2008

BENNING

World Class Test Equipment

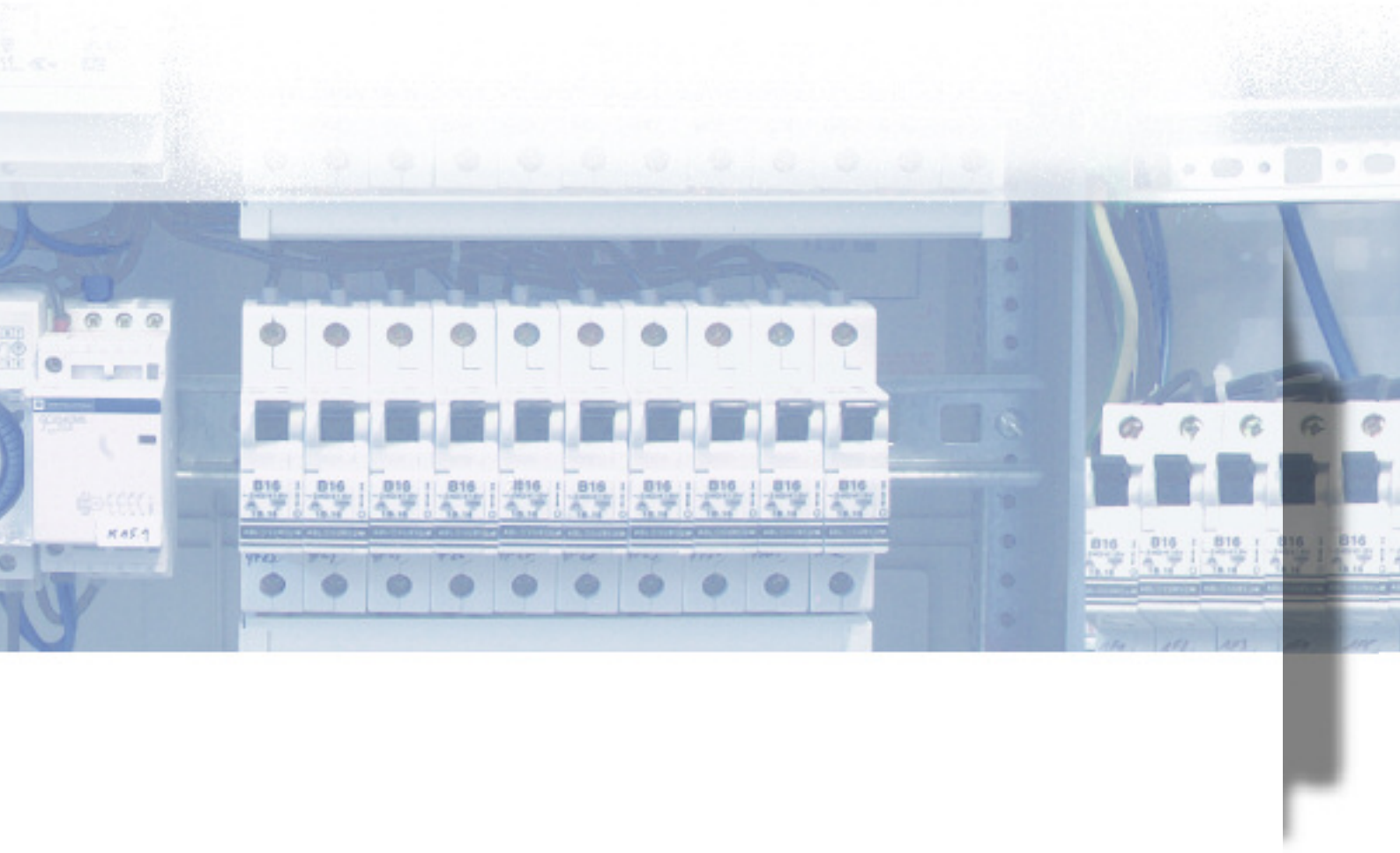


Testing, Measuring and Safety Instruments

IEC/EN 61243-3
DIN VDE 0682-401
voltage class B

The whole range of testers from one supplier

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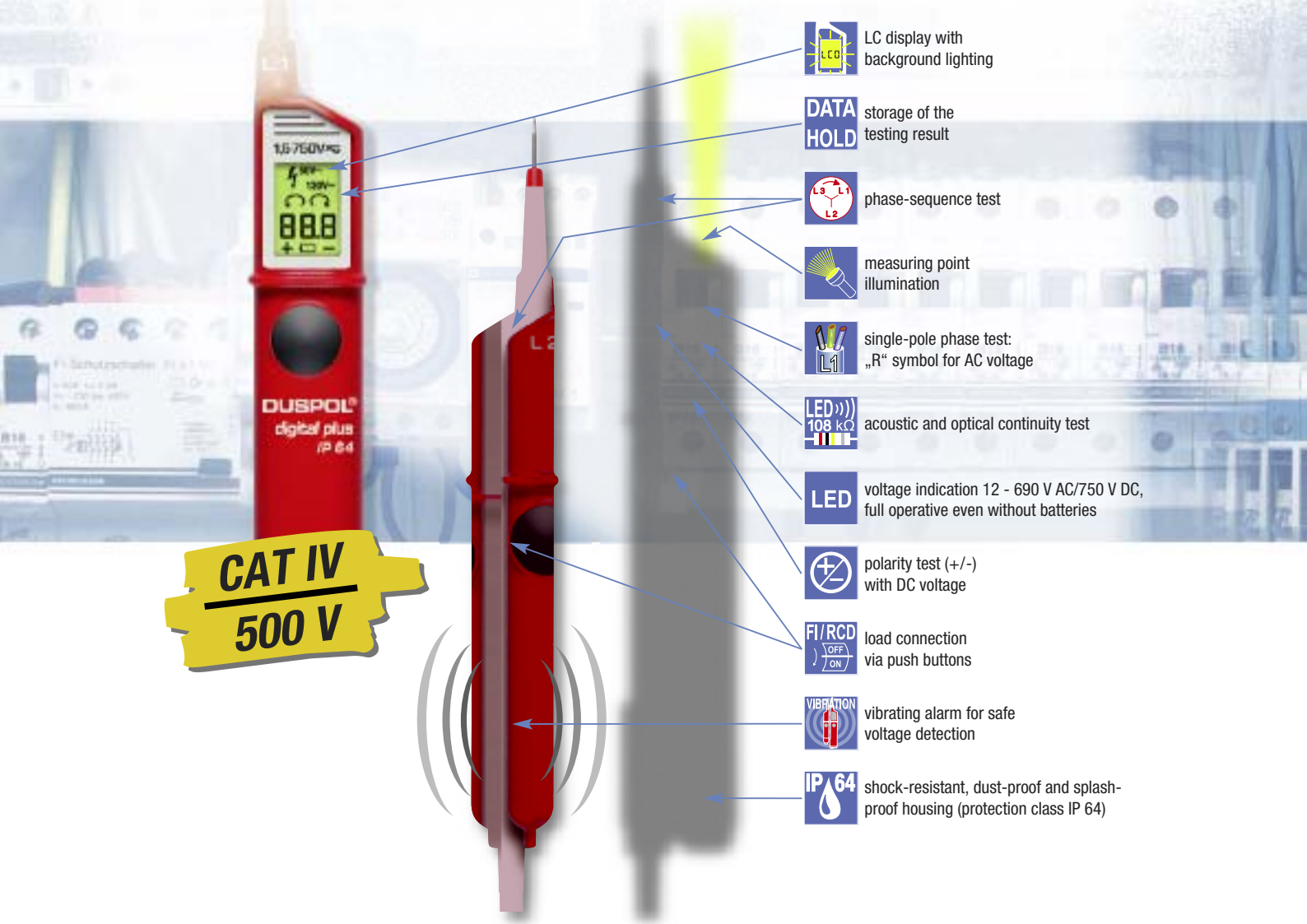
Top-class test equipment
DUSPOL® expert, the measure of all things

Top-class test equipment
DUSPOL® voltage testers

- tested and approved according to the international standard IEC/EN 61243-3 (DIN VDE 0682-401), voltage class B
- vibrating alarm for safe voltage detection
- no measuring errors due to irritating capacitive and inductive voltages by means of intended load connection via push buttons
- intended release of a 30 mA FI safety switch
- acoustic continuity check via buzzer and LED/LCD
- phase-sequence indication with arrows „ ⊼,⊼ “
- safe single-pole phase test
- precise illumination of the measuring point
- shock-resistant, dust-proof and splash-proof housing (protection class IP 64)
- LC display illumination that is activated automatically by means of a light sensor



Voltage and Continuity Tester

	DUSPOL® digital plus	*DUSPOL® analog plus*	*DUSPOL® expert*	*DUSPOL® master*	*DUSPOL® combi*	*DUSPOL® compact*
indication	LCD digital	plunger system/LED	LED/LCD	LED/LCD	LED/LCD	LED
