

BENNING

20
26



DUSPOL®
Anniversary
Years **75**
**TESTING AND
MEASURING**



TESTING & MEASURING

Appliance Tester for testing of electrical appliances

in compliance to EN 50678, EN 50699, EN 62353, EN 60974-4



INFO

2

type BENNING	 ST 760+	 ST 755+	 ST 725	 ST 710
--------------	--	---	---	---

Display

display	7" capacitive color touchscreen	graphic display	graphic display
---------	---------------------------------	-----------------	-----------------

Measuring functions

protective conductor resistance (R_{PE})	0.05 Ω - 10 Ω	0.05 Ω - 10 Ω	0.05 Ω - 20 Ω	0.05 Ω - 20 Ω
test current AC	> 600 mA, 10 A	> 600 mA, 10 A	> 200 mA	> 200 mA
insulation resistance (R_{INSU})	0.1 M Ω - 100 M Ω	0.1 M Ω - 100 M Ω	0.1 M Ω - 20 M Ω	0.1 M Ω - 20 M Ω
test voltage DC	100 V - 1000 V	100 V - 1000 V	250 V / 500 V	500 V
protective conductor current (I_{PE})/ contact current (I_{CONT}) via				
- differential current measurement	0.03 mA - 25 mA	0.03 mA - 25 mA	0.25 mA - 20 mA	—
- direct measurement	0.03 mA - 25 mA	0.03 mA - 25 mA	0.1 mA - 2 mA	—
- alternative leakage current measurement method	0.03 mA - 25 mA	0.03 mA - 25 mA	0.25 mA - 20 mA	0.1 mA - 20 mA
testing of				
• electrical appliances	•	•	•	•
• mobile PRCD types	•	•	—	—
• medical electrical devices	•	•	—	—
• welding equipment	•	—	—	—
• device connecting / extension cables	•	•	•	•
• threephase test objects under operating conditions (optional)	•	•	•	—
line test	•	•	•	•
testing current of RCD	10 mA - 300 mA	10 mA - 300 mA	30 mA	—
voltage	1 V - 360 V	1 V - 360 V	50 V - 270 V	50 V - 270 V
current	0.1 A - 16 A	0.1 A - 16 A	—	—
effective power/apparent power	20 W - 2300 W	20 W - 2300 W	—	—
functional test	•	•	•	—

Features

test procedure	automatic / manual	automatic / manual	automatic	automatic
database management	•	•	—	—
measured value memory	•	•	• (max. 999)	—
interfaces	W-LAN, LAN, Bluetooth®, 4xUSB, mini-USB		mini-USB	—
updates (free of charge)	•	•	—	—

Generally

scope of delivery	tester in case, set of measuring leads/alligator clips, 2-pin test cable, appliance cable, SD card, calibration certificate		in addition to the scope of delivery to ST 710: mains connection cable, micro USB data cable, download software, fuse	tester, case, test cable with alligator clip, appliance cable, batteries
BTEC - BENNING Test Equipment Cloud	free cloud access with basic functions for quick and easy documentation of testing tasks (languages DE, EN)*			
languages (firmware/software)	DE, EN, FR, NL, further languages on request		not necessary	not necessary
operating manual (languages)	DE, EN, FR, NL, further languages on request		DE, FR, EN, NL	DE, FR, EN, NL
dimensions (mm)	410 x 350 x 170	410 x 350 x 170	270 x 115 x 55	270 x 115 x 55
weight	6 kg	6 kg	1.1 kg	0.8 kg
item no.	050334	050332	050316	050308

SET offer

type BENNING	ST 760+ SET	ST 755+ SET	—	—
scope of delivery	appliance tester ST 760+ or ST 755+, PC software, 1D USB barcode scanner, barcode labels (1000 pieces), test badges „next test“ (300 pieces)		—	—
item no.	050335	050333	—	—

Measuring range indications refer to ranges from highest resolution to the final measuring range value.

