—	—	—	—	—	—	—	—	Z225A
CLIP 0100S	Current clamp transformer: 1 mA ...15A (1 mV / mA, ± 3%), 1 ...150A (1 mV / A, ± 2%)	—	—	—	—	●	●	●	—	—	—	—	—	—	—	—	—	—	—	—	—	Z501E
E-CLIP 2	Generator clamp: 0.2 ... 1200 A, 1 mA / A, 40 Hz - 5 kHz, 52 mm dia.	●	●	●	●	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	Z591B
T/F sensor	Sensor for temperature and relative humidity	—	—	—	—	—	●	●	—	—	—	—	●	—	—	—	—	—	—	—	—	Z541A
Probes																						
1081 probe	Triangular probe for floor measurements	●	●	●	●	●	●	●	●	—	—	—	●	—	●	—	●	—	—	—	—	GTZ3196000R0001
Barcode scanner / printer																						
B3261	Barcode reader / scanner, infrared with RS 232 interface	●	●	●	●	—	●	●	—	●	●	—	—	—	—	—	—	—	—	—	—	GTZ3261000R0001
Z721D	Barcode printer	●	●	●	●	—	●	●	—	●	●	—	—	—	—	—	—	—	—	—	—	Z721D
Z720A	Barcode reader / scanner with laser and RS 232 interface	●	●	●	●	—	●	●	—	●	●	—	—	—	—	—	—	—	—	—	—	Z720A
Z751G	RFID reader / scanner, (13.56 MHz) with RS 232 interface	●	●	●	●	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Z751G
Z751F	RFID reader/writer, SCANWRITE (13.56 MHz), Bluetooth	●	●	●	●	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Z751F
Chargers, Battery Sets																						
Z591C	Charger with 4 NiMH rechargeable batteries	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	Z591C
NA101	Charger for 0100S battery set	—	—	—	—	●	●	●	—	—	—	—	—	—	—	—	—	—	—	—	—	Z501M
NA102	Charger for battery sets for C series instruments	—	—	—	—	—	—	—	●	—	—	—	●	—	—	—	—	—	—	●	—	Z501N
0100S battery set	6 special rechargeable NiMH batteries in a battery holder (1300 mAh)	—	—	—	—	—	●	●	—	—	—	—	—	—	—	—	—	—	—	—	—	Z501B
Pouches, Cases																						
F2000	Universal pouch	●	●	●	●	●	●	●	—	●	●	—	—	—	—	—	●	—	●	—	—	Z700D
K2000	Aluminum case for PROFITEST and accessories	—	—	—	—	●	●	●	—	—	—	—	—	—	—	—	—	—	—	—	—	Z504L
HC30-C	Hard case for series C testers and accessories	—	—	—	—	—	—	—	●	—	—	—	●	—	—	—	—	—	—	●	—	Z541C
HC40	Hard case for 2 series C testers and accessories	—	—	—	—	—	—	—	●	—	—	—	●	—	—	—	—	—	—	●	—	Z541D
F837	Ever-ready case	—	—	—	—	—	—	—	—	—	—	—	—	●	●	—	●	—	—	—	—	GTZ3312000R0001

TR-Spy Mark II

Fully Automated, 3-Phase Transformer-Turns Ratio Meter

The TR-Spy Mark II is a rugged, lightweight instrument which automatically measures turns ratio, voltage ratio, current consumption, and phase displacement.

Thanks to internal adaptation to all possible 3-phase configurations, the instrument only has to be connected to the transformer once. The Mark II measures the highest ratios (0.8 ... 13,000) with the greatest accuracy in its class (0.08%). Turns ratio characteristics can be viewed as a graphic representation.

Even with the predecessor instrument, ease of use was unparalleled, and it's now been further optimized despite many additional functions.

- Highly accurate for the measurement of voltage-turns ratio, as well as current and phase displacement.
- Can be switched back and forth between voltage and turns ratio
- Internal memory for measurement results
- Single hook-up to the transformer
- 5 measuring voltage ranges: 1 V, 10 V, 40 V, 100 V and automatic
- Comparison with a nominal ratio
- Load on device under test < 0.05 VA
- Safety and protection circuitry
- Centronics (parallel) and RS 232 interfaces
- Emergency stop
- Rugged, lightweight, water-proof carrying case
- 2 year standard guarantee
- Self-calibration
- Switching output for tap changer
- Downloadable PC software
- Firmware update via Internet or PC

Specifications

- Turns ratio measuring range: 0.8 ... 13 000, Resolution: 5 places, turns ratio accuracy: 0.08%
- Test current range: 0 ... 1 A, accuracy: 1%
- Phase displacement measuring range: ±180°, accuracy: 0.05°
- Fully graphic compatible LCD with background illumination
- Piezo-electric keypad
- Interfaces: 9-pin RS 232 serial / 25-pin Centronics parallel
- Memory for measurement results: up to 12,000
- Line voltage: 100 to 240 V AC, 50 / 60 Hz auto-ranging
- Selectable test voltage: 100, 40, 10 or 1 V AC (max. 1 A)
- Working temperature: -10 to 60° C / storage temperature: -40 to 70° C
- Dimensions (W x D x H): 470 x 371 x 190 mm / weight: 9.0 kg

Toolbox software can be downloaded free of charge
TRO201 measurement cable extensions in various lengths
TRO203 external remote trigger

Scope of delivery:
- TR-Spy Mark II including 15 m cable set (10 m extension, 5 m connector cable)
- Operating Instructions

- TR-Mark IIR
- Operating Instructions

TR-Mark IIR: 19" rack model

Type	Article number	
TR-Spy Mark II	M681B	*Prices and sales upon request*
TR-Mark IIR	M681S	

GOSSEN METRAWATT   Raytech GmbH SWITZERLAND   **Made in Switzerland**

TR-1, TR-1P

Portable, single-phase ratio meter for rough use in the field.
The TR-1 is a fully automated, single-phase transformer-turns ratio meter which is suitable for precise laboratory applications, as well as for use in the field.
The TR-1 is a rugged, lightweight instrument which automatically measures turns ratio, excitation current and phase displacement.
The TR-1 measures the highest ratios (0.8 ... 4000) with the greatest accuracy in its class (0.08%), in the CT mode down to very low power ratings. It's is easy to operate, and can be used for all single and multiphase transformers. Mains-independent operation with recharge-able batteries.

Specifications

- Rugged, lightweight, water-proof carrying case
- Operation with rechargeable battery
- Rechargeable with mains power or 12 V automotive adapter
- Graphic LCD panel with background illumination
- Internal memory of the last 100 measurements
- Up to 1000 measurements with fully charged battery
- Memory for up to 16 transformers for comparisons
- Continuity test
- Polarity test
- Fully automated measurement
- Comparison function with nominal values
- Test currents of up to 1 A for current transformer test (CT)
- Lithium ion battery, 16.4 V / 1.6 Ah
- 2 year standard guarantee
- **TR-1P** with integrated printer

Measuring Parameters

- Turns ratio:
  Range: 0.8 ... ...100, resolution: 5 digits
  Accuracy PT (40 V): ± 0.08% rdg. ± 1 LSD
  Accuracy CT (1 - 5 V): ± 0.08% rdg.± 1 LSD
  Range: 101 ... 4000, resolution: 5 digits
  Accuracy PT (40 V): ± 0.08% rdg. ± 1 LSD
- Test current: PT mode: 0 ... 0.1 A, CT mode: 0 … 1 A
  Accuracy: ± 1 mA, resolution: 0.1 mA
- Output voltage:
  PT mode: 40 V AC, CT mode: 1 ... 5 V automotive range
  Mains input:
  100 to 250 V AC, 50 / 60 Hz (automatic), 12 V DC (optional)
- Interface: RS 232
- Front panel: anodized aluminum
- Operating temperature: -10 ... 60° C, storage temperature:
  -40 ... 70° C
- Dimensions: W x D x H: 270 x 245 x 125 mm, weight: 3.2kg

Scope of delivery:
- TR-1
  including 5 m cable set
- Operating instructions

- TR-1P
  including 5 m cable set
  and printer module
- Operating instructions

Type	Article Number	
TR-1	M681R	*Prices and sales upon request*
TR-1P	M681K	

Made in Switzerland

Raytech GmbH
SWITZERLAND

GOSSEN METRAWATT

Micro Junior 2

10 A Micro-Ohmmeter, Portable and Fully Automated

For testing and documenting connection and contact resistance

- ■ Extremely accurate resistance measurement in the field
- ■ Suitable for individualized field use thanks to battery operation
- ■ Fully graphic compatible display, self-calibration
- ■ Can be expanded for turns resistance measurement (50 A, 50 V) with WR50-1A
- ■ Internal memory for measurement results
- ■ Integrated reports printer
- ■ Current ranges: 1 mA DC … 10 A DC, safety / protection circuit
- ■ Single pushbutton operation, emergency stop
- ■ Rugged, lightweight, water-proof carrying case
- ■ 2 year guarantee

Resistance Measurement

- ■ Test current: 10 mA … 10 A DC, resolution: 4 digits, accuracy: 0.1 %
- ■ Battery: 14.8 V / 6 Ah, external charger: 100 to 240 VAC 50 / 60 Hz
- ■ Interface: 9-pin RS 232 serial
- ■ Internal memory for 2000 measurement results
- ■ Working temperature: -10 … 60° C, storage temperature: -40 … 70° C
- ■ Dimensions (W x D x H): 410 x 337 x 178 mm, weight: 5.9 kg
- ❏ **See page 88 for optional accessories**

Scope of delivery:
- Micro Junior 2 including 3 m cable set (alligator clips)
- Operating instructions

Type	Article Number	
Micro Junior 2	M681A	*Prices and sales upon request*

Micro Centurion II

200 A Micro-Ohmmeter

For measurement of contact resistance at circuit breakers and connections.

- ■ Extremely accurate resistance measurement in the field
- ■ Single pushbutton operation / continuous current
- ■ Graphics compatible display / self-calibration
- ■ Internal memory for measurement results
- ■ Safety and protection circuitry, emergency stop
- ■ Rugged, water-proof carrying case
- ■ Large input voltage range
- ■ 2 year guarantee

Resistance Measurement

- ■ Test current: 10 … 200 A DC, resolution: 4 digits, accuracy: 0.1 %
- ■ Large input voltage range: 100 … 205 V AC, 45 … 65 Hz, max. 1 kW
- ■ Temperature measurement (optional): -20 … 140° C, resolution: 0.1° C, accuracy: ± 0.7 %
- ■ Graphic LCD with background illumination
- ■ Interfaces: 9-pin RS 232 serial / 25-pin Centronics parallel
- ■ Internal memory: up to 2000 measurement results
- ■ Working temperature: -10 … 60° C, storage temperature: -40 … 70° C
- ■ Dimensions (W x D x H): 521 x 432 x 216 mm, weight: 14,4 kg
- ❏ **See page 88 for optional accessories**

Scope of delivery:
- Micro Centurion II including 5 m cable set (alligator clips)
- Operating instructions

Type	Article Number	
Micro Centurion II	M681E	*Prices and sales upon request*

GOSSEN METRAWATT　　　　**Raytech GmbH**　　　　**Made in Switzerland**

WR50-1A

Winding Resistance Measuring Option for the Micro Junior 2
The revolutionary charging and discharging unit in the WR50 allows for
extremely quick measurement of highly inductive resistance.

- Charges inductive loads up to 1500 Henry, high power supply:
  50 A / 50 VDC
- Selectable current for resistance measurement: from 0.1 mW to 100 Ω
- Fastest discharge unit on the market (more than 10 times faster)
- Three temperature measuring channels
- Flashing light warns: "Transformer is Energized"
- Visual and acoustic indication of charge statuses, can be remote
  controlled from a PC
- Water-proof housing, extremely rugged
- Unsurpassed safety and protection circuitry
- 2 year guarantee

Resistance Measurement

- Selectable test current: 50, 40, 30, 25, 20, 10 or 5 A DC
- Output voltage: 0 … 50 VDC
- Mains input: 100 … 250 VAC (1.5 kW max.) 50 / 60 Hz (automatic)
- Working temperature: -10 to 60° C, storage temperature: -40 to 70° C
- Dimensions (W x D x H): 521 x 432 x 216 mm, weight: 16.8 kg

❏ See page 88 for optional accessories

Scope of delivery:
- WR50-1A including
  10 m cable set
- Operating instructions

Type	Article Number	
WR50-1A	M681F	*Prices and sales upon request*

WR50-12, 13,-12R, -13R

**50 A Winding Resistance Meter, 2-Channel (WR50-12) or
3-Channel (WR50-13)**
The revolutionary charging and discharging circuit in the WR50 allows
for extremely quick resistance measurement of highly inductive loads,
at the same time assuring maximum safety.

- Charges inductive loads up to 1500 Henry
- High power supply: 50A / 50V DC
- Selectable current for resistance measurement: from 0.05 uΩ to 100 kΩ
- Fastest discharge unit on the market (more than 10 times faster)
- Fully automatic degaussing circuit (internationally unique)
- Three temperature measuring channels
- Direct temperature correction for resistors
- "Heat-run" test can be implemented (option)
- Color LCD panel, backlit touch-screen
- Integrated printer (interval controlled print-outs)
- Interfaces: 2 each USB and 1 each RS 232
- Stores up to 10,000 complete measurement results
- Visual and acoustic indication of charge and discharge statuses
- Easy operation with touch-screen
- Water-proof housing
- Unsurpassed safety and protection circuitry
- Selectable test current: 50 … 0.01 A DC
- Output Voltage: 0 to 50 V DC
- Mains input: 90 … 250 V AC (1.5 kW max.) 50 / 60 Hz (automatic)
- Working temperature: -10 … 60° C, storage temperature:
  -20 … 70° C
- Dimensions (W x H x D): 521 x 432 x 216 mm, weight: 16.6 kg

❏ See page 88 for optional accessories

Scope of delivery:
- WR50-12
  or
- WR50-13
- Operating instructions

19" rack model
WR50-12R, -13R

Type	Article Number	
WR50-12	M681M	
WR50-12R	M681T	*Prices and sales upon request*
WR50-13	M681N	
WR50-13R	M681P	

Made in Switzerland

Raytech GmbH SWITZERLAND

GOSSEN METRAWATT

T-Rex

Voltage Vector Measuring Option for the TR-Spy Mark II, 3-Phase, Fully Automated

The T-Rex allows the operator to test the phase relationships of transformer windings while applying three phase voltage.

This system is thus capable of precisely measuring the angular relationships of 3-phase transformers. This option is especially useful for transformers with phase relationships other than 30 degrees or multiples thereof.

- Self-calibration, 3-phase voltage vector measurement
- Single hook-up to the transformer
- Load on device under test: < 0.05 VA
- Safety and protection circuitry, Centronics (parallel) interface
- Rugged, lightweight, water-proof carrying case, 2 year guarantee
- Line voltage: 100 to 240 VAC, 50/60 Hz auto-ranging
- Test voltage: 40 VAC / 0.5 A max.
- Working temperature: -10 to 60° C, storage temperature: -40 to 70° C
- Dimensions (W x D x H): 470 x 371 x 190 mm, weight: 7.85 kg
- **Usable with following instruments:**
  TR-Spy Mark II

Scope of delivery:
- T-Rex or T-Rex R
- Operating instructions

19" rack model
T-Rex R

Type	Article Number	
T-Rex	M681D	*Prices and sales upon request*
T-Rex R	Z681G	

TR-Checkbox

Checkbox for Checking Ratio Measurements and Current Measurements

- 3 different ratios: 10:1, 100:1, 1000:1
- 1 current range: 100 mA
- Turns ratio accuracy: 0.1%
- Test current accuracy: 1%
- **Usable with following instruments:**
  TR-Spy Mark II, TR-MARK IIR

Scope of delivery:
- TR-Checkbox
- Operating instructions

Type	Article Number	
TR-Checkbox	M681L	*Prices and sales upon request*

TR-Toolbox

Data Transfer Software for TR and Micro Instruments

Free software makes it possible to transfer the contents of the measurement data memories of TR and Micro instruments to a PC, and to update device firmware.