indication steps	1.5 - 750 V	12 - 690 V	12 - 690 V	12 - 690 V	12 - 690 V	12 - 690 V
continuity test	–	–	buzzer + LED 108 kΩ	–	LCD 600 kΩ	–
phase-sequence test	yes/LCD	yes/LCD	yes/LCD	yes/LCD	–	–
single-pole phase test	yes/LCD	yes/LCD	yes/LCD	yes/LCD	yes/LCD	–
polarity test	yes/LCD	yes/LED	yes/LED	yes/LED	yes/LED	yes/LED
load connection via push buttons	I_S = 200 mA (750 V_{DC})	I_S = 250 mA (750 V_{DC})	I_S = 200 mA (750 V_{DC})	I_S = 200 mA (750 V_{DC})	I_S = 200 mA (750 V_{DC})	I_S = 200 mA (750 V_{DC})
30 mA FI triggering via push button	yes	yes	yes	yes	yes	yes
vibrating alarm	yes	yes	yes	yes	yes	–
measuring point illumination	yes/LED	–	yes/LED	–	–	–
protection class	IP 64	IP 64	IP 64	IP 64	IP 64	IP 64
item no.	050255	050257	050253	050252	050254	050251

tested and approved

IEC/EN 61243-3
(DIN VDE 0682-401)
voltage class B



Digital Multimeter BENNING MM 7 – MM 11

safety and functional diversity without any compromises

BENNING MM 7

Digital Multimeter for precise and reproducible measuring results

- TRUE RMS measuring method for industrial applications
- reliable and precise measuring results even in case of distorted or non-sinusoidal signal behaviour
- basic measurings for current, voltage, resistance, continuity, diode, capacity, frequency and temperature
- LC display with analog bar graph indication with back illumination