* Furthermore, a suitable service package is offered for all kinds of requirements at btec-info.benning.de or via the following QR code:



btec-info.benning.de

	Description	Product data	Item no.	ST 760+	ST 725	ST 710
				ST 755+		

Measuring adapter for single-phase and three-phase loads

	Measuring adapter BENNING MA EV 1 for EV charging cables (Mode 2, Mode 3) and wall boxes; vehicle, cable and error simulation (diode short, CP short, PE open), CP status (A, B, C, D), PP status (NC, 13 A, 20 A, 32 A, 63 A)	RPE, RINSU, IPE/ICONT, Charging cable of Mode 2/ wall box: RCD 30 mA AC + 6 mA DC Charging cable of Mode 3: continuity, short circuit and phase sequence	044164	•		
	Measuring adapter BENNING MA 4 16 A + 32 A CEE 5-pin, 16 A CEE 3-pin (active and passive testing of single-phase/three-phase loads and CEE extension cables), testing of three-phase welding equipment, also suitable for third-party devices that actively connect a mains voltage of 230 V	RPE, RINSU, IPE/ICONT with alternative leakage, differential and direct current measuring method	044162	•	•	
	16 A mains connection cable 16 A/ 400 V CEE plug - 32 A/ 400 V CEE coupling, length: 1 m	accessories for BENNING MA 4	044163	•	•	
	Measuring adapter BENNING MA 3 16 A/32 A CEE 5-pin, 16 A CEE (testing of CEE extensions cables and passive testing 1-/3-phase loads, 16 A CEE 3-pin (active testing))	RPE, RINSU, IPE/ICONT (for three-phase loads only with alternative leakage current measurement method) extension cables with functional test/phase sequence test	044159	•	•	
	Measuring adapter triple 16 A/32 A CEE 5-pin, 16 A CEE 3-pin (passive testing with L1-L2-L3 bridged)	RPE, RINSU, IPE/ICONT by means of alternative leakage current measurement method for three-phase loads	044147	•	•	•

Measuring adapter for three-phase loads

	Measuring adapter BENNING MA 1-16 , 16 A CEE 5-pin (active testing under operating conditions)	RPE, IPE by means of direct measurement method	044140		•	
	Measuring adapter BENNING MA 1-32 , 32 A CEE 5-pin (active testing under operating conditions)	RPE, IPE by means of direct measurement method	044141		•	
	Measuring adapter 16 A CEE 5-pin (passive testing with L1-L2-L3 bridged)	RPE, RINSU, IPE/ICONT. by means of alternative leakage current measurement method	044122	•	•	•
	Measuring adapter 32 A CEE 5-pin (passive testing with L1-L2-L3 bridged)	RPE, RINSU, IPE/ICONT. by means of alternative leakage current measurement method	044123	•	•	•

Test cable / brush probe

	5 m test cable (2-pin) with 4 mm test probe	RPE, RINSU, ICONT.	10154024	•		
	2 m test cable (2-pin) with 4 mm test probe	RPE, RINSU, ICONT.	10150829	•		
	4 mm brush probe for gentle contacting of accessible conductive parts, such as sensitive metal surfaces and rotating/vibrating parts, e. g. drill chucks, orbital sanders, etc.	4 mm safety jack for connecting the test probe of the appliance tester, length: 185 mm, brush length/diameter: 60 mm/20 mm	10217861	•	•	•

PC Software / test badges

	PC software BENNING PC-Win ST 750-760	Database software for documentation and management of equipment and customers	047002	•		
	test badges „next test“ (300 pieces)	self-adhesive	756212	•	•	•

Barcode, QR code

	1D USB scanner	for barcodes	009369	•		
	1D/2D USB scanner	for barcodes and QR-/Data Matrix codes	009373	•		
	1D/2D cordless scanner	for barcodes and QR-/Data Matrix codes	009374	•		
	barcode labels (1000 pieces)	with consecutive numeric representation, further number ranges available	756301	•		

Additional accessories on request.

* figure similar

Installation Testers and Insulation Instruments

for testing of stationary electrical installations and EV charging stations



INFO



Display

display	graphic display	graphic display	graphic display	LCD (4000, bar graph)	LCD (9999)
help function with connecting diagram / illumination	• / •	• / •	- / •	- / •	- / •