System requirements:
- Can be used with Windows 95, 98, ME, NT, 2000 and XP
- Requires 10 MB available memory space and 1 serial port
- User interface: English and German
- Download version 2.31 (6.69 MB)
- **Usable with following instruments:**
  TR-Spy Mark II, TR-MARK IIR, Micro Junior 2, Micro Centurion II
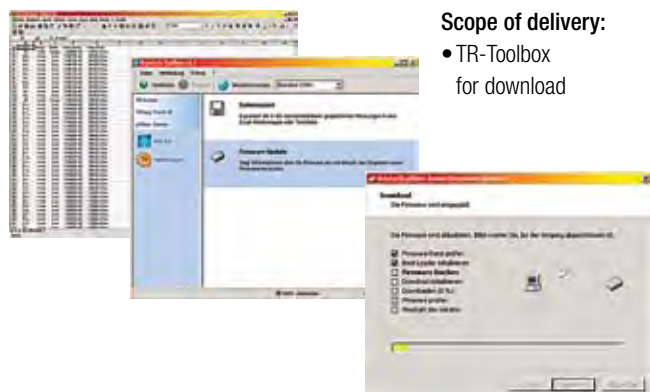
Scope of delivery:
- TR-Toolbox
  for download

Type	Article Number	
TR-Toolbox	–	*Prices and sales upon request*

GOSSEN METRAWATT

Raytech GmbH SWITZERLAND

Made in Switzerland

Optional accessories

TRO201

■ 10 m measurement cable extension (also in various other lengths)

❒ **Usable with following instruments:**
   TR-Spy Mark II, WR 50-12 / WR 50-13

TP02

■ Temperature probe

❒ **Usable with following instruments:**
   Micro Junior 2, Micro Centurion II, WR 50-12 / WR 50-13

TP01

■ Temperature probe

❒ **Usable with following instruments:**
   , Micro Centurion II, WR 50-1A, WR 50-12 / WR 50-13

TRO203

■ Trigger switch, length: 10 m

❒ **Usable with following instruments:**
   TR-Spy Mark II

MJO201

■ Kelvin clips, length: 3 m

❒ **Usable with following instruments:**
   Micro Junior 2

TRO 201

TP 01 / TP 02

TRO 203

MJO 201

Scope of delivery:
- Measurement cable extension
  or
- Temperature probe
  or
- Trigger switch
  or
- Kelvin clips

Type	Article Number	
TRO201	Z681D	
TP02	Z681B	
TP01	Z681E	*Prices and sales upon request*
TRO203	Z681C	
MJO201	Z681A	

Made in Switzerland

Raytech GmbH
SWITZERLAND

GOSSEN METRAWATT

Test Instruments for Testing the Safety of Electrical Equipment

At work
In the R&D lab
During production

MINITEST – METRATEST – SECUTEST – SECUSTAR

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

As an equipment manufacturer	IEC / EN 61010, IEC / EN 60601, IEC / EN 60335, IEC 60950
For service or as the operator	DIN VDE 0701 – 0702
For medical devices	DIN VDE 0751 / IEC 62353
For welding equipment	IEC / EN 60974-4
Amongst other quantities, the following are measured / tested:	Protective conductor resistance
	Insulation resistance
	Leakage current
	Dielectric strength
	Supply voltage
	Function test

The test instruments themselves are manufactured strictly in accordance with stipulations set forth in DIN VDE 0404, IEC 61010 (VDE 0411) and IEC 61557 (VDE 0413).

Designation	MINITEST			METRATESTER 5+	SECUTEST			SECUSTAR FM
	BASE	PRO	MASTER		S2 N+	S2 N+10	SIII+	
Article Number	M712C	M712D	M712U	M700D	M7010-V031	M7010-V032	Configurable	M7020-V001
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)	–	–	–	–	–	–	✓	–
Interfaces								
USB (m = master, s = slave)	–	S	S	–	–	–	–	4 × m
Ethernet	–	–	–	–	–	–	–	✓
CF connection	–	–	–	–	–	–	–	✓
RS 232C	–	–	✓	–	✓	✓	✓	–
Test Sequences	–	–	–	–	Fixed, per standard		Fixed, per standard	Programmable
Data memory (DUTs)	–	–	2000 measured values		125 (PSI option: approx. 400)			Approx. 3000 (reduced performance with > 3000)
Software (optional)	–	Free (PC.doc, optional)		PC.doc	PC.doc, PS3, ELEKTROMANAGER			PS3, vFM
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 = difference				
Protective conductor current	Δ ac	Δ ac	Δ ac	E, Δ ac	E, Δ ac	E, Δ ac	d ac, dc, rms E, Δ ac	d rms E, Δ ac
Contact current	d	d	d	d ac	d ac, dc, rms	d ac, dc, rms	d ac, dc, rms E	d ac, dc, rms E, Δ ac
Patient leakage current	–	–	–	–	d ac, dc, rms	d ac, dc, rms	d ac, dc, rms E ac	d ac, dc, rms
Leakage current from application part	–	–	–	–	E ac	E ac	d ac E ac	E 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 c
Function Test	U = line voltage		I = current consumption		P = power		LF = power factor	
	–	–	–	U, I	U, I, P, LF	U, I, P, LF	U, I, P, LF	U, I, P, LF
Other Measurements	–	–	–	–	–	–	–	Expandable with external measurements
High-voltage test	–	–	–	–	–	–	✓	–
RCD test	–	–	–	–	–	–	–	✓
Voltage	–	–	–	–	✓	✓	✓	–
Temperature: Pt 100 / Pt 1000	–	–	–	–	✓	✓	✓	–
Miscellaneous								
Display	LED	2-line LCD		Customer-specific	Dot matrix			Color touch-screen
Operation	Rotary switch, save key			Rotary switch	Rotary switch, scroll keys			Touch-screen, keys
Mains power	230 V / 50 Hz			230 V / 50 Hz	230 V / 50 Hz		230 V / 50 Hz 115 V / 60 Hz	Battery: 90 to 250 V 40 to 400 Hz

GOSSEN METRAWATT   Made in Germany

MINITEST | BASE … 3P | MASTER

MINITEST BASE
Test instrument for DIN VDE 0701 - 0702, for testing and measurement of repaired or modified devices by measuring:
- ■ 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.

MINITEST PRO
Test instrument for DIN VDE 0701-0702, for testing and measuring repaired or modified devices.
Same as MINITEST BASE plus:
- ■ Measured values appear additionally at a large digital display.
- ■ USB port for data logging
- ■ MINITEST software on CD ROM
- ■ Extensive safety features
- ■ RCCB in the plug on the mains cable

MINITEST MASTER
Same as MINITEST PRO plus:
- ■ Memory for 2000 tests with up to 10 measured values each

MINITEST 3P MASTER
Same as MINITEST MASTER plus:
- ■ CEE 16 A test socket and mains outlet, single and 3-phase
- ■ CEE 32 A test socket and mains outlet, single and 3-phase

❐ See optional accessories beginning on page 104

❐ PC.doc-WORD/EXCEL PC analysis software beginning on page 115

❐ See page 134 for training seminars: GTT1212, GTT1216

MINITEST BASE

MINITEST PRO

MINITEST MASTER

Scope of delivery:

MINITEST BASE
- • Tester
- • Probe cable
- • Operating instructions

Additional features for MINITEST PRO / MASTER:
- • USB cable
- • CD ROM with software

Additional features for MINITEST 3P MASTER:
- • Adapter: CEE 32 to Schuko
- • Adapter: CEE 32 to 16 x 3
- • Adapter: CEE 32 to 16 x 1
- • Adapter: CEE 32 to 32 x 1

CE

MINITEST Software
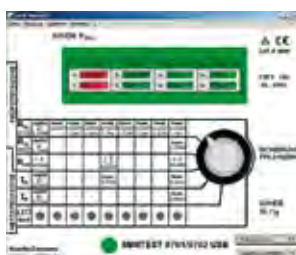
MINITEST 3P MASTER

Type	Data Sheet No.	Article Number
MINITEST BASE	3-349-357-03	M712C
MINITEST PRO	3-349-357-03	M712D
MINITEST MASTER	3-349-357-03	M712U
MINITEST 3P MASTER	3-349-357-03	M712X

GOSSEN METRAWATT

METRATESTER 5+

Instrument for Electrical Safety Testing of Electrical Equipment per DIN VDE 0701 - 0702

- Large digital LCD panel
- Mains connection testing with finger contact and indicator lamp
- Differential current measurement per DIN VDE 07010701 - 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

Scope of delivery:
- Tester
- Factory calibration certificate
- Operating instructions

CE

METRATESTER 5+

METRATESTER 5-F-E

Technical Data

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 ~

Type	Data Sheet No.	Article Number
METRATESTER 5+	3-348-817-03	M700D
METRATESTER 5-F-E	3-348-817-03	M700T

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METRATESTER 5+3P

Test Case 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 equipment in accordance with the regulations:

- Protective conductor resistance
- Insulation resistance
- Equivalent leakage current
- Differential current
- Contact current
- Protective conductor current

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.

- **Mains connection:** The test case can either be connected to an earthing contact outlet with the two included power cables, or to a 16 A CEE mains outlet.

- **Test types:** DIN VDE tests without mains operation: protective conductor resistance, insulation resistance, equivalent leakage current; DIN VDE tests with mains operation at all single and 3-phase devices: differential current, contact 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.

- **Contact surface for finger contact:** Protective conductor potential can be tested by means of a contact surface for finger contact. The PE signal lamp lights up if a potential difference of more than 100 V is detected between the contact surface and the protective contact at the mains plug.

- **Differential current measurement:** for measuring protective conductor current without interrupting the protective conductor.

- **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.

- **Display functions:** All measured values are clearly displayed at the large, digital display. Exceeded limit values are also indicated optically, and in some cases acoustically as well.

- **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

❒ **See optional accessories beginning on page 104**

❒ **See page 134 for training seminars: GTT1212, GTT1216**

Scope of delivery:
- Test case including test instrument
- Mains cable with earthing contact plug and coupling socket
- Mains cable with 5-pole, 16 A CEE plug and coupling socket
- Operating instructions

CE

Type	Data Sheet No.	Article Number
METRATESTER 5+3P	–	M700K

Made in Germany

GOSSEN METRAWATT

SECUTEST S2N+ / S2N+ I 10

Test Instrument for BGV A3 and MPG

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

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

Technical safety tests for, amongst others:

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

Plus the following with SECUTEST S2N+10:

- Protective conductor resistance test possible with 10 A test current

Expanded functionality:

- Automatic detection of protection classes I and II
- Menu driven test sequences: fully automated or manual
- Safety for the user thanks to integrated safety switch – suitable for persons with basic electro-technical instruction
- Convenient memory and report generating functions (optional with S2N+)
- Data interface for PC, printer and barcodes
- Report generation with printer module (PSI module), DA-II printer adapter or PC software
- Parallel test sockets for devices under test without mains plug
- Patient leakage current: AC / DC components measured separately
- Equivalent leakage current measurement with approx. 230 V test voltage
- Function test with power analysis
- Temperature measurement
- Current measurement (with optional current clamp)
- Voltage measurement
- Automatic detection / indication of whether or not the probe is connected to PE
- Dimensions: 292 x 130 x 243 mm, weight: 4.5 kg

New functions – tailored to DIN VDE 0701-0702:

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

- ❏ See optional accessories beginning on page 104
- ❏ PS3 PC analysis software, PC.doc-WORD/EXCEL, PC.doc-ACCESS, PROTOKOLLmanager, ELEKTROmanager and SECU-Up (beginning on page 115)
- ❏ See page 134 for training seminars: GTT1211, GTT1212, GTT1213, GTT1214, GTT1216, GTT1224H, GTT1226

SECUTEST S2N+

SECUTEST S2N+10 with Optional SI Module

Scope of delivery:
- Tester
- Test probe
- Alligator clip
- DKD calibration certificate
- Operating instructions
- 1 carrying strap
- 1 CD ROM (demo) PS3 software
- 1 CD ROM (demo) PC.doc-WORD/EXCEL/ACCESS software
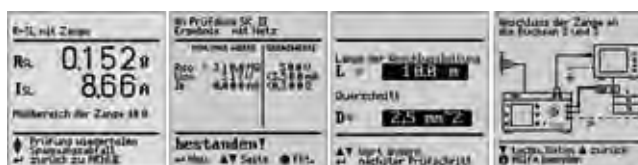
The test instruments are laid out as protection class II devices.

Before each test, the mains system to which the SECUTEST (or the device under test) is connected is tested for correctly connected protective conductor, mains, voltage value within the mains and suitable mains configuration (warning for IT networks because leakage current may result in false assessments in this case).

The device under test is checked for the following before each test:

- Is there a short-circuit between L and N?
- Does body contact exist between L and the housing?
- Is the device under test connected to the test socket?
- Is the test probe connected to the SECUTEST?
- Is the device under test equipped with a protective conductor?

During testing, the SECUTEST continuously monitors the flow of current and immediately disconnects the test socket from the mains if fault current of greater than approximately 15 mA occurs.

Type	Data Sheet No.	Article Number
SECUTEST S2 N+	3-349-522-03	M7010-V031
SECUTEST S2 N+10	3-349-522-03	M7010-V032

GOSSEN METRAWATT

Made in Germany

SECUTEST SIII+

Test Instrument for BGV A3 and MPG, as well as for Routine Tests and Type Testing

Universal test instrument for testing the electrical safety of portable electrical equipment in commercial and medical applications.
In order to evaluate electrical safety, tests are performed for protective conductor connections, insulation resistance and leakage current (differential current, equivalent leakage current, device leakage current, patient leakage current, contact current).

Technical safety tests for, amongst others:

- Electrical equipment for measurement, control and laboratory use per EN 61010
- Electrical household appliances per EN 60335
- Information technology devices per EN 60950
- Electrical devices per DIN VDE 0701-0702, revision level 2008-6
- Electrical medical devices per DIN VDE 0751 / IEC 62353 and EN 60601

Expanded functionality:

- Automatic adaptation to either 110 V / 60 Hz or 230 V / 50 Hz mains power
- Automatic recognition of protection classes I + II (with German and French outlets) and mains connection errors
- Menu driven test sequences: fully automated or manual
- Safety for the user thanks to integrated safety switch – suitable for persons with basic electro-technical instruction
- Convenient memory and report generating functions (optional)
- Data interface for PC, printer and barcodes
- Report generation with printer module (PSI module), DA-II printer adapter (Centronix) or PC software
- User interface in various languages: English, French, German, Italian, Spanish, Czech, Dutch
- Parallel test sockets for devices under test without mains plug
- Patient leakage current: AC / DC components measured separately
- Equivalent leakage current measurement with approx. 230 V test voltage
- Function test with power analysis
- Temperature measurement
- Current measurement (with optional clip-on ammeter)
- Voltage and resistance measurement
- Dimensions: 292 x 130 x 243 mm, weight: 4.5 kg

Standard model available from stock:

SECUTEST SIII+H: including selectable test current: ± 200 mA DC or 25 A AC; high-voltage test to 6 kV DC; sequences for IEC 61010, IEC 60335, IEC 60950; data memory for up to 125 tests
Standard test instruments for executing automatic test sequences including:

- Automatic detection and indication of whether or not the probe is connected to PE
- Including direct read-out of measurement data via the RS 232 port

❏ PS3 PC analysis software, PC.doc-WORD/EXCEL, PC.doc-ACCESS, PROTOKOLLmanager, ELEKTROmanager and SECU-Up (beginning on page 115)

Scope of delivery:
- Tester
- Test probe
- Alligator clip
- DKD calibration certificate
- Operating instructions

Photos Showing Optional SI Module

Available combinations of features:

Designation	Basic instrument = all 00 features	M7010...
Connectors – plug for mains power and socket for device under test Other countries upon request	For Germany	B00
	For Germany, with additional service socket	B01
	For UK	B02
	For France / Czech Republic	B03
	For Denmark	B05
	For China / Australia	B08
	For Switzerland	B09
	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
10 + 2 sockets for application parts	Without	J00
	With	J01
Test sequence for IEC 60601	Without	KA00
	With (recommended with feature 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

Type	Data Sheet No.	Article Number
SECUTEST SIII+H	3-349-397-03	M7010-V013

Made in Germany

GOSSEN METRAWATT

SECUTEST 3PL

Test Case for Tests per BGV A3 / GUV A2 at Single and 3-Phase Devices and Extension Cables per DIN VDE 0701-0702

The test instrument is used for fast, safe testing of electrical devices for periodic testing per DIN VDE 0701 - 0702.