TRUE RMS

MM 7

BENNING MM 11

Precision Digital Multimeter with extraordinary features of performance

- highest measuring accuracy of 0.06 % due to TRUE RMS measuring method and 20000 digit resolution
- an ideal measuring device for recording of measuring processes
- large memory capacity of 1000 storage locations and 40000 storage locations for Data Log functions
- transmitting measuring results via optical USB interface
- delivery including software *BENNING PC-Win MM 11*

BENNING MM 8, MM 9, MM 10

Digital Multimeter of the highest measuring category CAT IV

- highest measuring category CAT IV 600 V allows measurements direct at the source of the low-voltage installation
- precise due to TRUE RMS measuring method
- transmitting measuring results via optical USB interface
- delivery including software *BENNING PC-Win MM 10*

tested and approved

IEC/EN 61010-1
(DIN VDE 0411-1)

USB



CAT IV 600 V

MM 8

CAT IV 600 V
TRUE RMS

MM 9

CAT IV 600 V
TRUE RMS

MM 10

Software ***PC-Win MM 10/MM 11***



USB

TRUE RMS

MM 11

BENNING PC-Win MM 10/MM 11

Software for logging and analysis

- software for reading and logging of measurement series
- visualisation of measurement series via line diagram and table
- scanning rate variable from 0.5 sec. up to 10 min.
- storage of measurement series as text file

Digital Multimeter

	BENNING MM 4	*BENNING MM 7*	*BENNING MM 8*	*BENNING MM 9*	*BENNING MM 10*	*BENNING MM 11*
indicating range	4200	4000	6000	6000	6000	20000
basic accuracy	0.5 %	0.25 %	0.5 %	0.5 %	0.5 %	0.06 %
AC voltage	1 mV - 600 V	1 mV - 750 V	0.1 mV - 750 V	0.1 mV - 750 V	0.1 mV - 750 V	1 µV - 750 V
DC voltage	1 mV - 600 V	0.1 mV - 1000 V	0.1 mV - 1000 V	0.1 mV - 1000 V	0.1 mV - 1000 V	1 µV - 1000 V
AC current	0.1 A - 300 A	10 µA - 10 A	–	1 mA - 10 A	1 mA - 10 A	1 µA - 10 A
DC current	–	10 µA - 10 A	0.1 µA - 6 mA	0.1 µA - 10 A	0.1 µA - 10 A	1 µA - 10 A
resistance	0.1 Ω - 42 MΩ	0.1 Ω - 40 MΩ	0.1 Ω - 60 MΩ	0.1 Ω - 60 MΩ	0.1 Ω - 60 MΩ	10 mΩ - 2 GΩ
continuity/diode	yes/yes	yes/yes	yes/yes	yes/yes	yes/yes	yes/yes
frequency	–	1 Hz - 40 MHz	1 Hz - 60 MHz	1 Hz - 60 MHz	1 Hz - 60 MHz	0.01 Hz - 1 MHz
capacity	–	1 pF - 40 mF	1 pF - 6 mF	1 pF - 6 mF	1 pF - 6 mF	1 pF - 40 mF
temperature	–	-20 °C up to +800 °C	–	–	–	-200 °C up to +1200 °C
volt sensor	–	–	–	–	–	–
interface	–	–	–	–	USB	USB
software	–	–	–	–	*PC-Win MM 10*	*PC-Win MM 11*
memory	HOLD	HOLD, MAX/MIN	HOLD, MAX/MIN	HOLD, MAX/MIN	HOLD, MAX/MIN	1000 memory locations
Data Log function	–	–	–	–	–	40000 memory locations
measuring method	RMS	TRUE RMS	RMS	TRUE RMS	TRUE RMS	TRUE RMS
measuring category	CAT III 300 V	CAT III 600 V	CAT IV 600 V	CAT IV 600 V	CAT IV 600 V	CAT III 600 V
item no.	044073	044076	044077	044078	044079	044080



All Digital Multimeters including protective case, safety leads and battery set.