Measuring functions

insulation resistance	10 k Ω - 1000 M Ω	10 k Ω - 1000 M Ω	200 k Ω - 199 M Ω	50 k Ω - 20 G Ω	300 k Ω - 20 G Ω
test voltage 50 V, 100 V / 250 V, 500 V, 1000 V	• / •	• / •	- / •	• / •	• / •
low-impedance resistance	0.01 Ω - 2000 Ω	0.01 Ω - 2000 Ω	0.15 Ω - 199 Ω	0.01 Ω - 40 Ω	0.01 Ω - 60 Ω
Rlow 200 mA with polarity reversal	•	•	• (without polarity reversal)	• (without polarity reversal)	• (without polarity reversal)
continuity 7 mA	•	•	-	-	-
polarization index (PI) / dielectric absorption rate (DAR)	- / -	- / -	- / -	• / •	• / •
resistance	-	-	-	0.01 Ω - 40 k Ω	0.1 Ω - 600 k Ω
null balance of the measuring leads	•	•	•	•	•
leakage current	-	-	-	•	-
testing of RCDs					
• RCD Auto / RCD t / RCD I / Uc	• / • / • / •	• / • / • / •	• / • / • / -	- / - / - / -	- / - / - / -
• type AC / A / F	• / • / •	• / • / •	• / • / •	- / - / -	- / - / -
• type B / B+	• / •	- / -	- / -	- / -	- / -
• type EV RCD (RDC-PD) / MI RCD / EV RCM (RDC-MD)	• / • / -	- / - / -	- / - / -	- / - / -	- / - / -
testing of permanently installed EV charging stations (wall boxes)	RCD I (6 mA DC ramp) from EV-RCD (via 10239871, 11001243)				
line impedance (L-N/L-L) / voltage drop (ΔU)	0.01 Ω - 10 k Ω / •	0.01 Ω - 10 k Ω / •	0.2 Ω - 1999 Ω / -	-	-
loop impedance (Z L-PE)	0.01 Ω - 10 k Ω	0.01 Ω - 10 k Ω	0.2 Ω - 1999 Ω	-	-
short-circuit current	up to 200 kA	up to 200 kA	up to 26 kA	-	-
loop impedance without tripping	•	•	•	-	-
test current at 230 V	6.5 A (10 ms)	6.5 A (10 ms)	3 A (10 ms)	-	-
earthing measurement (3-wire measuring method)	• (via 044113)	• (via 044113)	-	-	-
voltage	1 V - 550 V (TRUE RMS)	1 V - 550 V (TRUE RMS)	1 V - 440 V (RMS)	0.1 V - 600 V (TRUE RMS)	0.01 V - 1000 V (RMS)
current (TRUE RMS)	• (via 044038)	-	-	-	-
frequency / phase sequence	14 Hz - 500 Hz / •	14 Hz - 500 Hz / •	45 Hz - 65 Hz / •	50 Hz - 500 Hz / -	45 Hz - 500 Hz / -
ISFL (single-fault leakage current in IT systems)	•	-	-	-	-
luminous intensity	• (via Luxmeter type B)	-	-	-	-

Features

measured value memory	up to 1800	-	-	500	-
interfaces	USB, RS 232	-	-	-	-
measuring category	CAT III 600 V, CAT IV 300 V	CAT III 600 V, CAT IV 300 V	CAT III 300 V	CAT IV 600 V	CAT IV 600 V, CAT III 1000 V

Generally

scope of delivery	in addition to the scope of delivery to IT 115: „Commander“ probe tip, RS 232 PS/2, USB interface cable, PC software (via download link)	tester, case, test cable with shock-proof plug, universal 3-wire test cable, set of test probes/ alligator clips, carrying strap, rechargeable storage batteries (6x NiMH AA), charger, fuse, calibration certificate	tester, hard-top case, test probe, set of measuring leads/ alligator clips, test cable with shock-proof plug, carrying strap, batteries (6 x 1.5 V LR6/ type AA), fuse	tester, case, switchable probe tip, measuring leads, magnetic hook, alligator clips, rubber protective frame, batteries (4 x 1.5 V LR6/type AA), fuse	tester, case, set of measuring leads/probes, alligator clips, rubber protective frame, batteries (4 x 1.5 V LR6/type AA), fuse
languages (firmware/software)	DE, EN, ES, FR, NL	DE, EN, ES, FR, NL / -	not necessary	not necessary	not necessary
operating manual (languages)	DE, EN, NL, further languages on request		CZ, DE, EN, FR, GR, IT, NL, PL	BG, CZ, DE, EN, FR, GR, HU, NL, PL, RO, SE	DE, EN, FR, NL
dimensions (mm) / weight	230 x 103 x 115 / 1.3 kg	230 x 103 x 115 / 1.3 kg	235 x 132 x 92 / 1.3 kg	207 x 95 x 52 / 0.63 kg	206 x 90 x 51 / 0.51 kg
item no.	044103	044104	044105	044033	044107

Measuring range indications refer to ranges from highest resolution to the final measuring range value.