The following are measured in accordance with the regulations:

- ■ Protective conductor resistance
- ■ Insulation resistance
- ■ Protective conductor current for protection class I devices
- ■ Contact current for (protection class II devices)
- ■ Absence of voltage at exposed, conductive parts (= contact current)

Measuring methods:

- ■ Direct measurement, equivalent leakage current, differential current

Testing the electrical safety of extension cables

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

Function test with power analysis for single phase DUTs:

Also suitable for high power DUTs with up to 16 A.

The device under test can be subjected to a function test with mains voltage via the integrated single-pole earth contact outlet. The function test can be executed immediately after electrical safety testing has been successfully completed. The following are measured, or calculated automatically:

- ■ Line voltage
- ■ Differential current
- ■ Current consumption
- ■ Active and apparent power
- ■ Power factor
- ■ Electrical energy
- ■ On-time

Report Generating Functions

All of the values required for approval reports or device logbooks for electrical equipment (e.g. per ZVEH) can be measured with this test instrument. 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.

Scope of delivery:
- Test case
- Probe cable with test probe and plug-in alligator clip
- Adapter cable for connection to 16 A, 3-phase systems
- Adapter cable for connection to 16 A lighting networks (Schuko)
- Test report
- Operating instructions and condensed operating instructions

Type	Data Sheet No.	Article Number
SECUTEST 3PL	–	M704B

GOSSEN METRAWATT   **Made in Germany**

Starter Package

Consisting of:

- ■ **SECUTEST S2N+**

- ■ **SECUTEST SI**
  Memory module and interface

- ■ **EL1**
  Adapter for testing single-phase extension cables

- ■ **F2000 universal carrying pouch**
  Padded plastic carrying pouch with adjustable carrying strap

- ■ **PROTOKOLLmanager software**

SECUTEST S2N+

Scope of delivery:
- See description of the test packages

Master Package

Consisting of:

- ■ **SECUTEST S2N+10**

- ■ **SECUTEST SI**
  Memory module and interface

- ■ **EL1**
  Adapter for testing single-phase extension cables

- ■ **Brush probe**
  For contacting exposed conductive parts which rotate or vibrate etc. during operation.

- ■ **F2000 universal carrying pouch**
  Padded plastic carrying pouch with adjustable carrying strap

- ■ **PC.doc-WORD/-EXCEL/-ACCESS software**

SECUTEST S2N+10

SECUTEST SI

EL1

PROTOKOLLmanager

F2000

Brush Probe

PC.doc-WORD/-EXCEL/-ACCESS

Type	Data Sheet No.	Article Number
VDE 0701 – 0702 Starter Package	–	M500K
VDE 0701 – 0702 Master Package	–	M500L

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GOSSEN METRAWATT

SECU**STAR** | **FM**

Modular Measuring and Test System for User-Controlled Execution of Legally Required or Company Specified Work Procedures and Directives

- Suitable for use by trained persons
- German trade association regulations such as BGV D 36 (testing cables)
- Predefined, standardized test steps and test sequences on CF card, e.g. BGV A3 and DIN VDE 0701-0702 always available as standard
- Can be easily supplemented with individual test steps and test sequences
- Many test sequences can be downloaded from our website free of charge
- Operation via color touch-screen
- Sensors for temperature, atmospheric humidity, luminous intensity etc. can be connected via USB port
- Mains-independent operation with rechargeable batteries
- Country-specific mains cable and test socket for electrical testing
- Data storage for more than 2000 objects
- Data entry with soft-keys or external keyboard
- List generator for the evaluation of stored object data
- 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
- Dimensions (W x D x H): 325 x 250 x 90 mm, weight: approx. 2.4 kg with batteries
- Manufacturer's guarantee: 1 year material, workmanship and calibration, PS3 upgrade:
- ❐ Optional accessories beginning on page 104
  Z753A: package of 3 wands for data entry (no photo) via the touch-screen LCD
  Z753A: package of 2 retaining clips (no photo)
- ❐ **PS3 AM analysis software and PS3 update beginning on page 115**
- ❐ **See page 134 for training seminars: GTT3010**

Scope of delivery:
- SECUSTAR FM basic instrument
- Mains connection 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
- Condensed operating instructions
- CD ROM with PS 3 AM software enabled for 20 objects, operating instructions in available languages

Winner of the 2005 iF Product Design Award

Type	Data Sheet No.	Article Number
SECUSTAR FM	3-349-310-03	M7020-V001
Package of 3 touch-screen wands	–	Z753A
Package of 2 retaining clips		Z753B
DKD calibration certificate	–	Z752A
Maintenance contract	–	Z752B

GOSSEN METRAWATT

Made in Germany

CLIMO | FM

Indoor Climate Measuring System: Universal Multifunctional Measuring Instrument for the Measurement of Air Temperature, Air Speed and Relative Atmospheric Humidity, and for Class 1 Acoustic Signal Analysis

Measuring functions:

- Air temperature
- Air speed
- Relative humidity
- Type B illuminance
- Class 1 sound level

Applications

- Measurement of thermal ambient parameters in buildings, warehouses, laboratories, garden centers, schools etc.
- Testing of heating, ventilation and air-conditioning systems
- Measurement of illuminance at the workplace
- Calculation of PMV, PPD and WBGT indices
- Measurement and analysis of sound levels at the workplace
- Measurement of ambient noise levels and general analysis

Features

- A single measuring instrument instead of a series of devices for the measurement of
  - Air and contact temperature
  - Air speed and relative humidity
  - Luminosity
  - Sound levels
  - Acoustic signal octaves and third octaves
- Simultaneous use of several sensors at the measuring instrument
- Easy handling thanks to special design:
  - All sensors are connected directly to the measuring instrument without an additional cable so that the user can hold it with one hand
  - Graphic display with 16 x 160 pixels and background illumination
  - Tripod adapter for convenient handling
  - Rechargeable batteries for up to 8 hours of continuous operation
  - Internal memory for storage of more than 4000 measured values
  - Internal, automatically controlled recorder
  - Display of date and time, as well as help menus
  - Optional sensor connection with extension cable for luminosity and luminance sensor or telescoping arm for micro-climate sensor
  - ISO calibration certificate for the entire system guarantees overall quality and accuracy, especially because the sensors and the measuring instrument are calibrated as a single system.

Scope of delivery:

- Basic device
- Sensor adapter
- Universal micro-climate sensor
- Illuminance sensor
- Sound level measuring probe with plastic shield and wind protector
- Case
- PC software: SoundLink LITE and SensorLink PRO with interface cable
- Power pack
- Charger and 6 batteries
- Tripod adapter
- Operating instructions
- Declaration of conformity
- ISO calibration certificate

Type	Data Sheet No.	Article Number
CLIMO FM	3-349-445-03	M760A

GOSSEN METRAWATT

SECUTEST SI / SECUTEST PSI

SECUTEST SI – Memory and Input Module

Test results from the test instruments are transmitted to the SI module directly via the interface. Test results are saved on-site as clear-cut, reliably documented measurement and test reports with date and time. Stored data can be transmitted to a PC at a later point in time independent of the test instrument, and can be processed with PS3, PC.doc-WORD/EXCEL/ACCESS, ELEKTROmanager or PROTOKOLLmanager software.

Optional Barcode Scanner – A barcode scanner or RFID can be connected to the SI module, and existing IDs are transferred to the test reports for information purposes – time-saving, inexpensive acquisition of large volumes of data, e.g. for series measurements performed on devices.

SECUTEST PSI – Printer-Memory Module

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

- ■ Dimensions: 240 x 81 x 40 mm, weight: approx. 0.8 kg
- ■ Batteries: 4 ea. 1.5 V IEC LR 6 (AA) if operated with batteries
- ■ SECUTEST PSI consumable materials:
  PS-10P = pack of 10 six meter recording charts,
  Z3210 = pack of 10 printer ribbon cartridges

- ❏ **Usable with following instruments:**
  SECUTEST SII+, SIII+, S2N+, S2N+10

Scope of delivery:

SECUTEST SI
- • SI module
- • Operating instructions

SECUTEST PSI
- • PSI module
- • 2 rolls of recording chart
- • 1 ribbon cartridge
- • Operating instructions including interface description

Type	Data Sheet No.	Article Number
SECUTEST SI	3-349-400-03	M702F
SECUTEST PSI	3-348-785-03	GTM5016000R0001
PS-10P	3-348-785-03	GTZ3229000R001
Z3210	3-348-785-03	GTZ3210000R001

DA-II

RS 232 – Centronics Printer Adapter for Test Instruments
- ■ RS 232 – Centronics printer adapter
- ■ Printer driver in SECUTEST SIII for all common printers with parallel port
- ■ No external power supply required
- ■ Data management at a PC

- ❏ **Usable with following instruments:**
  SECUTEST SII+, SIII+, S2N+, S2N+10, SECUTEST 3PL

Scope of delivery:
- • DA-II printer adapter

Type	Data Sheet No.	Article Number
DA-II	–	Z745M

RS 232 – USB converter

Interface Converter

The interface converter is used to connect test instruments and multimeters with appropriate adapters including an RS 232 port to PCs which are equipped with USB ports only.
- ■ The cable is also furnished with a CD ROM including the required device drivers.

- ❏ **Usable with following instruments:**
  SECUTEST SII+, SIII+, S2N+, S2N+10, SECUTEST 3PL

Scope of delivery:
- • Interface converter
- • CD-ROM with interface drivers
- • Operating instructions

Type	Data Sheet No.	Article Number
RS 232 – USB converter	–	Z501L

Z745A CEE adapter

Scope of delivery:
- Z745A CEE adapter

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 VDE 0701/0702.

■ 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

❒ **Usable with following instruments:**
METRATESTER 5+, SECUTEST SII+, SIII+, S2N+, S2N+10

Type	Data Sheet No.	Article Number
Z745A	3-348-784-03	Z745A

AT3-IIIE

Scope of delivery:
- Test case
- Operating instructions

Adapter for Testing 3-Phase Current Consumers and Extension Cables in Combination with Safety Testers

Unique throughout the world: portable test instrument add-on for safety measurements at 3-phase power consumers with automated measuring sequence in accordance with standards. The portable safety tester, which can also be permanently mounted with the wall bracket, is used for measuring and testing electrical devices and extension cables.

■ Testing of single and 3-phase consumers and extension cables 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, contact current

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

❒ **Usable with following instruments:**
SECUTEST SII+, SIII+, S2N+, S2N+10

Type	Data Sheet No.	Article Number
AT3-IIIE	3-349-156-03	Z745S

SECULOAD

Scope of delivery:
- Test adapter
- Measurement cables with alligator clips
- Operating instructions

Test Adapter for Testing Open-Circuit Voltage at Welding Units per EN 60974

In combination with a multimeter, the test adapter is used for testing welding units in accordance with the EN 60974-4:2007 standard. This standard stipulates that peak values for open-circuit voltage may not exceed the limit values regardless of the utilized settings.

❒ **Usable with following instruments:**
SECUTEST SII+, SIII+, S2N+, S2N+10
SECUSTAR FM

Type	Data Sheet No.	Article Number
SECULOAD	–	Z745V

Made in Germany

GOSSEN METRAWATT

AT3-IIS / AT3-IIS32

Adapter for Testing 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 without mains operation

■ Protective conductor resistance, insulation resistance, equivalent leakage current

DIN VDE tests with mains operation

■ Differential current, contact current

Equipment:

■ **AT3-IIS**: 5-pole CEE 32 A (max. 20 A) and CEE 16 A

■ **AT3-IIS32**: 5-pole CEE 32 A (max. 40 A) and CEE 16 A, single-phase earthing contact outlet

■ Measurements (L x W x H) without cables and grommets:
     AT3-IIS: 290 x 120 x 105 mm, weight: 2.4 kg
     AT3-IIS32: 285 x 220 x 128 mm, weight: 4.15 kg

❐ **Usable with following instruments:**
     SECUTEST SII+, SIII+, S2N+, S2N+10

Scope of delivery:
• Safety tester
• Operating instructions

Type	Data Sheet No.	Article Number
AT3-II S	3-349-245-03	Z745T
AT3-II S32	3-349-480-03	Z745X

VL2E

Adapter for Testing Protective Conductor and Insulation Resistance at Devices and Extension Cables

The test adapter is intended for the performance of measurements and tests at electrical devices and extension cables 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 cables:

■ Easy function test for single and 3-phase extension cables 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 cables.

❐ **Usable with following instruments:**
     MINITEST BASE, MINITEST PRO, MINITEST MASTER,
     METRATESTER 5+, METRATESTER 5+3P,
     SECUTEST SII+, SECUTEST SIII+ , SECUTEST S2N+,
     SECUTEST 21F, SECUSTAR FM

Scope of delivery:
• Test adapter
• Operating instructions

Type	Data Sheet No.	Article Number
VL2E	3-349-241-03	Z745W

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Made in Germany

AT16-DI / AT32-DI

3-Phase, 16 / 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 measur-
ing 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

❑ **Usable with following instruments:**
SECUSTAR FM

Scope of delivery:
• 3-phase current
adapter
• Operating instructions

Type	Data Sheet No.	Article Number
AT16-DI	–	Z750A
AT32-DI	–	Z750B

SECU-cal 10

**Calibration Adapter for all SECUTEST and METRATESTER
Instruments**
The following measured values can be calibrated with the adapter:

■ Insulation resistance

■ Equivalent leakage current

■ Differential current

■ Contact current

■ Protective conductor resistance (max. test current: 1A)

❑ **Usable with following instruments:**
MINITEST BASE, MINITEST PRO, MINITEST MASTER and 3P MASTER
METRATESTER 5+, METRATESTER 5+3P,
SECUTEST SII+, SECUTEST SIII+, SECUTEST S2N+
SECUSTAR FM

Scope of delivery:
• SECU-cal 10
• Operating instructions

Type	Data Sheet No.	Article Number
SECU-cal 10	–	Z715A

Temperature-Humidity Sensor

Temperature and Humidity Sensor for USB Connection
For measuring temperature and relative humidity

❑ **Usable with following instruments:**
SECUSTAR FM

Scope of delivery:
• Temperature-
humidity sensor

Type	Data Sheet No.	Article Number
Temperature-humidity sensor	–	Z751B

Made in Germany

GOSSEN METRAWATT

MAVOLUX 5032B USB

MAVOLUX 5032B USB Light Sensor for USB Connection
Digital luxmeter with large range of applications, classified per
DIN 5032-7 and CIE no. 69 – for inspecting light sources, for example
street lights.

■ For monitoring illumination at workstations, in buildings, and in
sports and parking facilities.

■ For quality inspection of light sources during lamp and light bulb
manufacturing.

■ For illumination designers and architects, as well as for agriculture
and forestry applications.