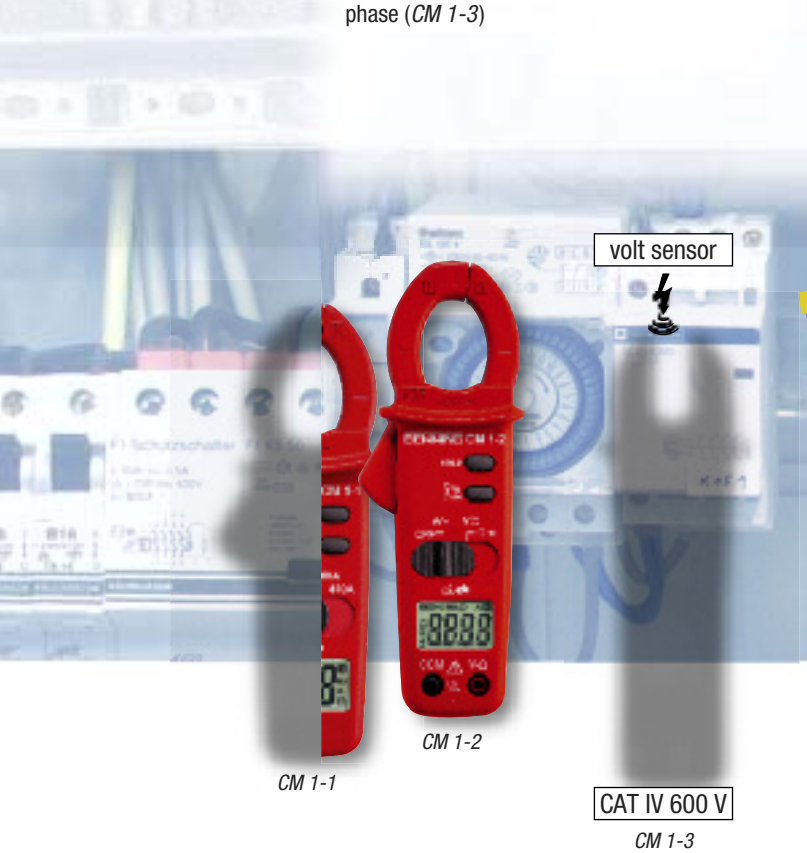
Digital Current Clamp Multimeter
BENNING CM 1-1 – CM 1-3, CM 2, CM 3, CC 1, CC 2

BENNING CM 1-1, CM 1-2 and *CM 1-3*
Digital Current Clamp Multimeter for AC current
Innovative technology, practical design

- safe current measuring up to 400 A AC
- measuring inputs for voltage, resistance, continuity and diode test
- integrated volt sensor signalises phase voltages by means of an acoustic signal and a red LED signal (*CM 1-3*)
- it localizes cable breaks and defective lamps in exposed cables (cable reel, light chains) via the feeding side of the phase (*CM 1-3*)

BENNING CM 2 and *CM 3*
Digital Current Clamp Multimeter for AC/ DC current

- safe and non-contact measuring of high currents
- DC and AC current measuring up to 600 A AC/DC
- measurement of low currents (automotive, photovoltaics, industry) (CM 2)
- measuring inputs for voltage, resistance and continuity test (*CM 2*)



CM 1-1

CM 1-2

CM 1-3



CM 2

CM 3

BENNING CC 1 and *CC 2*
Current Clamp Adapter for Multimeter

- safe AC current measuring up to 200 A/400 A
- connection via 4 mm safety measuring leads
- output: 1 mV AC/1 A AC (*CC 1*), 1 mA AC/1 A AC (*CC 2*)



CC 1



CC 2

tested and approved

IEC/EN 61010-1
(DIN VDE 0411-1)

Digital Current Clamp Multimeter/Current Clamp Adapter

	BENNING CC 1	*BENNING CC 2*	*BENNING CM 1-1*	*BENNING CM 1-2*	*BENNING CM 1-3*	*BENNING CM 2*	*BENNING CM 3*
indicating range	–	–	2000	2000	2000	4000	2000
basic accuracy	1.9 %	1 % - 3 %	2 %	1 %	1 %	0.5 %	1.9 %
AC voltage	–	–	–	0.1 V - 600 V	0.1 V - 750 V	0.1 mV - 600 V	–
DC voltage	–	–	–	0.1 V - 600 V	0.1 V - 1000 V	0.1 mV - 600 V	–
AC current	1 A - 400 A	0.5 A - 200 A	10 mA - 400 A	0.1 A - 400 A	0.1 A - 200 A	10 mA - 300 A	0.1 A - 600 A
DC current	–	–	–	–	–	10 mA - 300 A	0.1 A - 600 A
resistance	–	–	–	0.1 Ω - 20 MΩ	0.1 Ω - 20 MΩ	0.1 Ω - 40 MΩ	–
continuity/diode	–/–	–/–	–/–	yes/–	yes/yes	yes/–	–/–
frequency	–	–	–	–	–	–	–
effective power	–	–	–	–	–	–	–
power factor (cos φ)	–	–	–	–	–	–	–
temperature	–	–	–	–	–	–	
volt sensor	–	–	–	–	yes	–	–
memory	–	–	HOLD, MAX	HOLD	HOLD	HOLD, MAX	HOLD
measuring method	–	–	RMS	RMS	RMS	RMS	RMS
max. clamp opening	30 mm	21 mm	30 mm	30 mm	16 mm	25 mm	38 mm
measuring category	CAT III 300 V	CAT III 600 V	CAT III 600 V	CAT III 600 V	CAT IV 600 V	CAT III 300 V	CAT III 300 V
item no.	044037	044110	044061	044062	044063	044035	044031

Digital Current Clamp Multimeter

BENNING CM 4 – CM 9

BENNING CM 4 - CM 7

Digital Current Clamp Multimeter of the highest measuring category
Safety without any compromises

- multi-functional and powerful due to TRUE RMS measuring method for industrial applications
- safe current measuring up to 1000 A AC/DC
- highest measuring category CAT IV 600 V allows measurements directly at the source of the low-voltage installation
- LC display and background illumination for all types

BENNING CM 8

Power Current-Clamp Multimeter
Power analysis for single-phase and three-phase mains

- TRUE-RMS measurements up to 1000 V, 600 A AC/DC
- effective power measurements up to 600 kW
- calculation of the power factor cos φ
- indication of the load type (inductive, capacitive)
- bipolar phase sequence test in three-phase mains
- measuring inputs for voltage, resistance, continuity, diode, frequency and temperature
- measurement of inrush currents (motors etc.)



CM 4

CAT IV 600 V

CM 6

TRUE RMS

CM 5



CAT IV 600 V
TRUE RMS

CM 7



TRUE RMS

CM 8

BENNING CM 9

Leakage Current Clamp with a Resolution of 1 µA
The alternative solution for insulation measurements

- measurement of leakage currents and differential currents in electrical systems (VDE 0100) and devices (VDE 0701/0702, BGV A3, BetrSichV (= German Health and Safety at Work Regulations))
- highest resolution of 1 µA in the 6 mA measuring range
- measurement without switch-off during normal operation of the system/device, the perfect solution for preventive maintenance
- analog output (mV/A) for transmission of measured values
- precise and reproducible measuring results up to 100 A
- optimum screening against external magnetic fields



NEW!

CM 9
(available as of 07/2008)

Digital Current Clamp Multimeter

	BENNING CM 4	*BENNING CM 5*	*BENNING CM 6*	*BENNING CM 7*	*BENNING CM 8*	*BENNING CM 9*
indicating range	4000	4000	4000	4000	6000	6000
basic accuracy	0.7 %	0.7 %	0.7 %	0.7 %	0.7 %	0.9 %
AC voltage	0.1 V - 600 V	0.1 V - 600 V	0.1 V - 750 V	0.1 V - 750 V	10 mV - 1000 V	–
DC voltage	0.1 V - 600 V	0.1 V - 600 V	0.1 V - 1000 V	0.1 V - 1000 V	10 mV - 1000 V	–
AC current	0.1 A - 600 A	0.1 A - 600 A	0.1 A - 1000 A	0.1 A - 1000 A	0.1 A - 600 A	1 µA - 100 A
DC current	–	0.1 A - 600 A	–	0.1 A - 1000 A	0.1 A - 600 A	–
resistance	0.1 Ω - 400 Ω	0.1 Ω - 400 Ω	0.1 Ω - 400 Ω	0.1 Ω - 400 Ω	0.1 Ω - 20 kΩ	–
continuity/diode	yes/–	yes/–	yes/–	yes/–	yes/yes	–/–
frequency	1 Hz - 400 Hz	1 Hz - 400 Hz	1 Hz - 400 Hz	1 Hz - 400 Hz	0.1 Hz - 400 Hz	–
effective power	–	–	–	–	1 W - 600 kW	–
power factor (cos φ)	–	–	–	–	± 0.00 - 1.00	–
temperature	–	–	–	–	-50 °C up to +1000 °C	–
volt sensor	–	–	–	–	–	–
memory	HOLD, MAX/MIN PEAK	HOLD, MAX/MIN PEAK, ZERO	HOLD, MAX/MIN PEAK	HOLD, MAX/MIN PEAK, ZERO	HOLD, MAX/MIN PEAK, INRUSH	HOLD, PEAK analogue output
measuring method	RMS	TRUE RMS	RMS	TRUE RMS	TRUE RMS	RMS
max. clamp opening	37 mm	45 mm	53 mm	53 mm	40 mm	40 mm
measuring category	CAT III 600 V	CAT III 600 V	CAT IV 600 V	CAT IV 600 V	CAT III 600 V	CAT III 600 V
item no.	044056	044057	044058	044059	044064	044065

tested and approved

IEC/EN 61010-1
(DIN VDE 0411-1)



All Digital Current Clamps Including protective case, Safety measuring leads and battery set.

Safety Instruments BENNING IT 100, IT 110 and IT 120
Testing of electrical systems in compliance with the standards

BENNING IT 100
Insulation and Resistance Measuring Device

- safety tests on electric systems and equipment
- measuring of the insulation resistance with testing voltages of 250 V, 500 V and 1000 V
- low-impedance measurements with testing current of 200 mA for continuity tests of protective conductors and equipotential bonding conductors
- measuring of the residual battery capacity in %
- large LC display with analogous bar graph indication and background illumination
- including service case, measuring leads, crocodile clips and battery set

BENNING IT 110, BENNING IT 120
Installation Testers
For safety tests on electrical systems according to DIN VDE 0100 and IEC 60364

Multifunctional installation testers for complete testing and efficient troubleshooting of electrical systems