❑ **Usable with following instruments:**
SECUSTAR FM

Scope of delivery:
• Luxmeter
• Operating instructions

Type	Data Sheet No.	Article Number
MAVOLUX 5032B USB	–	Z751C

EL1, PRO-… Plug Insert

Adapter for Testing Single-Phase Extension Cables

The EL1 consists of:

■ Connector cable to the test instrument with handle and 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 for Using the EL1 Adapter in Switzerland

❑ **Usable with following instruments:**
SECUTEST SII+, SECUTEST SIII+, SECUTEST S2N+,
SECUSTAR FM

Scope of delivery:
• EL1 or PRO-CH

EL1

PRO-CH

Type	Data Sheet No.	Article Number
EL1	–	Z723A
PRO-CH	–	GTZ3225000R0001

KS13

Cable Set for Connecting Test Devices to the Mains
Cable set for connecting test devices 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

Usable with following instruments:
METRATESTER 5+, METRATESTER 5+3P,
SECUTEST SII+, SECUTEST SIII+, SECUTEST S2N+

Scope of delivery:
• Cable set

Type	Data Sheet No.	Article Number
KS13	–	GTY3624065P01

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SK2, SK5

Probe Cable for Protective Conductor Measurement

SK2 – Z745D: Probe cable with test probe and 2 m probe cable (not coiled) suitable for high-voltage testing

SK2 – Z745N: Probe cable with test probe and 2 m probe cable (coiled) suitable for high-voltage testing

SK5 – Z745O: 5 meter probe cable for protective conductor measurement

SK5 – Z745K: 5 meter probe cable for protective conductor measurement (cable plus software)

■ Automatic recognition of changing measuring points as software upgrade

■ Go / No-Go indication display

❒ **Usable with following instruments:**
SECUTEST SII+, SECUTEST SIII+, SECUTEST S2N+ SECUSTAR FM

Scope of delivery:
- SK2 – Z745D
  Probe with 2 m cable, not coiled
- SK2 – Z745N
  Probe with 2 m coil cable
- SK5 – Z745O
  5 m cable
- SK5 – Z745K
  Software with 5 m cable

Type	Data Sheet No.	Article Number
SK2	–	Z745D
SK2	–	Z745N
SK5	–	Z745O
SK5	–	Z745K

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

❒ **Usable with following instruments:**
MINITEST BASE, MINITEST PRO, MINITEST MASTER / 3P MASTER SECUTEST SII+, SECUTEST SIII+, SECUTEST S2N+, SECUTEST 3PL SECUSTAR FM

Scope of delivery:
- Brush probe

Type	Data Sheet No.	Article Number
Brush probe	–	Z745G

PA 4

Patient Connector Cable
Patient connector cable, 1.5 meters long, 12 conductors each with 4 mm plug

❒ **Usable with following instruments:**
SECUTEST SIII+

Scope of delivery:
- Patient connector cable, 1.5 m

Type	Data Sheet No.	Article Number
PA4	–	Z745L

Current Sensor Clamp

Current clamp: 1 mA…15 / … 150 AAC, switchable

■ 1 mA…15 AAC, 1 mV/mA

■ 1 mA…150 AAC, 1 mV/A

❒ **Usable with following instruments:**
SECUTEST SII+, SECUTEST SIII+, SECUTEST S2N+

Scope of delivery:
- Current sensor clamp including permanently attached safety cable with connector plug
- Operating instructions

Type	Data Sheet No.	Article Number
WZ12C	3-349-017-03	Z219C

Measuring Range	CAT at V	Conductor Cross-Section	Transformation Ratio	Frequency Range	Intrinsic Error ± (% rdg. + mA)
1 mA…15 A$_{AC}$ / 1 A…150 A$_{AC}$	III at 300	15 mm dia.	1 mV / mA / 1 mV / A	45…65…500 Hz	3 % + 0.15 mA / 2 % + 0.1 A

Made in Germany

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Z3409 Temperature Sensor

Standard PT 100 Temperature Sensor for Surface and Immersion Measurements

❐ **Usable with following instruments:**
SECUTEST SII+, SECUTEST SIII+, SECUTEST S2N+

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 error at 0° C / 600° C	0.15 K
Transient recovery, T90 water / air	5 s / 30 s
Lead / insulation	2 wires x 0.35 sq. mm/PVC

Scope of delivery:
• Temperature sensor

Type	Data Sheet No.	Article Number
Z3409	–	GTZ3409000R0001

Pouches, Cases

F2000: Universal Carrying Pouch

■ Dimensions: 380 x 310 x 200 mm

❐ **Usable with following instruments:**
MINITEST PRO, MINITEST BASE, MINITEST MASTER,
SECUTEST SII+, SECUTEST SIII+, SECUTEST S2N+
SECUSTAR FM

F2020: Large Universal Carrying Pouch

■ Dimensions: 430 x 310 x 300 mm

❐ **Usable with following instruments:**
MINITEST 3P MASTER,
SECUTEST device sets,
SECUSTAR FM with accessories

K2010: Aluminum Case

■ Dimensions: approx. 645 x 535 x 160 mm

❐ **Usable with following instruments:**
SECUTEST SII+, SECUTEST SIII+, SECUTEST S2N+
SECUSTAR FM,

Z740B: Hard Case for Testers and Accessories

■ Dimensions: 394 x 294 x 106 mm

❐ **Usable with following instruments:**
MINITEST BASE, MINITEST PRO, MINITEST MASTER

BAGSTAR: Ever-Ready Case

❐ **Usable with following instruments:**
SECUSTAR FM

Scope of delivery:
• Carrying pouch or case

F2020

F2000

K2010

Z740B

BAGSTAR

Type	Data Sheet No.	Article Number
F2000	3-349-126-02	Z700D
F2020	–	Z700F
K2010	–	Z504L
Z740B hard case	–	Z740B
BAGSTAR	–	Z700E

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Barcode Scanner

Z720A Barcode Scanner 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
- ■ Better reading accuracy
- ■ The barcode scanner is configured for use with the following codes: EAN13, CODE 39 and CODE 128 (other codes upon request from our product support team)
- ■ The scanner can be operated as is with the SECUTEST and the SECUTEST PSI.

- ❐ **Usable with following instruments:**
  MINITEST MASTER and 3P MASTER
  SECUTEST SII+, SECUTEST SIII+, SECUTEST S2N+, SECUTEST 3PL

Z751A Barcode Scanner for Test Instruments with USB Port
For identifying devices and system components. Devices and system components can be logged by our test instruments, and acquired measured values can be allocated to them with the scanner.

- ❐ **Usable with following instruments:**
  SECUSTAR FM

B3261 barcode scanner with RS 232 port for direct connection to the SECUTEST PSI and the PROFITEST PSI-BC
- ■ Trouble-free scanning of all common barcode types
- ■ Insertion of decoded characters to any desired cursor position

- ❐ **Usable with following instruments:**
  MINITEST MASTER and 3P MASTER
  SECUTEST SII+, SECUTEST SIII+, SECUTEST S2N+, SECUTEST 3PL

Scope of delivery:
- Barcode Scanner

Z720A / Z751A

B3261

Type	Data Sheet No.	Article Number
Barcode scanner	–	Z720A
Barcode scanner	–	Z751A
B3261 barcode scanner	–	GTZ3261000R0001

Barcode Printer

Barcode and label printer for connection to a PC, including software
- ■ For the identification of equipment with barcode labels
- ■ Prints smudge-proof, scratch resistant labels in all common sizes
- ■ MS Windows software
- ■ Ideal in combination with B3261, Z720A and Z751A barcode scanners

Label set for Z721D barcode and label printer:
- ■ **Z722D**: qty. x width: 3 x 24 mm / 1 x 18 mm / 1 x 9 mm, 8 m long
- ■ **Z722E**: qty. x width: 5 x 18 mm, 8 m long

Scope of delivery:
- Barcode printer
- Label set

Type	Data Sheet No.	Article Number
Z721D barcode printer	–	Z721D
Z722D label set	–	Z722D
Z722E label set	–	Z722E

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SCAN**BASE** / SCAN**WRITE** I 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.

Article Number	Frequency	Standard	Connection
Z751D	125kHz	–	USB
Z751E	13.56 MHz	ISO 15693	USB
Z751G	13.56 MHz	ISO 15693	RS 232
Z751F	13.56 MHz	ISO15693	Bluetooth Bluetooth-USB stick Bluetooth-RS 232 adapter

Use:

LED	Function	Meaning
Red	Lights up	Check configuration!
Green	Continuous	Ready
Yellow	Continuous	Ready to read
	Blinking	Reading data

Accessories:

Z751D, E and G RFID readers are preprogrammed to read the following RFID tags:

Article Number	Frequency	Standard	Type	Qty.
Z751R	13.56 MHz	ISO 15693	22 mm dia., self-adhesive	500
Z751S	13.56 MHz	ISO 15693	30 mm dia. with 3 mm hole	500
Z751T	13.56 MHz	ISO 15693	Pigeon ring, 10 mm dia.	250
ZxxxX	125 kHz		Upon request	1000

The RFID readers / scanners are ready for operation immediately in combination with the instruments listed below:

❐ **Z751D and Z751E usable with following instruments:**
SECUSTAR FM

❐ **Z751G usable with following instruments:**
MINITEST MASTER and 3P MASTER
SECUTEST S2N+ / S2N+10 SECUTEST SII+, SECUTEST SIII+, SECUTEST 3PL

❐ **Z751F usable with following instruments:**
MINITEST MASTER and 3P MASTER
SECUTEST S2N+ / S2N+10 SECUTEST SII+, SECUTEST SIII+, SECUTEST 3PL

Scope of delivery:
- RFID reader/scanner
- Operating instructions or
- RFID reader/writer
- Operating instructions or
- RFID reader/writer, Bluetooth
- Adapter, Bluetooth – RS 232
- Bluetooth – USB stick
- Charging adapter

- Operating instructions

- RFID tag

Accessory for
Z751F (included)

Type	Data Sheet No.	Article Number
RFID reader/scanner, USB, 125 kHz	–	Z751D
RFID reader/scanner, USB, 13.56 MHz	–	Z751E
RFID reader/writer, Bluetooth	–	Z751F
RFID reader/scanner, RS 232	–	Z751G
RFID tag, ISO15693, 24 x 18 mm	–	Z751R
RFID tag, ISO15693, 25 / 3 mm	–	Z751S
RFID tag, ISO15693, pigeon ring	–	Z751T
RFID tag, 125 kHz, form upon request	–	Upon request

GOSSEN METRAWATT

METRATESTER 5+3P

**Workshop Test Panel for Testing Devices in Accordance with
DIN VDE 0701-0702, DIN VDE 0104**

The portable or stationary METRATESTER 5+3P test panel is intended for measuring and testing electrical devices after repair or modification, as well as for periodic testing in accordance with DIN VDE 0701 - 0702.

In accordance with this regulation, protective conductor resistance, insulation resistance, differential current, equivalent leakage current and, for data processing systems and office machinery, absence of voltage at exposed parts accessible to the user, must be measured.

Measurement of operating voltage and current at the DUT, as well as testing of extension cables for conductor continuity and polarity reversal represent further applications for the substantiation of correct functioning of electrical equipment.

The VL2E test adapter allows for quick, safe testing of extension cables. The protective conductor at the mains connection can also be tested for the absence of voltage, and line voltage can be measured. Protective conductor measurement is performed correctly in accordance with DIN VDE 0104.

❒ **See page 97 for details**

❒ **Optional accessories:**
   VL2E test adapter – Adapter for testing protective conductor and insulation resistance at devices and extension cables **(beginning on page 104)**

Scope of delivery:
- Test case including test instrument
- Mains cable with earthing contact plug and coupling socket
- Mains cable with 5-pole, 16 A CEE plug and coupling socket
- Operating instructions

CE

Type	Data Sheet No.	Article Number
METRATESTER 5+3P	–	M700K

SECUTEST 21F

**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 measuring and testing 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 – Adapter for testing protective conductor and insulation resistance at devices and extension cables **(beginning on page 104)**

Scope of delivery:
- SECUTEST 21F
- Operating instructions

Type	Data Sheet No.	Article Number
SECUTEST 21F	–	M601A

Made in Germany

GOSSEN METRAWATT

SECUTEST 3PL

Test Case for Tests per BGV A3 / GUV A2 at Single and 3-Phase Devices and Extension Cables per DIN VDE 0701 - 0702

Testing the electrical safety of electrical equipment per BGV A3, GUV-V A2

The test instrument is used for fast, safe testing of electrical devices for periodic testing per DIN VDE 0701 - 0702.

The following are measured in accordance with the regulations: Protective conductor resistance, insulation resistance, protective conductor current for PC1 devices, contact current for PC2 devices, absence of voltage at exposed conductive parts (= contact current)

Measuring methods: direct measurement, equivalent leakage current, differential current

Testing the electrical safety of extension cables: protective conductor resistance, insulation resistance, continuity, short-circuit and reversed polarity

❑ See page 100 for further details and accessories.

❑ See optional accessories beginning on page 104

❑ PS3 PC analysis software and PC.doc-WORD/EXCEL (beginning on page 115)

Scope of delivery:
- Test case
- Probe cable with test probe and plug-in alligator clip
- Adapter cable for connection to 16 A, 3-phase systems
- Adapter cable for connection to 16 A lighting networks (Schuko)
- Test report
- Operating instructions and condensed operating instructions

Type	Data Sheet No.	Article Number
SECUTEST 3PL	–	M704B

SECU**TEST** | **WP**

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

Periodic testing in accordance with DIN VDE 0701-0702 must be performed by a qualified electrician with an appropriate test instrument. The test panel is mounted to the wall, and connected to the mains by means of a permanently laid cable and a pre-fuse with 3 x 32 A. After installation, the test panel is locked with the included key.

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. Schematic diagrams which illustrate proper connection of devices under test to the SECUTEST WP can be displayed as well.

Depending upon the device under test and usage, the following must be tested in accordance with these regulations:
- Protective conductor resistance
- Insulation resistance
- Equivalent leakage current
- Differential and contact current

Scope of delivery:
- SECUTEST WP
- Operating instructions

Type	Data Sheet No.	Article Number
SECUTEST WP	–	Upon request

Software for Test Instruments

Data transfer, display, management and documentation – our software does it all.
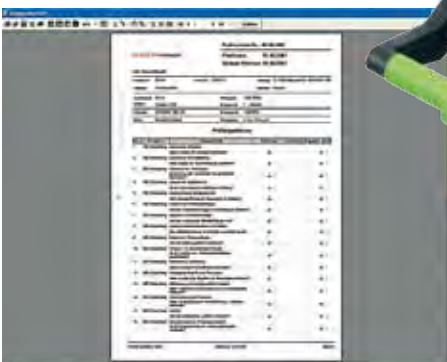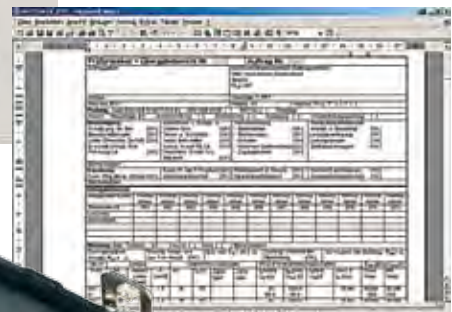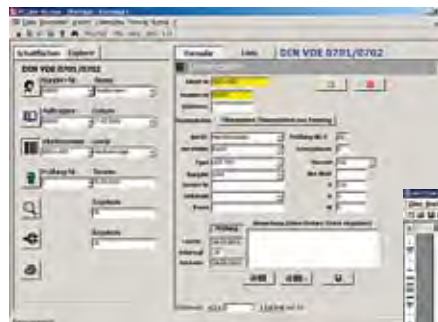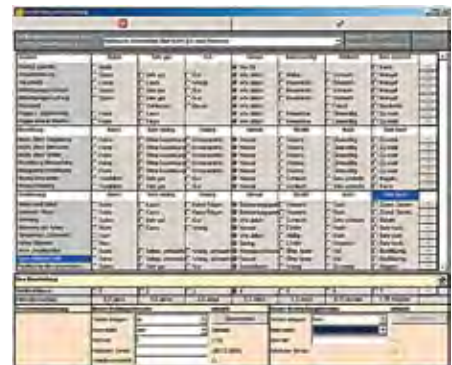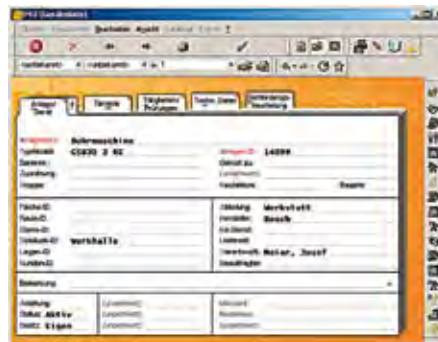
SECU-Up

Firmware Update for all SECUTEST SIII..., SIII+... and -SII+...
Not for predecessors: SECUTEST SII, -DC, -med, SECUTEST 0701 and SECUTEST 0701/0702S
Software for reading out data from the SECUTEST and generating simple reports.

The software includes:
- ■ Updated device software resulting from further development
- ■ Language selection for operating and help menus
  - • Included languages: D, GB, F, I, E, NL, CZ
- ■ Updating of optional device functions if enabled
- ■ Enabling of options after purchasing an enabling code
  - • IEC 601 – test sequence   Z853G
  - • DBmed – database   Z853H
  - • DFÜmed – modem option   Z853K
  - • SK5 – auto-point remote control   Z745K
  - • SECU-dd – direct printing   Z853L

Free of charge – if the test instrument is equipped with version V7.0 or higher
Simply download and install the software, or send your instrument to the GOSSEN METRAWATT service department.
For a fee – for instruments with older versions.
Just ask our service department for an update appointment, and the instrument can be recalibrated at the same time if required.

❒ **Usable with following instruments:**
SECUTEST SII+, SECUTEST SIII+

Scope of delivery:
- • CD ROM

Type	Data Sheet No.	Article Number
SECU-Up	–	Z713C

Winprofi

Software for Communication Between the Test Instrument and the PC
The software is freeware and runs under Windows 95, 98, NT4 and 2000.
It provides the following functions:
- ■ Update test instrument firmware
- ■ Download measured values
- ■ Upload test reports
- ■ Generate simple reports
- ■ Can be installed free of charge from any PS3 CD ROM

❒ **Usable with following instruments:**
PROFITEST 0100S-II+, PROFITEST ONE, PROFITEST C,
PGS .... test instrument sets, PROFITEST SI-BC / PSI-BC / PSI-E,
PROFITEST 204, MetraMachine 439 / 5.4, MetraMachine 204 / 2.5,
METRISO C, METRISO 5000D-PI, GEOHM C

Scope of delivery:
- • Free download

Type	Data Sheet No.	Article Number
Winprofi	–	–

GOSSEN METRAWATT

Made in Germany

PC.doc-WORD/EXCEL, -ACCESS

PC.doc-WORD/EXCEL:
Report software as supplement to MICROSOFT OFFICE products 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:

- Can be used with Windows 2000, XP or higher
- Word 97, 2000, 7.0 – if reports are generated with Word
- Excel 2000 or higher – if reports are generated with Excel
- User interface: D, GB, F, FI, PL
- PC with at least 500 MHz and 256 MB RAM
- 1 available serial or USB port and a USB – RS 232 adapter

❒ See page 128 for training seminars: GTT1226

❒ Usable with following instruments:

PROFITEST 0100S-II+, PROFITEST ONE, PROFITEST C, PGS.... test instrument sets, PROFITEST SI-BC / PSI-BC / PSI-E, PROFITEST MASTER series
PROFITEST 204, MetraMachine 439 / 5.4, MetraMachine 204 / 2.5, METRISO C
MINITEST PRO, MINITEST MASTER, MINITEST 3P MASTER, SECUTEST SII+, SECUTEST SIII+, SECUTEST 3PL

PC.doc-ACCESS:

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

System requirements:

- Can be used with Windows 98, 2000, XP
- Access 2000, 7.0
- Excel 2000 or higher – if reports are generated with Excel
- User interface: D, GB
- PC with 486 CPU or higher and at least 8 MB RAM
- 1 available serial or USB port

❒ See page 134 for training seminars: GTT1226

❒ Usable with following instruments:
PROFITEST 0100S-II+, PROFITEST ONE, PROFITEST C, PROFITEST MASTER series
PGS.... test instrument sets, PROFITEST SI-BC / PSI-BC / PSI-E, PROFITEST 204, MetraMachine 439 / 5.4, MetraMachine 204 / 2.5, METRISO C
SECUTEST SII+, SECUTEST SIII+

Scope of delivery:
- CD ROM
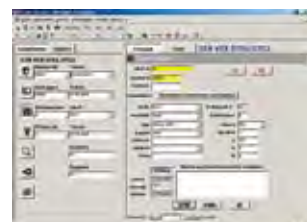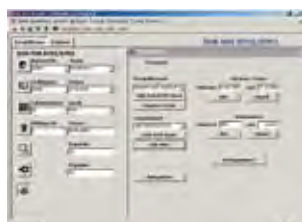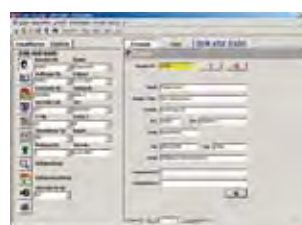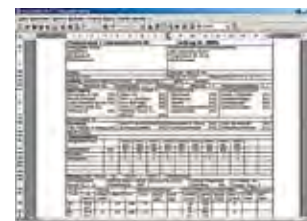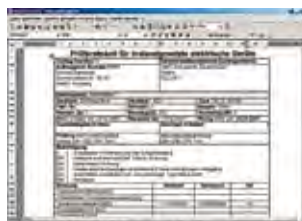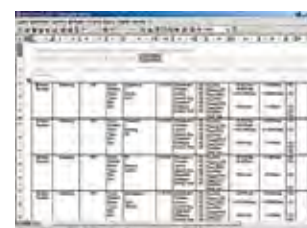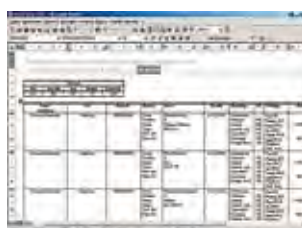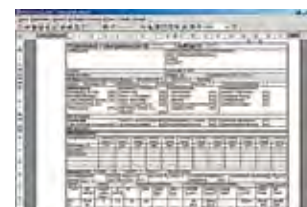
Type	Data Sheet No.	Article Number
PC.doc WORD/EXCEL	–	Z714A
PC.doc ACCESS	–	Z714B
PC.doc upgrade	–	Z714C
PC.base upgrade	–	Z714D

Made in Germany

GOSSEN METRAWATT

PS | 3

**Software for Test Instruments –
Systems / Equipment Management and Report Generating**

Automatic read-in and analysis of measured values from testing 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 GM:
Basic report generating module for all PROFITEST, SECUTEST, METRISO C

PS3 Compact:
Same as basic module but with ready-made deadline lists, results lists / reports for recurring tests including measured values from the last test for all PROFITEST and SECUTEST instruments (lists and selections can be changed, but cannot be saved to memory).

PS3 AM:
Same as Compact but with extensive scheduling – with calendar display, measured value history – now with characteristic curve display as well, lists and selection can be saved, creation of user defined forms, forms as PDF files, generation of user defined test sequences, SECUTEST remote operation, bidirectional data exchange with SECUSTAR FM, network compatible.

PS3 add-on modules:
Other requirements including following up on test deadlines, test data history, convenient evaluation and list generation right on up to complete object management (equipment and buildings) with inventory management, work order generation and repairs, document management, client options and a network version are covered by add-on software modules.
- PS3 Navigator - LHNavigator and LHViewer (prerequisite: PS3 AM)
- PS3 Client - client options (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)

PS3 maintenance contract upon request

❏ See page 134 for training seminars: GTT1224H ... P

❏ **Usable with following instruments:**
PROFITEST 0100S-II+, PROFITEST ONE, PROFITEST C, METRISO C, PROFITEST SI-BC / PSI-BC / PSI-E, PROFITEST 204, MetraMachine 439 / 5.4, MetraMachine 204 / 2.5, SECUTEST SII+, SECUTEST SIII+, SECUTEST 3PL SECUSTAR FM, SECULIFE ST, SECULIFE SB

Scope of delivery:
- CD ROM
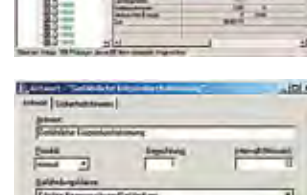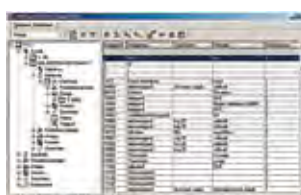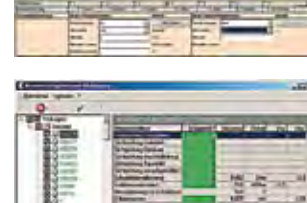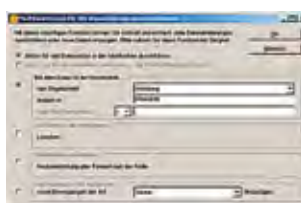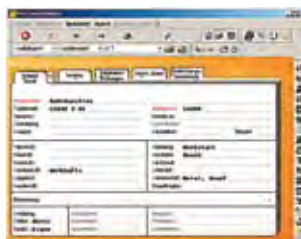
Type	Data Sheet No.	Article Number
PS3 GM	–	Z530E
PS3 Compact	–	Z530K
PS3 AM	–	Z531N
PS3 Navigator	–	Z531C
PS3 Client	–	Z531D
PS3 Hazard Analysis	–	Z531M
PS3 update	–	Z530S
PS3 upgrade	–	Z530T
PS3 maintenance contract	–	Z530X

GOSSEN METRAWATT

ELEKTROMANAGER

Software for Measurement and Documentation of Electrical Devices and Systems

ELEKTROmanager software is used for for data logging and data management, as well as for controlling test sequences used by electricians concerned with effectiveness, technical competence and legal security. It's easy to use and self-explanatory to a great extent.

Common measuring instruments supplied by other manufacturers can be incorporated, i.e. after purchasing a GOSSEN METRAWATT instrument the customer can continue using instruments from other manufacturers.

ELEKTROmanager 6.0 Professional

Software for documentation and management of electrical tests in accordance with BGV A3, DIN VDE 0100, VDE 0701-0702, VDE 0751, VDE 0113, optional: DIN VDE 0751-T1 bed testing regulations

Workstation license

Unlimited customer management, report designer, network compatible, authority management, filter and sorting assistants, color codes, barcode support, no deadlines management, no device tree, not test report export, VISTA compatible including all Gossen-Metrawatt device drivers (add-in), compatible with GEPI 1.0 only

ELEKTROmanager 6.0 Enterprise

Software for documentation and management of electrical tests in accordance with BGV A3, DIN VDE 0100, VDE 0701-0702, VDE 0751, VDE 0113, optional: DIN VDE 0751-T1 bed testing regulations

Workstation license

Unlimited customer management, events, accessories list, test report export, report designer, network compatible, authority management, deadlines management, device tree, filter and sorting assistants, color coding, barcode support, merging of current tests at a single server, VISTA compatible including all Gossen-Metrawatt device drivers (add-in), only compatible with GEPI 2.0, GEPI Work Safety and "Installation Tree"

■ The software automatically controls measurement or calibration, and generates a complete test report; all test regulations can be freely edited.

■ Windows user interface; unrestricted network compatibility

■ Any measuring instrument can be incorporated with the help of a device driver (add-in).

■ Different measuring instruments can be used concurrently for measurement of a terminal device or a production sequence.

■ Simultaneous inventory management saves additional expense.

■ Test reports can be individualized (e.g. company logo)

■ The software detects devices which have already been measured (transponder technology).

■ The entire instrument inventory becomes transparent providing an overview of all utilized devices and test reports, their current status, as well as maintenance and repair costs.

■ Measuring instruments can be controlled with PDAs using PalmOS. Measurements are started at the PDA, and measurement results are uploaded automatically and subsequently transferred to ELEKTROmanager.

❏ **See page 134 for training seminars: GTT1227A, B**

❏ **Usable with following instruments:**
PROFITEST 0100S-II+, PROFITEST ONE,
PROFITEST 204, MetraMachine 204/2.5
SECUTEST SII+

Scope of delivery:
• CD ROM
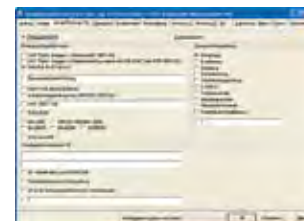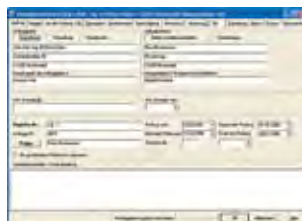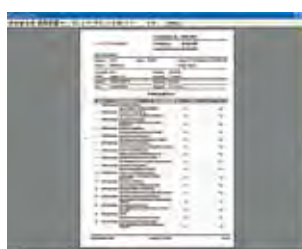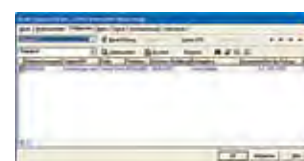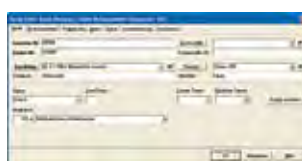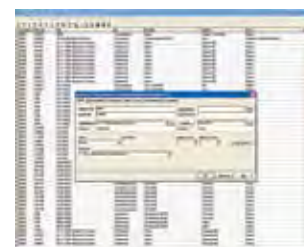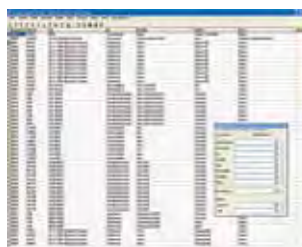
See table on next page for description and article numbers

GOSSEN METRAWATT

Type	Description	Article No.
ELEKTROMANAGER 6.0 Professional	Basic version	Z610A
ELEKTROMANAGER 6.0 Enterprise	Basic version	Z610C
Expansion modules		
ELEKTROMANAGER 6.0 Multi-Type	Expansion module for Enterprise	Z610F
ELEKTROMANAGER 6.0 Installation Tree	Expansion module for Enterprise	Z610P
ELEKTROMANAGER 6.0 Bed Testing Regulations	Expansion module for technical safety inspection	Z611I
ELEKTROMANAGER 6.0 GEPI 1.0	Hazard analysis software for determining test intervals for Professional	Z610Q
ELEKTROMANAGER 6.0 GEPI 2.0	Hazard analysis software for determining test intervals for Enterprise	Z610Z
ELEKTROMANAGER 6.0 eTROLL	Software for communication between PDA/RDA and the test instrument	Z610Y
ELEKTROMANAGER 6.0 ASCII Import	ASCII Import 6.0	Z611K
Palm OS handhelds and accessories		
1MABALSA-B	MEAZURA RDA laser barcode scanner, serial connection	Z611A
1MABARAA-B	MEAZURA RDA RFID 125 kHz (transponder), serial connection	Z611F
1MABALRA-B	MEAZURA RDA combination device, LASER/RFID – 125 KHz, serial connection	Z611L
1MABASBA-B	MEAZURA RDA combination device, Bluetooth	Z611G
MZRDA-S	MEAZURA RDA, serial connection	Z610H
MZCABLE-S	MEAZURA serial connector cable	Z611C
MZCRADL-USB	MEAZURA charging and transmission station, USB connection	Z611B
Adapter	Adapter cable / adapter, specially designed for connecting PDA to test instrument	Z611D

PROTOKOLLMANAGER

Protocol Software for Testing per BGV A3, VDE 0100, 0 701-0702, 0751.