- measurement of the protective conductor line and of the equipotential bonding line with a testing current of 200 mA
- measurement of the insulation resistance with testing voltages of 100 V, 250 V, 500 V and 1000 V
- line impedance and loop impedance measurement (optional without tripping of the RCD) with calculation of the short-circuit current (PFC/ PSC)
- complete testing of the residual-current-operated device (RCD)
- measurement of contact voltage (without tripping), tripping time and tripping current (ramp test) of residual current operated device (RCD)
- phase-sequence testing in three-phase mains
- voltage measurement up to 500 V and online voltage monitoring



IT 110

IT 100

BENNING IT 100
Insulation/Resistance Measuring Device

	BENNING IT 100
indicating range	2000 digits (illumination)
low-impedance resistance	0.01 Ω - 20 Ω
insulation resistance	10 kΩ - 2000 MΩ
AC/DC voltage	1 V - 1000 V
resistance	1 Ω - 2000 Ω
continuity test	buzzer/30 Ω
internal battery capacity	0 - 100 %
measuring category	CAT III 600 V
item no.	044032

BENNING IT 110
Installation Tester

	BENNING IT 110
display	graphic display (illuminated)
low-impedance resistance	0.01 Ω - 2000 Ω
insulation resistance	1 kΩ - 1000 MΩ
line impedance (L-N/L)	0.01 Ω - 2000 Ω
loop impedance (L-PE)	0.01 Ω - 2000 Ω
short-circuit current	0.01 A - 24.4 kA
RCD testing	tripping time, tripping current, contact voltage
phase sequence	yes
voltage, frequency	1 V - 500 V, 45 Hz - 65 Hz
item no.	044100

BENNING IT 110, IT 120 Installation Testers
The perfect solution for efficient testing

Features
BENNING IT 110, BENNING IT 120

- all measuring functions can be selected directly by means of a rotary switch
- switchable probe tip for releasing the measuring process
- graphic display and help function with connecting diagram
- complete measuring result with measuring parameters, limiting value and symbols for PASS / FAIL
- current supply by means of 6 NiMH storage batteries (AA) with charger

Additional functions
BENNING IT 120

in addition to the *BENNING IT 110*:

- current measurement (TRUE RMS) by means of current clamp adapter (optional)
- illumination measurement by means of lux sensor (optional)
- earthing measurement by means of three-wire measuring method (optionally with earthing set)
- integrated measured value memory for 500 measurements
- USB and RS 232 interface
- *BENNING PC-Win IT 120* software included in delivery

Logging software with Test Log according to ZVEH
BENNING PC-Win IT 120

- PC software for reading the stored test data
- Creation of test logs with handover and status report according to ZVEH
- Structuring and export function of the test data



NEW! Test log according to ZVEH



Scope of delivery of the BENNING IT 120



IT 120



BENNING CC 2



BENNING luxmeter type B/type C

BENNING IT 120 Installation Testers

	BENNING IT 120
display	graphic display (illuminated)
low-impedance measurement	0.01 Ω - 2000 Ω
insulation resistance	1 kΩ - 1000 MΩ
line impedance (L-N/L)	0.01 Ω - 2000 Ω
loop impedance (L-PE)	0.01 Ω - 2000 Ω
short-circuit current	0.01 A - 24.4 kA
RCD testing	tripping time, tripping current, contact voltage
phase sequence	yes
voltage, frequency	1 V - 500 V, 45 Hz - 65 Hz
earth resistance	0.01 Ω - 2000 Ω
current (TRUE RMS)	0.1 mA - 20 A (by means of the clamp)
luminous intensity	0.01 lux - 20 klux (by means of sensor)
measured value memory	500 measuring results
interfaces	USB, RS 232
incl. software	*BENNING PC-Win IT 120*
item no.	044101

Scope of delivery of the installation testers

	BENNING IT 110	***BENNING IT 120***
tester incl. carrying case / carrying strap	x	x
switchable probe tip	x	x
test cable with shock-proof plug	x	x
universal test cable, 3 x L = 1.5 m	x	x
3 x test probe, 3 x crocodile clips	x	x
charger with 6 NiMH storage batteries (AA)	x	x
PC software BENNING PC-Win IT 120		x
USB and RS 232 cable		x

Optional accessories for BENNING IT 120

Current clamp adapter ***BENNING CC 2***
0.5 A - 20 A AC (200 A AC) **item no. 044110**

Illumination sensor ***BENNING luxmeter type B***
Accuracy: 5 % **item no. 044111**

Illumination sensor ***BENNING luxmeter type C***
Accuracy: 10 % **item no. 044112**

Earthing set consisting of 2 earth rods and 3 test cables **item no. 044113**



Earthing set

BENNING 700 Tester according to VDE 0701/0702
For testing portable electrical equipment

BENNING 700
Tester for safety tests and repetitive tests according to DIN VDE 0701/0702 and UVV BGV A3, BetrSichV (German Health and Safety at Work Regulations)

- **DIN VDE 0701**: tests on repaired and modified electric devices
- **DIN VDE 0702**: repetitive tests on electric devices