PROTOKOLLmanager is basic software for administrating and documenting tests conducted on operating equipment and installations.
It can import measurement results from PSI and SI modules used with SECUTEST and PROFITEST instruments to a PC.
Professional SQL database

- ■ Automatic color coding according to the status of the device under test
- ■ Simplified data entry as opposed to standard software packages
- ■ Optimized support for XP security policies
- ■ Barcode technology can be used
- ■ Measurement data are read in per
  VDE 0701-0702 / 0751 after device testing,
  and per VDE 0100 / 0105 after installation testing.
- ■ Documentation in accordance with recognized standards
- ■ Data can be transferred to ELEKTROmananger and PS3

For orders from Germany, PROTOKOLLmanager is included with the PROFITEST 0100SII+ and the SECUTEST SII+ as of immediately.

❏ **Usable with following instruments:**
PROFITEST 0100S-II+, SECUTEST SII+

Scope of delivery:
- ● CD ROM
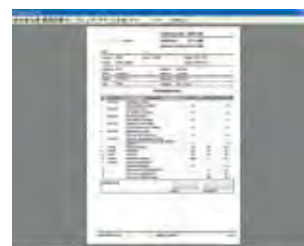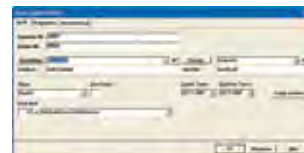
Type	Description	Article No.
PROTOKOLLMANAGER	Report software for SECUTEST (P)SI and PROFITEST (P)SI-BC	Z610L

GOSSEN METRAWATT

Made in Germany

Laboratory Power Supplies
KONSTANTER Series

Laboratory power supplies from GMC-I Messtechnik, known as GOSSEN KONSTANTERs, combine modern circuit technology with a broad range of functions. The devices can be ideally incorporated into their respective applications in the field of research and development, as well as into production and test systems. Depending upon power, in-phase regulators and switching controllers are used with a high degree of efficiency.

A clearly structured layout of all control elements, and an attractive design, are the basis for convenient, clear-cut handling.

Due to their exceptionally short response times, SLP, SSP and SYSKON devices are especially well suited for generating complex test signals, or for superimposing low-frequency signals to the output via analog control inputs.

The analog interface included with these devices offers additional control functions such as, amongst others, a trigger input for controlling
device functions and signal outputs for switching external components dependent upon device functions.

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

Computer interfaces included with SSP, SYSKON and MSP models establish connections to the digital control environment.

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

The scope of functions for each individual device is described in the sections for the respective KONSTANTERs.

Computer Controlled Laboratory Power Supplies

■ = standard   ❑ = optional

KONSTANTER Type	Max. Power Duration W	<90 s W	Setting Range U_{set} V	I_{set} A	Setting Accuracy U_{set} ±(%+mV)	I_{set} ±(%+mA)	Residual Ripple U mV_{TRMS}	I mA_{TRMS}	Interfaces Analog	RS232	USB	IEEE 488	Sink mode	Overvoltage protection	Auto-ranging output	Output on / off	Query meas. values	Sequence control
SSP 32 N 20 RU 10 P	120	(200)	0...20	0...10	0.15+30	0.4+35	10	25	■	■	–	❑	dyn	■	■	■	■	■
SSP 32 N 40 RU 6 P	120	(240)	0...40	0...6	0.15+40	0.5+20	10	20	■	■	–	❑	dyn	■	■	■	■	■
SSP 32 N 80 RU 3 P	120	(240)	0...80	0...3	0.15+80	0.5+10	10	10	■	■	–	❑	dyn	■	■	■	■	■
SSP 32 N 20 RU 20 P	240	(320)	0...20	0...20	0.15+40	0.5+70	15	50	■	■	–	❑	dyn	■	■	■	■	■
SSP 32 N 40 RU 12 P	240	(360)	0...40	0...12	0.15+45	0.5+45	15	25	■	■	–	❑	dyn	■	■	■	■	■
SSP 32 N 80 RU 6 P	240	(360)	0...80	0...6	0.15+80	0.5+25	15	20	■	■	–	❑	dyn	■	■	■	■	■
SSP 32 N 32 RU 18 P	320	(430)	0...32	0...18	0.15+50	0.5+70	30	50	■	■	–	❑	dyn	■	■	■	■	■
SSP 62 N 52 RU 25 P	500	–	0...52	0...25	0.1+17	0.2+25	10	15	■	❑	–	❑	dyn	■	■	■	■	■
SSP 62 N 80 RU 12.5 P	500	–	0...80	0...12,5	0.1+20	0.2+15	10	15	■	❑	–	❑	dyn	■	■	■	■	■
SSP 62 N 52 RU 50 P	1000	–	0...52	0...50	0.1+17	0.2+50	10	25	■	❑	–	❑	dyn	■	■	■	■	■
SSP 62 N 80 RU 25 P	1000	–	0...80	0...25	0.1+20	0.2+25	15	20	■	❑	–	❑	dyn	■	■	■	■	■
SSP 64 N 52 RU 100 P	2000	–	0...52	0...100	0.1+17	0.25+100	10	80	■	❑	–	❑	dyn	■	■	■	■	■
SSP 64 N 80 RU 50 P	2000	–	0...80	0...50	0.1+20	0.25+50	15	30	■	❑	–	❑	dyn	■	■	■	■	■
SSP 64 N 52 RU 150 P	3000	–	0...52	0...150	0.1+17	0.3+150	10	120	■	❑	–	❑	dyn	■	■	■	■	■
SSP 64 N 80 RU 75 P	3000	–	0...80	0...75	0.1+20	0.3+80	15	60	■	❑	–	❑	dyn	■	■	■	■	■
SYSKON P1500-60-60	1500	–	0...60	0...60	0.05+30	0.05+90	6	50	■	■	■	❑	dyn	■	■	■	■	■
SYSKON P3000-60-120	3000	–	0...60	0...120	0.07+48	0.10+135	10	70	■	■	■	❑	dyn	■	■	■	■	■
SYSKON P4500-60-180	4500	–	0...60	0...180	0.10+48	0.15+180	15	100	■	■	■	❑	dyn	■	■	■	■	■
MSP 64 D 42 P basic unit									–	■	–	■						
MSP control module – plug-in modules																		
ES 31 K 7 R 7 P	49	–	0...7	0...±7	0.05+4	0.1+4	1	3	–	*Via basic instrument*			■	–	–	■	■	–
ES 32 K 30 R 4 P	120	–	0...30	0...±4	0.05+16	0.1+2	3	3	–				■	–	–	■	■	–
ES 32 K 80 R 1.5 P	120	–	0...80	0...±1.5	0.05+40	0.1+1	3	2	–				■	–	–	■	■	–
ES 31 K 2x8 R 3 P	2x24	–	2x0...8	2x0...±3	0.05+4	0.1+2	1	3	–				■	–	–	■	■	–
ES 31 K 2x16 R 1.5 P	2x24	–	2x0...16	2x0...±1.5	0.05+8	0.1+1	1	2	–				■	–	–	■	■	–
ES 31 K 2x40 R 0.6 P	2x24	–	2x0...40	2x0...±0.6	0.05+20	0.1+0.5	3	2	–				■	–	–	■	■	–

Analog Controlled Laboratory Power Supplies

KONSTANTER Type	Max. Power Duration W	<90 s W	Setting Range U_{set} V	I_{set} A	Total System Deviation U mV	I mA	Residual Ripple U mV_{TRMS}	I mA_{TRMS}	SELV Safety extra-low voltage	Analog interface	Sink mode	Overvoltage protection	Auto-ranging output	Output on / off	Front panel output	Rear panel output
SLP 32 N 20 R 10	120	(200)	0...20	0...10	20	28	10	25	■	■	dyn	–	■	■	■	■
SLP 32 N 40 R 6	120	(240)	0...40	0...6	15	15	10	20	■	■	dyn	–	■	■	■	■
SLP 32 N 80 R 3	120	(240)	0...80	0...3	15	15	10	10	–	■	dyn	–	■	■	■	■
SLP 32 N 20 R 20	240	(320)	0...20	0...20	30	38	15	50	■	■	dyn	–	■	■	■	■
SLP 32 N 40 R 12	240	(360)	0...40	0...12	23	38	15	25	■	■	dyn	–	■	■	■	■
SLP 32 N 80 R 6	240	(360)	0...80	0...6	23	20	15	20	–	■	dyn	–	■	■	■	■
SLP 32 N 32 R 18	320	(430)	0...32	0...18	40	50	30	50	■	■	dyn	–	■	■	■	■
LSP 33K7EU5/2x25R1D	25+25+35	–	2x(0...25)+(0...7)	2x(0...1)+(0...5)	15/15/17	7/7/12	0.5/0.5/0.5	0.5/0.5/2	■	■	–	–/–/■	–	–	■	–

Linear Controlled Laboratory Power Supplies

KONSTANTER Type	Output Front Panel	U_{Output} V	I_{Output} A	Setting Resolution U mV at V	I mA	Mains Correction U %+mV	I %+mA	Load Correction U %+mV	I %+mA	Ripple mV_{RMS}	Mains Input V_{AC} 50/60 Hz
LSP 32 K 18 R 5	1	0...18	0...5	1 at 0...3.999 / 5 at 4...18	<=1	0.01+3/0.02+10	0.02+8	0.02+10	0.02+8	<2	115/230
LSP 32 K 36 R 3	1	0...36	0...3	1 at 0...3.999 / 10 at 4...36	<=1	0.01+3/0.02+10	0.02+8	0.02+10	0.02+8	<2	115/230
LSP 32 K 72 R 1.5	1	0...72	0...1,5	1 at 0...3.999 / 20 at 4...72	<=1	0.01+3/0.02+10	0.02+8	0.02+10	0.02+8	<2	115/230

Electronic Loads

Load KONSTANTER Type	Load input Front Panel	Input Power max. W	Current max. A_{DC}	Voltage max. V_{DC}	Current Sink Resolution mA	R-Load Curve Resolution mΩ	Mains Input V_{AC} 50/60 Hz
SSL 32 EL 150 R 30	1	150	0...30	350	10	10	115/230
SSL 32 EL 300 R 30	1	300	0...30	350	10	10	115/230

GOSSEN METRAWATT

Made in Germany

SSP-KONSTANTER 120 ... 320

SSP KONSTANTER 120, 240 and 320 devices (single output system power supply) 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 response times of less than 1 ms almost entirely independent of load (< 4 ms with 80 V device). The analog interface includes monitor, auxiliary power and programmable signal outputs, as well as programmable trigger and setpoint inputs.

- UIP Curve
- Extraordinary functionality
- Comprehensive calibration report
- Minimal power loss
- Auto-ranging output with 120, 240 or 320 W
- Output: voltage and current regulated
- Increased output power for brief intermittent periods
- Very short response times thanks to BET technology
- Dynamic sink mode operation
- Excellent dynamic control parameters
- Minimal residual ripple
- Output on / off function
- Lockable controls
- Master-slave operation for parallel and series connection
- Sequence functions with sequence control for creating voltage and current sequences
- Overvoltage, overcurrent and overtemperature protection
- Calibrating procedure for menu-driven balancing
- RS 232 interface (complete device operation)
- Floating output terminals at front and rear panel
- Can be electrically and mechanically combined into multi-output devices
- Analog interface
- Dimensions, benchtop device: (W x H x D) 221.5 x 102 x 397.5 mm, for 19" rack: ½ 19" x 2 standard height units x 400 mm
- Weight: approx. 2.8 kg

- ❒ **See optional accessories and software beginning on page 124**
  IEEE 488 Interface
  Driver software
  GM SSP-SFP operating software

- Instructions for mounting several SSP 32N and SLP 32N KONSTANTERs: see data sheet 3-349-405-15

Scope of delivery:
- KONSTANTER
- Mains power cable
- Operating instructions

CE

120 W
240 W

320 W

UIP Curve

U_a / V

I_a / A
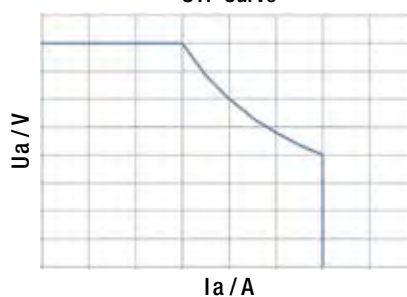
- Sequence memory: 245 locations for sequence functions

| Sequence 1 | Sequence 2 | | Sequence X |

Type		Data Sheet No.	Article Number
120 W	SSP 32 N 20 RU 10 P	3-348-843-03	K320A
	SSP 32 N 40 RU 6 P	3-348-843-03	K321A
	SSP 32 N 80 RU 3 P	3-348-843-03	K322A
240 W	SSP 32 N 20 RU 20 P	3-348-843-03	K330A
	SSP 32 N 40 RU 12 P	3-348-843-03	K331A
	SSP 32 N 80 RU 6 P	3-348-843-03	K332A
320 W	SSP 32 N 32 RU 18 P	3-348-843-03	K334A
IEEE 488 interface		3-348-843-03	K380A

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SSP-KONSTANTER 500 ... 3000

SSP KONSTANTER 500, 1000, 20000 and 3000 devices (single output system power supply) are single output computer controlled laboratory power supplies for universal use in R&D, production and testing.

Special circuitry allows for jumping from 0 V to nominal voltage (and back again) under nominal load conditions within response times of less than 10 ms. The analog interface includes monitor and auxiliary power outputs, as well as programmable trigger and setpoint inputs.

- ■ UIP curve
- ■ Extraordinary functionality
- ■ Minimal power loss
- ■ Auto-ranging output with 500, 1000, 2000 or 3000 W
- ■ Output: voltage and current regulated
- ■ Increased output power for brief, intermittent periods
- ■ Very short response times thanks to special circuit concept
- ■ Dynamic sink mode operation
- ■ Excellent dynamic control parameters
- ■ Minimal residual ripple
- ■ Output on/off function
- ■ Lockable controls
- ■ Sequence functions with sequence control for creating voltage and current sequences
- ■ Master-slave operation for parallel and series connection
- ■ Overvoltage, overcurrent and overtemperature protection
- ■ Analog interface
- ■ Rear panel connections:
  Mains input, 62 N: inlet plug with protective contact – L + N + PE
  Mains input, 64 N: screw terminal block – 3 L + N + PE
  Output: bus bars with holes for M8 screws and 4 mm holes
- ■ Dimensions, weight:

Type	Dimensions (W x H x D in mm)		Weight (approx. in kg)
	Benchtop Device	19" Rack	
SSP 62 N 500 W	465 x 101 x 500	2 standard height units x 500	12
SSP 62 N 1000 W	465 x 101 x 500	2 standard height units x 500	13
SSP 64 N 2000W	465 x 190 x 500	4 standard height units x 500	22
SSP 64 N 3000W	465 x 190 x 500	4 standard height units x 500	28

❒ See optional accessories and software beginning on page 124
  IEEE 488 / RS 232 interface
  RS 232 interface
  Driver software
  GM SSP-SFP operating software

Scope of delivery:
- KONSTANTER
- Mains power cable (SSP 62 N)
- Installation set for rack mounting
- Operating instructions
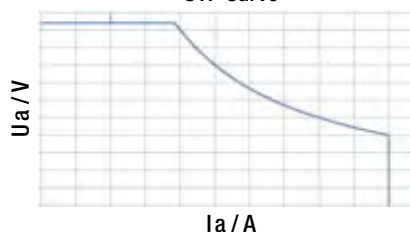
CE

UIP Curve

■ Sequence memory: 245 locations for sequence functions

| Sequence 1 | Sequence 2 | | Sequence X |

Type		Data Sheet No.	Article Number
500 W	SSP 62 N 52 RU 25 P	3-349-078-03	K344A
	SSP 62 N 80 RU 12.5 P	3-349-078-03	K341A
1000 W	SSP 62 N 52 RU 50 P	3-349-078-03	K345A
	SSP 62 N 80 RU 25 P	3-349-078-03	K343A
2000 W	SSP 64 N 52 RU 100 P	3-349-078-03	K352A
	SSP 64 N 80 RU 50 P	3-349-078-03	K351A
3000 W	SSP 64 N 52 RU 150 P	3-349-078-03	K362A
	SSP 64 N 80 RU 75 P	3-349-078-03	K361A
IEEE 488 / RS 232 interface		3-349-078-03	K382A
RS232 interface		3-349-078-03	K383A

MSP KONSTANTER 64 D

The MSP-KONSTANTER (multi-output system power supply) offers extensive flexibility, ease of operation and economy for universal use in R&D, production and testing.

The MSP KONSTANTER is a modular, manually operated and computer controlled DC power supply.

The basic unit with integrated auxiliary power supply and cooling fan is equipped with IEEE 488 and RS 232 interfaces, and 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 plug-in modules function in accordance with the linear controller principle, and 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.

- Switchable mains input: 230 V AC / 115 V AC
- Up to 8 independent, electrically isolated outputs
- All outputs can be used as electronic loads as well
- Minimal residual ripple and short response times
- Output on/off function
- Outputs can be activated and deactivated individually or in groups
- Measuring function for voltage, current and power with storage of extreme values
- Online help available in various languages by simply pressing a key
- IEEE 488 and RS 232 interfaces
- Easy, flexible device configuration
- Dimensions, benchtop device: (W x H x D) 449 x 177 x 430 mm, can be rack mounted
- Weight: basic device approx. 7.0 kg,
  modules approx. 3.3 kg each,
  control module approx. 0.7 kg

☐ **See optional accessories and software beginning on page 124**
Driver software

Scope of delivery:
- Basic device including mains power cable with earthing contact plug
- 5 blanking plates for unused module slots
- Installation set for rack mounting
- Operating instructions

Plug-in power supply modules and control module are not included with the basic device.

U I Curve

CE
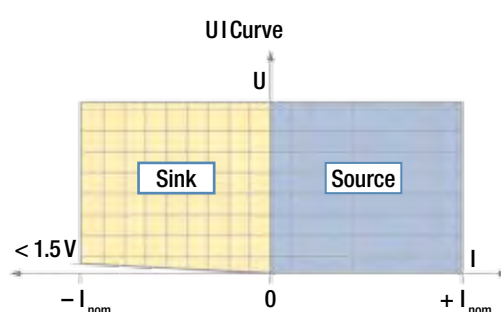
Type		Data Sheet No.	Article Number
MSP 64 N 42 P – basic device		3-349-084-03	K370A
MSP control module		3-349-084-03	K371A
2 x 24 W	ES 31 K 2 x 8 R 3 P	3-349-084-03	K372A
	ES 31 K 2 x 16 R 1.5 P	3-349-084-03	K372B
	ES 31 K 2 x 40 R 0.6 P	3-349-078-03	K372C
49 W	ES 31 K 7 R 7 P	3-349-078-03	K372D
120 W	ES 32 K 30 R 4 P	3-349-078-03	K373A
	ES 32 K 80 R 1.5 P	3-349-078-03	K373B

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SYS**KON**I P Series

The KONSTANTER SYSKON I P series (power factor control, single output, system power supply) includes single-channel, computer controlled laboratory power supplies for universal use.

Equipped with active power-factor control (PFC), these models supply 1500, 3000 or 4500 W of power, depending upon device type, at up to 60 V and max. 60, 120 or 180 A with characteristic UIP curve. All SYSKON models include special switching controller technology and matching status controllers, thus assuring high dynamics and short response times.

Setting ranges for output voltage and output current can be restricted by specifying setting limits. The analog interface is equipped with two programmable trigger inputs and three signal outputs, which can be linked to various device functions for indication, or for controlling external devices and an auxiliary power output. Beyond this, monitor outputs and control inputs for voltage and current setpoints are available as well. Sensing leads allow for auto-sensing operation at the power consumer. Strict menu-driven operation supports highly diverse programming functions. The devices are transformed into freely programmable test-signal generators by means of an expanded sequence memory and extra functions.

- Mains power input with power factor control (PFC)
- Highly efficient, low power loss
- Auto-ranging output with 1500, 3000 or 4500 W
- Output: voltage and current regulated
- UIP curve
- Very short response times
- Excellent dynamic control parameters
- Minimal residual ripple
- Output on / off function
- Comprehensive calibration report
- Dynamic sink mode operation
- Lockable controls
- Master-slave operation for parallel and series connection
- Sequence functions with sequence control for creating voltage and current sequences
- Overvoltage, overcurrent and overtemperature protection
- Calibrating procedure for menu-driven balancing
- USB and RS 232 interfaces (complete control of the device)
- Floating output terminals on the rear panel
- Analog interface
- Dimensions, weight:

Type	Dimensions (W x H x D in mm)		Weight
	Benchtop Device	19" Rack	(approx. in kg)
SYSKON P1500	447 x 102 (88) x 541 (501)	2 standard height units x 501	10
SYSKON P3000	447 x 191 (177) x 541 (501)	4 standard height units x 501	16
SYSKON P4500	447 x 191 (177) x 541 (501)	4 standard height units x 501	20

❑ **Software – see notes on page 124**
GM-SYSKON-SFP operating software
(free download form GMC-I website)

❑ **Optional accessories on page 125**
IEEE 488 Interface
SYSKON TRANSPORTER

- **Setup memory:**
  12 / 15 memory locations for complete configurations

- **Setup memory:**
  1536 / 1700 memory locations for sequence functions

| Sequence 1 | Sequence 2 | | Sequence X |

- **Sequence stringing**
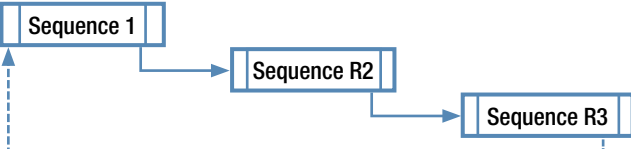
- **Retrieval of sub-sequences from primary sequences**
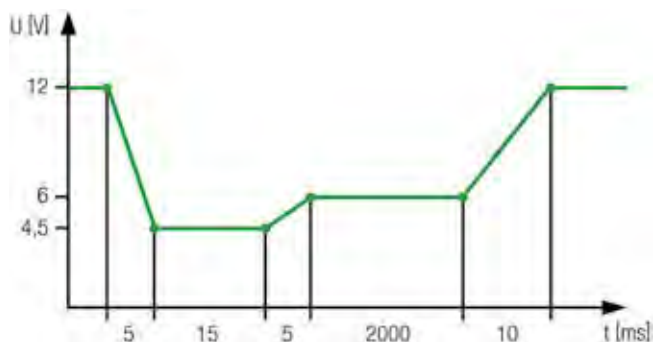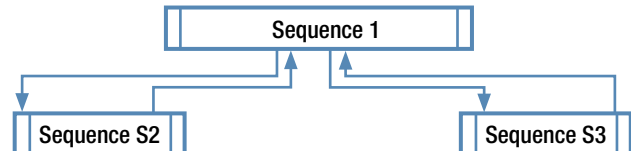
**SYSKON Output Voltage,
Starter Motor Curve**

GOSSEN METRAWATT

SYS**KON** I **P** Series

UIP Curves

Characteristic Power Curve
SYSKON P1500
60-60 SYSTEM KONSTANTER
— 230 VAC, 1500 W
— 115 VAC, 750 W

Characteristic Power Curve
SYSKON P3000
60-120 SYSTEM KONSTANTER
— 230 VAC, 3000 W
— 115 VAC, 1500 W

Characteristic Power Curve
SYSKON P4500
60-180 SYSTEM KONSTANTER
— 230 VAC, 4500 W
— 115 VAC, 2250 W
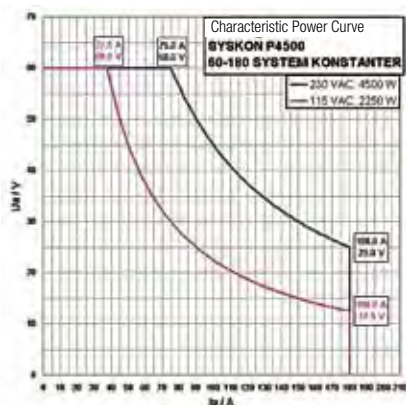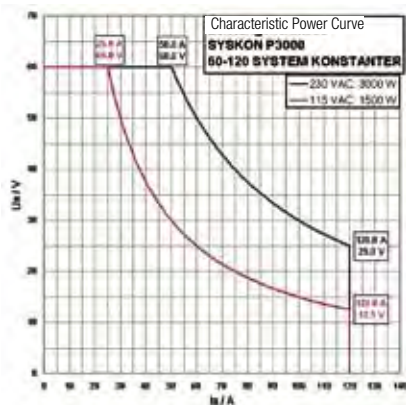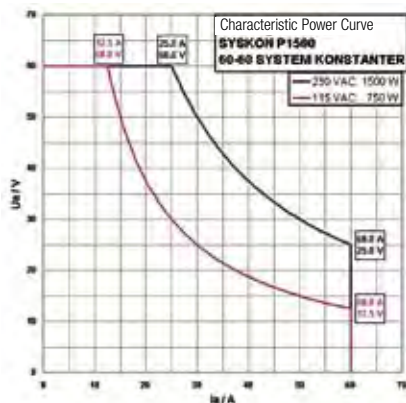
Scope of delivery:
- KONSTANTER
- Mains power cable
  (for SYSKON P1500 only)
- USB adapter cable (90° angle)
- Installation set for rack mounting
- Operating instructions
- DKD calibration certificate
- CD with drivers and operating software, PDF containing brochure, data sheet and operating instructions

SYS**KON** I **P**1500

1500 W Output Power

SYS**KON** I **P**3000

3000 W Output Power

SYS**KON** I **P**4500

4500 W Output Power

SYSKON Transporter

Type	Data Sheet No.	Article Number
1500 W SYSKON P1500	3-349-437-03	K353A
3000 W SYSKON P3000	3-349-437-03	K363A
4500 W SYSKON P4500	3-349-437-03	K364A
IEEE 488 interface	3-349-437-03	K384A
Mains power cable, 3.5 m	3-349-437-03	K991B
SYSKON TRANSPORTER	3-349-437-03	Z116A

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SLP-KONSTANTER 120 ... 320

Series SLP 120, 240 and 320 KONSTANTERs (single output laboratory power supplies) are single output, primary switched-mode laboratory power supplies for universal use in R&D, production, training and service applications.

BET circuit technology (bidirectional energy transformation) allows for practically load independent response times.

- UIP curve
- Auto-ranging output with 120, 240 or 320 W
- Minimal power loss
- Output: voltage and current regulated
- Increased output power for brief intermittent periods
- Very short response times thanks to BET technology
- Dynamic sink mode operation
- Excellent dynamic control parameters
- Minimal residual ripple
- Output on / off function
- Manual adjustment with ten-turn potentiometer
- Remote sensing
- Master-slave operation for parallel and series connection
- Protection against excessive temperature
- Floating output terminals at front and rear panel
- Can be electrically and mechanically combined into multi-output devices
- Analog interface
- Mounting accessories for 19" racks
- Dimensions, benchtop device: (W x H x D) 221.5 x 102 x 397.5 mm, for 19" rack: ½ 19" x 2 standard height units x 400 mm
- Weight: approx. 2.8 kg

❐ See optional accessories and software beginning on page 124

Scope of delivery:
- KONSTANTER
- Mains power cable
- Operating instructions

120 W / 240 W　　　　**320 W**

UIP Curve
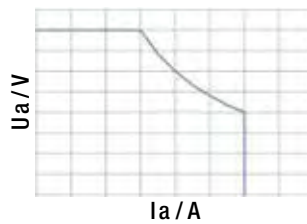
Type		Data Sheet No.	Article Number
120 W	SLP 32 N 20 R 10	3-348-796-03	K220A
	SLP 32 N 40 R 6	3-348-796-03	K221A
	SLP 32 N 80 R 3	3-348-796-03	K222A
240 W	SLP 32 N 20 R 20	3-348-796-03	K230A
	SLP 32 N 40 R 12	3-348-796-03	K231A
	SLP 32 N 80 R 6	3-348-796-03	K232A
320 W	SLP 32 N 32 R 18	3-348-796-03	K234A

LSP KONSTANTER 33 K

The KONSTANTER LSP (laboratory and system power supply) is a compact, linear controlled triple device with good control characteristics.

It's exceptionally well suited for universal use in R&D, production, training and service applications.

Control mode indicators display momentary operating status. The analog interface includes monitor, auxiliary power and programmable signal outputs, as well as trigger and setpoint inputs.

- SELV (safety extra-low voltage)
- Three mutually isolated outputs (at the front panel)
- Constant voltage and constant current operation
- Extremely minimal residual ripple
- Accurate, infinite adjustment of output voltage and current
- Analog interface (for remote control)
- Outputs can be connected for parallel or series operation
- Master-slave operation
- Tracking operation
- Rugged metal housing with carrying handle, suitable for rack-mounting
- Dimensions, benchtop device: (W x H x D) 219 x 148 x 365 mm, for 19" rack: ³⁄₆19" x 3 standard height units x 343 + 45 mm
- Weight: approx. 8.7 kg

Scope of delivery:
- KONSTANTER including mains power cable
- Operating instructions

UI Curve

25 V Channels

7 V Channels
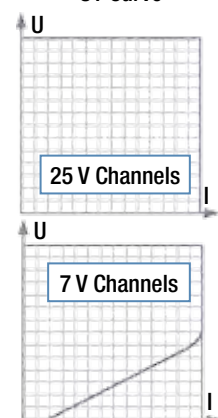
Type	Data Sheet No.	Article Number
LSP 33 K 7 EU 5 / 2 x 25 R 1 D	–	K270A

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LSP KONSTANTER 32 K

Series 32K LSP Konstanters are high precision DC power supplies for use in R&D, production, training and service applications.
The devices feature excellent regulating accuracy and minimal residual ripple, and outstanding ease of operation.

- Floating output
- Safe electrical separation
- Output can be switched on and off
- Voltage and current regulation (square wave)
- Rotary encoders for adjusting voltage and current
- Adjustment is also possible with keys
- Multifunctional LCD panel
- Setup memory for 10 device settings
- Protective functions
- Attractive design, benchtop instrument, suitable for mounting to a 19" rack
- Dimensions, benchtop device: (W x H x D) 215 x 100 x 280 mm, for 19" rack: ½19" x 2 standard height units x 280 mm
- Weight: approx. 6 kg
- ❒ Optional accessories: computer control via RS 232 or RS 485 is possible, PC interface upon request

Scope of delivery:
- KONSTANTER
- Operating instructions

U I Curve
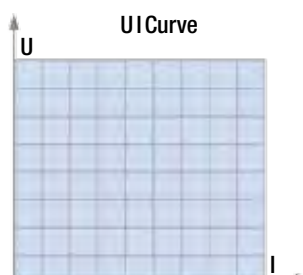
Type		Data Sheet No.	Article Number
90 W	LSP 32 K 18 R 5	3-349-254-03	K110A
108 W	LSP 32 K 36 R 3	3-349-254-03	K111A
	LSP 32 K 72 R 1.5	3-349-254-03	K112A

SSL-KONSTANTER 32 EL

SSL series 32EL ... load Konstanters are high precision direct current sinks for use in research, product development, production, service and vocational training.
The devices are distinguished by a diverse range of functions and excellent regulating accuracy, as well as outstanding ease of operation.