Test routines either in automatic or manual mode

- measurement of protective-conductor resistance with test current 200 mA/10 A
- measurement of insulation resistance
- measurement of protective-conductor current and contact-current using differential current process
- measurement of substitute earth leakage test
- test of voltage absence by measuring differential current
- function test after safety test passed (voltage, current)



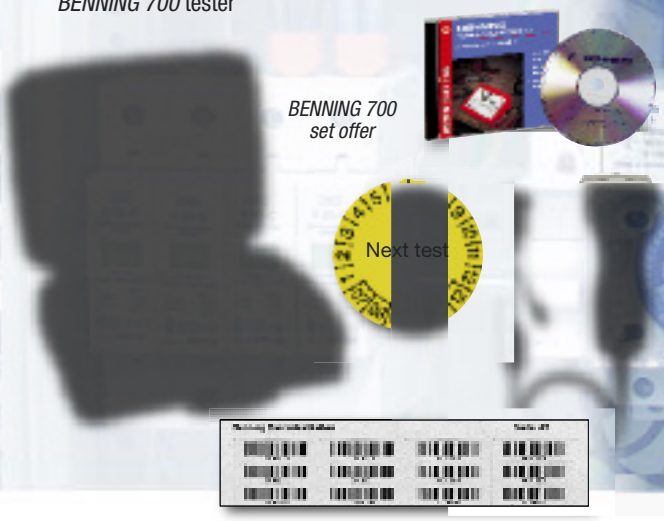
BENNING 700

Features of the *BENNING 700*

- standard equipment with measured value memory for 199 test samples, PC interface, connection for barcode scanner and optional software *BENNING PC-Win 700*
- indication of the respective testing steps by means of LED and indication of measured values and limiting values via LC display
- „PASS"/„FAIL" indication by means of red error LED
- appropriate for electrotechnically trained personnel
- test sample identification via barcode scanner / barcode labels

BENNING PC-Win 700 Software

- professional software for logging, evaluation and archiving of the recorded measured values
- comfortable transmission of the test data to the *BENNING 700* tester



BENNING 700 set offer



BENNING 700 info CD

BENNING 700 Set

• tester *BENNING 700* incl. service bag	**item no. 050305**
• software *BENNING PC-Win 700* on CD-ROM	**item no. 047000**
• barcode scanner	**item no. 009369**
• barcode labels (320 pieces)	**item no. 756061**
• test badges „Next test" (300 pieces)	**item no. 756213**



CM 9
(available as of 07/2008)

BENNING 700 VDE 0701/0702 Tester

	BENNING 700
indicating range	99999
protective conductor resistance	0.01 Ω - 65.53 Ω
insulation resistance	1 kΩ - 65.53 MΩ
measurement of protective conductor current, contact current (differential current) and substitute leakage current	0.01 mA - 65.00 mA
zero potential test (differential current method)	0.01 mA - 65.00 mA
functional test after test sample passed the safety test by means of separately placed test socket and mains socket	230 V, 16 A
measured value memory	199 test samples
interfaces	RS 232, barcode scanner
item no.	050305

Scope of delivery of the *BENNING 700*

- *BENNING 700* tester incl. Service case
- 4 mm safety measuring line and probe tip

Optional accessories for BENNING 700

software *BENNING PC-Win 700* on CD-Rom	**item no. 047000**
barcode scanner	**item no. 009369**
barcode labels (1 set/320 pieces)	**item no. 756061**
test badges „Next test" (1 set/300 pieces)	**item no. 756213**
Leakage current clamp BENNING CM 9 for leakage current measurement (see page 7)	**item no. 044065**
Measuring adapter for three-phase loads: Measuring adapter for R_{PE} and R_{ISO} measurement, CEE coupling (5-pin, L1-L2-L3 bridged) onto shock-proof plug (2-pin),	
16 A CEE coupling	**item no. 044122**
32 A CEE coupling	**item no. 044123**
Measuring adapter for leakage current clamp, CEE coupling onto CEE plug (5-pin), conductors leaded through individually and double insulated	
16 A CEE coupling	**item no. 044127**
32 A CEE coupling	**item no. 044128**











Voltage, Continuity, Load Tester
Phase-Sequence Indicator

PROFIPOL®
Universal voltage tester

- indicating DC and AC voltage within the range of 6 - 400 V
- indicating steps 6, 12, 50, 230, 400 V
- polarity test for DC voltage
- shock-resistant, dust-proof and splash-proof housing, protection class IP 65