- Floating output
- Safe electrical separation
- Output can be switched on and off
- Characteristic current or R curve can be selected
- Settings selected by means of rotary switch and keypad
- Multifunctional LCD panel
- Memory for device settings, load profile
- Safety features, amongst others adjustable power limiting
- Attractive design, benchtop instrument, suitable for mounting to a 19" rack
- Dimensions, benchtop device: (W x H x D) 215 x 100 x 280 mm, for 19" rack: ½19" x 2 standard height units x 280 mm
- Weight: approx. 6 kg
- ❒ Optional accessories: computer control via RS 232 or RS 485 is possible, PC interface upon request

Scope of delivery:
- KONSTANTER
- Operating instructions

Type	Data Sheet No.	Article Number
SSL 32 EL 150 R 30	3-349-297-03	K850A
SSL 32 EL 300 R 30	3-349-297-03	K851A

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GM SSP-SFP

Soft Front-Panel PC User Interface for SSP-KONSTANTERs – all functions can be controlled and displayed at a PC with the software. Target groups: R&D, production, test equipment fabrication, system manufacturers

Software integrated into our KONSTANTERs facilitates operation and makes it possible to generate automated sequences. An intuitive user interface and device drivers for standard software place all of the functional options of KONSTANTER instruments at the the user's fingertips, thus shortening learning curves. As device-specific software, our soft front-panel provides users with the advantages offered by "virtual instruments" without the need for a complex standard platform.

The panel searches for connected devices when it's started. Identified Konstanters are listed, the device to be operated is selected and the required connection is established. Additional devices can be operated and controlled by starting the SFP more than once.

■ Prerequisite: NI-VISA driver or additional NI-488.2 driver for control via GPIB must be installed

■ Version 2.05 with expanded operating convenience for all SSP Konstanters

❏ **Usable with following instruments:**
   Laboratory Power Supplies   Series SSP 120 ... 320
                                  Series SSP 500 ... 3000

Scope of delivery:
● Software,
   free download from our website
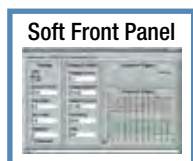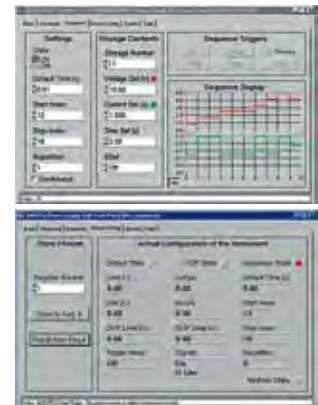
Soft Front Panel

Standard Software Platform Device Drivers for LabWindows – LabView – HPVEE

Loads DUTs

Virtual instruments:
KONSTANTER with soft front panel

GM SYSKON-SFP

Soft front-panel PC user interface for SYSKON.
All P series SYSKON KONSTANTER functions can be controlled and displayed at a PC with this software.
Target groups: R&D, production, test equipment fabrication, system manufacturers

The software is started by running the EXE file; no further installation is required.

The software detects devices which are connected to various possible interfaces including USB, RS 232 and GPIB. Devices detected by the software are identified and can be selected.

If more than one device is connected, the software can be started several times in order to access them separately.

❏ **Usable with following instruments:**
   SYSKON P series laboratory power supplies
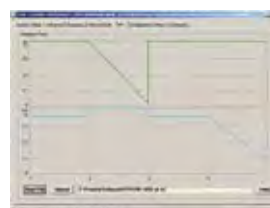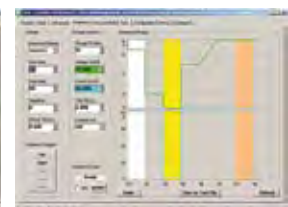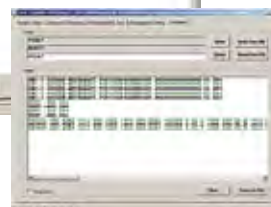
Scope of delivery:
● Software,
   free download from our website

Drivers for KONSTANTERs

For incorporating our SSP KONSTANTER computer controllable laboratory power supplies or MSP KONSTANTERs into LabWindows, LabView V4/V5 and HPVEE software packages.

- KONSTANTERs can be used ideally with your application
- KONSTANTER functions are easy to use
- The drivers support all computer controllable functions
- A separate directory is created for each application

❒ Usable with following instruments:
KONSTANTER series SSP 120 … 320, SSP 500 … 3000, MSP 64 D

LabWindows
LabView V4/V5
HPVEE

Scope of delivery:
- Drivers,
  free download from our website

KONSTANTER Accessories

Accessories for mounting a device to a 19" rack, mains jumper cable with one 10 A inlet plug and one 10 A inlet socket, bus and interface cable.

❒ Usable with following instruments:
K990A: series SSP 120 … 320, SLP 120 … 320
K990B: series SSP 120 … 320, SLP 120 … 320
K991A: series SSP 120 … 320
K931A: series SSP 120 … 320, SSP 500 … 3000, MSP 64 D
K931B: series SSP 120 … 320
Z3241: series SSP 120 … 320, SSP 500 … 3000, MSP 64 D

Designation	Type	Article Number
Mounting kit 1 x 32N	**K990A**	K990A
Mounting kit 2 x 32N	**K990B**	K990B
Mains jumper cable, 0.4 m	**K991A**	K991A
IEEE – IEEE bus cable, 2 m	**K931A**	K931A
RS 232 bus cable, 0.4 m	**K931B**	K931B
RS 232 interface cable, 2 m	**Z3241**	GTZ3241000R0001

Panel Mount Power Supplies
OEM Power Supplies

Power Supplies for Special Applications, or in Accordance with Customer Specifications
In addition to our standard power supply series, we also fabricate power supplies for special applications, or in accordance with customer specifications, for example:

- 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

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Appendix

Electrical Energy Meters – Standard Models

Training and Seminars with Practical Experience

Type and Article Number Index

Product Spectrum

U1281 ... U1389, U389A / B

Electrical Energy Meters for Household, Industrial and Building Management Applications

- Calibratable – approved for official billing in accordance with calibration legislation
- Easy to install – indicates correct connection
- Compact – fits into small distributors
- Communicative – can be connected to data logging and billing systems

❏ **Optional accessories:**

U270A door mounting kit for top-hat rail meter,

ASK... and WSK... plug-on and wound-primary current transformers,

UBAT-24V battery pack for reading voltage-free meters.

See data sheet or price list for "Industrial Measuring and Control Technology".

Energy Meters and Calibration from a Single Source

Calibrated meters are required for energy billing purposes in business and official applications. GOSSEN METRAWATT's federally approved **EB8** test laboratory calibrates the meters directly at the factory.

■ = standard ❏ = order option		Active Energy Meter – Power Display				Active Energy Meter – Drum-Type Counter	
		Direct Connection 5 (65) A	Transformer Connection 5 (6) A and 1 (6) A			Direct Connection 5 (65) A	Transformer Connection 5 (6) A and 1 (6) A
Mains type	2-wire	U1281		U1381			
	3-wire				U1387		
	4-wire		U1289			U1389	U389A	U389B
Input voltage	100 V – 110 V L- L				❏	❏		
	230 V L – N	■		■				
	400 V L – L		■		❏	❏	■	■
	500 V L – L				❏			
Transformer ratios	CT, VT adjustable			❏	❏	❏		
Multifunctional variant	with additional measurement of U, I, P, Q, S, PF, F	❏	❏	❏	❏	❏		
Class	1	■	■	■	■	■	■	■
Can be calibrated		■	■	■	■	■		
Pulse output	S0 standard	❏	❏	❏	❏	❏	■	■
	230 V	❏	❏	❏	❏	❏		
	Adjustable pulse rate, pulse duration	❏	❏	❏	❏	❏		
Bus connection	LON, M-bus, L-bus	❏	❏	❏	❏	❏		
Can be read via voltage-free measuring circuit	with the help of external 24 V DC auxiliary power	❏	❏	❏	❏	❏		

Immediately Available Standard Models	Data Sheet No.	Article Number
Active energy meter with power display, direct connection: 5 (65) A, class 1		
for 2-wire, 230 V system, programmable S0 pulse rate	3-349-274-03	U1281-V001
for 2-wire system, 230 V, S0: 1000 pulses / kWh, calibrated	3-349-274-03	U1281-V002
for 4-wire system, 3 x 230 / 400 V, S0: 1000 pulses / kWh	3-349-274-03	U1289-V001
for 4-wire system, 3 x 230 / 400 V, S0: 1000 pulses / kWh, calibrated	3-349-274-03	U1289-V002
for 4-wire system, 3 x 230 / 400 V, programmable S0 pulse rate	3-349-274-03	U1289-V003
Active energy meter with power display, transformer connection: 5 (6) A and 1 (6) A, class 1		
for 2-wire system, 230 V, 5 II 1 A, S0, CT / VT / programmable pulse rate	3-349-274-03	U1381-V001
for 2-wire system, 230 V, 5 II 1 A, S0, 1000 pulses/kWh, CT = VT = 1, calibrated	3-349-274-03	U1381-V002
for 3-wire system, 3 x 100 V, 5 II 1 A, S0, CT / VT / programmable pulse rate	3-349-274-03	U1387-V001
for 3-wire system, 3 x 100 V, 5 II 1 A, S0: 1000 pulses / kWh, CT = VT = 1, calibrated	3-349-274-03	U1387-V002
for 3-wire system, 3 x 400 V, 5 II 1 A, S0, CT / VT / programmable pulse rate	3-349-274-03	U1387-V003
for 3-wire system, 3 x 400 V, 5 II 1 A, S0: 1000 pulses / kWh, CT = VT = 1, calibrated	3-349-274-03	U1387-V004
for 4-wire system, 3 x 230 / 400 V, 5 II 1 A, S0, CT / VT / programmable pulse rate	3-349-274-03	U1389-V001
for 4-wire system, 3 x 230 / 400 V, 5 II 1 A, S0: 1000 pulses / kWh, CT = VT = 1, calibrated	3-349-274-03	U1389-V002
for 4-wire system, 3 x 230 / 400 V, 5 II 1 A, S0, CT / VT / programmable pulse rate, LON	3-349-274-03	U1389-V003
for 4-wire system, 3 x 230 / 400 V, 5 II 1 A, S0: 1000 pulses / kWh, CT = VT = 1, LON, calibrated	3-349-274-03	U1389-V004
Active energy meter with drum-type counter mechanism, U389A: direct connection, 5 (65) A / U389B: transformer connection, 5(6) A and 1(6) A, class 1		
for 4-wire system, 3 x 230 / 400 V, 5 (65) A, S0: 100 pulses / kWh	3-349-321-03	U389A
for 4-wire system, 3 x 230 / 400 V, 5 // 1 A, S0: 1000 pulses / kWh	3-349-321-03	U389B

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Type	Designation	Article Number
Testing of Safety Measures		
GTT1210	Measurements for testing safety measures in low-voltage systems per DIN VDE 0100/0105 and BGV A3 with PROFITEST 0100S-II, PROFITEST ONE and PROFITEST C instruments (duration: 2 days)	GTT1210000R0001
GTT1211	Efficient periodic testing of electrical equipment and systems according to requirements set forth by BGV A3 with SECUTEST SII and SIII instruments (duration: 2 days)	GTT1211000R0001
GTT1212	Periodic testing of electrical equipment by "trained persons" according to requirements set forth by BGV A3 with SECUTEST SII and METRATESTER 5 instruments (duration: 1 day)	GTT1212000R0001
GTT1213	Safety tests for medical devices with the SECUTEST 0751 / 601 or SECUTEST SIII test instrument (duration: 1 day)	GTT1213000R0001
GTT1214	Safety test for electrically operated hospital beds with SECUTEST SII and SIII test instruments (duration: 1 day)	GTT1214000R0001
GTT1215	Measurements for testing electrical equipment at machinery per DIN VDE 0113 (EN 60204) with PROFITEST 204 and METRAMACHINE 204 instruments (duration: 1 day)	GTT1215000R0001
GTT1216	Basic Electro-Technical Training – basic electro-technical knowledge, dangers of electricity for "trained persons", as a supplement to seminars GTT1212 and GTT1214 (duration: 2 days)	GTT1216000R0001
GTT1220	Measurements for testing the effectiveness of safety measures in low-voltage systems per DIN VDE 0100/0105 and BGV A3 with the PROFITEST MASTER range and ETC software (duration 2 days)	GTT1220000R0001
GTT3010	Efficient testing for building management in accordance with BGV A3, BetrSichV, MPG and DIN VDE regulations with the SECUSTAR FM modular test system (duration: 2 days)	GTT3010000R0001
GTT3020	Establishing test management procedures in actual practice for portable electrical equipment	GTT3020000R0001
Establishing on-site test management procedures for DIN VDE 0702, 0105 and 0113T1 with the SECUTEST, PROFITEST 0100S-II and PROFITEST 204 test instruments		
GTT3030	Starter package (duration: 1 day)	GTT3030000R0001
GTT3040	Standard package (duration: 2 days)	GTT3040000R0001
GTT3050	Comfort package (duration: 3 days)	GTT3050000R0001
GTT3060	Premium package (duration: 5 days)	GTT3060000R0001
PC analysis software for SECUTEST … and PROFiTEST … test instruments (duration: 1 day each)		
GTT1224H	PS3 user software, version 9, basics, devices, software and equipment management for measurements at devices with SECUTEST	GTT1224000R0001
GTT1224K	PS3 user software, version 9, basics, systems, software and test management for measurements at systems with PROFITEST	GTT1224000R0001
GTT1224M	PS3 user software, version 9, basics for measurements at machines with the PROFITEST 204 and the METRAMACHINE 204	GTT1224000R0001
GTT1224P	PS3 user software, basics for measurements at devices with SECUTEST FM	GTT1224000R0001
GTT1226	PC.doc-ACCESS user software	GTT1226000R0001
GTT1227A	ELEKTROmanager software for testing portable electrical equipment with SECUTEST test instruments	GTT1227000R0001
GTT1227B	ELEKTROmanager software for testing low-voltage systems including permanently connected equipment with PROFITEST	GTT1227000R0001
Power disturbance analysis		
GTT1642	Power disturbance analysis, as well as power and energy analysis with the MAVOLOG 10 (duration: 2 days)	GTT1642000R0001
GTT1643	Power disturbance analysis, as well as power and energy analysis with the MAVOWATT 50 (duration: 2 days)	GTT1643000R0001
GTT1644	Basics for mains quality and power disturbance analysis (duration: 1 day)	GTT1644000R0001
GTT1645	Introduction to Mavowatt 30 / 40 / 70 and DranView software (duration: 1 day)	GTT1645000R0001
GTT1650	Mains interference monitoring and analysis with MAVOSYS 10 and Encore software (duration: 1 day)	GTT1650000R0001

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Meas. Systems for Medical Technology	Function Testers Safety Testers Light Analyzers Modular Test System	
Measuring Technology – Universal	Mains Quality – Energy – Power Field Measuring Systems, Cable Detection Devices Resistance Thermometers / Clamp-Type Measuring Instruments Digital Multimeters Analog Multimeters Multimeter Accessories Calibrators Temperature Measuring Instruments, Light Meters	**Measuring Instruments and Testers**
Testing Technology – Electrical	Facility Management Solutions Installations and Equipment Testing (permanently installed) Electrical Device Testing (portable) Electrical Machinery Testing Earthing, Insulation, Low-Resistance Workshop Test Panels AS Interface Test Instruments	
Power Supply Technology	Laboratory Power Supplies Electronic Loads Customer-Specific OEM Power Supplies	
Software for	Measuring Instruments – Testers – Power Supplies	
Measuring Technology – Industrial	Measuring Transducers for Temperature and DC Quantities Measuring Transducers for Heavy Current Quantities Measuring Transducers for Angle of Rotation and Position DC Signal Isolators, Isolating Transformers Power Packs, Mounting Racks Isolating Switch Amplifiers, Isolating Amplifiers Valve Control Modules, Limit Value Indicators Thermocouples, Resistance Thermometers Ex-i Equipment	**Industrial Measuring & Control Technology**
Energy Management	Energy Meters, Summators, Additional Components Power – Energy – Mains Quality – Load Optimization ECS – Energy Control System Energy Management – Engineering Competent Project Management Partner	
Control Technology	Analog Controllers, Compact Controllers Controller Modules / OEM Control Systems Complete Solutions for Machinery Manufacturing	
Recording Technology	Display Recorders Continuous Line Recorders Point Recorders	
Software for	Energy Control System – Meas. Transducers – Isolating Amplifiers – Controllers	

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