Z-TESTER
Load tester for testing low-voltage meters

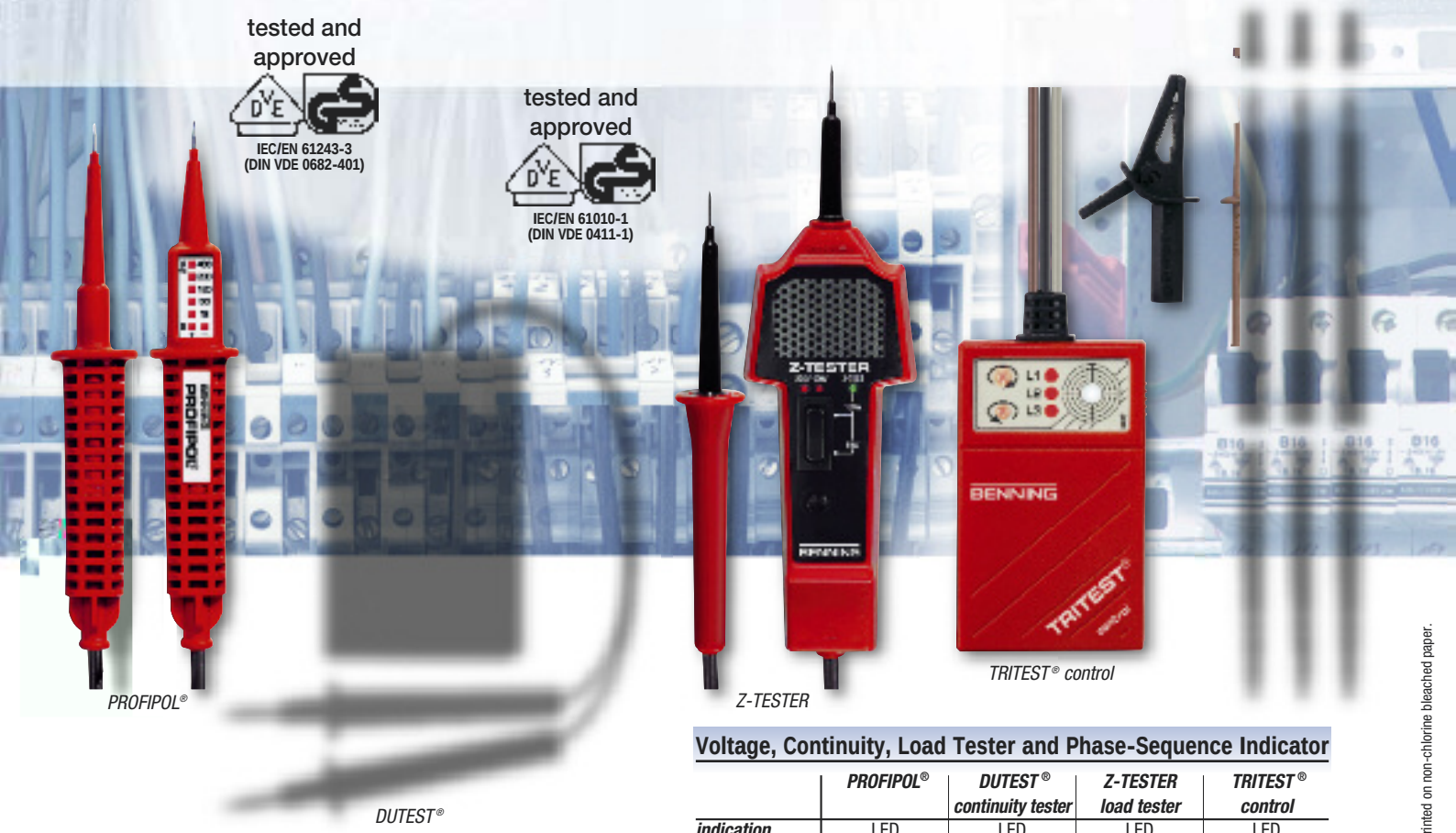
- testing of the meter starting capability
- functional control by power connection of 50 W/100 W
- control of phase voltages (230/400 V)
- overload protection by means of integrated temperature monitoring

TRITEST® control
Phase-sequence indicator for testing the phase sequence in three-phase mains

- indication of clockwise and anti-clockwise phase sequence
- indication of the phase voltages L1, L2 and L3
- voltage range: 400 - 690 V (50 - 60 Hz)
- bright LED pocket lamp function
- including safety probe tips and alligator clip

tested and approved
IEC/EN 61243-3
(DIN VDE 0682-401)

tested and approved
IEC/EN 61010-1
(DIN VDE 0411-1)



PROFIPOL® *Z-TESTER* *TRITEST® control*

DUTEST®

DUTEST®
Continuity and line tester

- reliable detection of faulty wiring, contacting errors and cable interruptions
- high- and low-impedance continuity tests
- acoustic indication by means of loud testing buzzer
- visual indication by means of high-contrast light-emitting diodes (LED)
- powerful torch function
- protected against external voltages of up to 400 V

Voltage, Continuity, Load Tester and Phase-Sequence Indicator

	PROFIPOL®	*DUTEST® continuity tester*	*Z-TESTER load tester*	*TRITEST® control*
indication	LED	LED	LED	LED
AC voltage	6 - 400 V	–	230/400 V	400 - 690 V
DC voltage	6 - 400 V	–	–	–
continuity test	–	buzzer + LED 900 Ω/90 kΩ	–	–
Phase-sequence test	–	–	–	yes/LED
Phase voltage indication	–	–	–	yes/LED
Pocket lamp function	–	yes/bulb	–	yes/white LED
polarity test	yes/LED	–	–	–
load connection via push button	–	–	50 W/100 W I_S = 270/470 mA	–
protection class	IP 65	IP 30	IP 20	IP 30
item no.	020022	050155	050190	020050

Your specialist dealer

BENNING
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