	Description	Product data	Item no.	IT 130	IT 115	IT 105	IT 101	IT 100
Toolboxes / stand-by cases								
	BENNING L-BOXX® 238 from the Sortimo® system dimensions: 445 x 358 x 254 mm	Innovative click system, can be integrated into all Sortimo® transport solutions, quick securing with lock, also possible with several L-BOXX®es, clearly organised storage system, shock-resistant ABS housing.	10236016	•	•	•	•	•
	BENNING L-BOXX® 136 from the Sortimo® system dimensions: 445 x 358 x 152 mm		10236015				•	•
	BENNING pre-perforated foam insert 136 dimensions: 405 x 315 x 85 mm	Easy and perfect adaptation, individually adaptable insert for safe transport. Grey. Incl. foam insert as bottom plate. Dimensions: grid of 15 x 15 mm. Suitable foam insert for L-BOXX® 136.	10236017				•	•
	Robust hard case dimensions: 375 x 190 x 250 mm	With foam insert, separate shelf and lid compartment for accessories and small parts. Safe transport protection for high-quality testing and measuring instruments. Made of ABS material, dust and waterproof.	10198412	•	•	•	•	•
	Stand-by case size M dimensions: 240 x 180 x 70 mm	made of hard-wearing nylon fabric	010913				•	•

Measuring accessories

	BENNING CC 3 AC/DC current clamp adapter	basic accuracy: 1 % - 2 % current: 0.2 A - 300 A AC/DC output: 1 mV/10 mV AC/DC per 1 A AC/DC	044038	•				
	BENNING EV 3-1 measuring adapter for EV charging cables (wall boxes)	For testing permanently installed AC charging stations (wall boxes) of charging mode 3 with type 2 connectors.	11001243	•				
	BENNING EV 3-3 measuring adapter for EV charging cables (wall boxes)	For testing permanently installed AC charging stations (wall boxes) of charging mode 3 with type 2 connectors.	10239871	•				
	BENNING MA EV 1 measuring adapter for EV charging cables (wall boxes)	For testing permanently installed AC charging stations (wall boxes) of charging mode 3 with type 2 connectors, in combination with measuring adapter for wall box testing (optional 10236543).	044164	•				
	Measuring adapter wall box testing type 2 connector (5-pin)	PP cable to simulate the current-carrying capacity of the charging cable, length: 2 m. For testing wall boxes in combination with measuring adapter BENNING MA EV 1 and installation tester	10236543	•				
	BENNING TA 3 set of measuring leads, eight pieces	Ø 4 mm plug-in technology, red/black, professional equipment, CAT III 1000 V, consisting of: measuring leads (silicone), test probes (slender measuring tip), claw clamps, alligator clips	044126				•	•
	BENNING TA 5 40 m measuring cable	with practical winder and strap, for the measurement of protective and bonding conductors, cross-section 0.75 mm², connection Ø 4 mm test socket/plug	044039	•	•	•	•	•
	BENNING TA 7-16 ~ 16 A 6h 3P+N+PE	measuring adapter for testing of 5-pin CEE sockets, easy and safe contacting without having to open the CEE sockets, coloured measuring jacks with unambiguous conductor assignment, universally applicable due to 4 mm safety measuring jacks, supported measurements/tests: R _{low} , R _{insu} , Z _{loop} , Z _{line} , RCD test, voltage and phase sequence testing	044040	•	•	•	•	•
	BENNING TA 7-32 ~ 32 A 6h 3P+N+PE		044041	•	•	•	•	•
	BENNING TA 7-63 ~ 63 A 6h 3P+N+PE		044042	•	•	•	•	•
	earthing set for earthing measurement	three-wire measuring method. Consisting of: 2 earth rods, 3 test cables (2 x 20 m, 1 x 4.5 m)	044113	•	•			
	Ø 4 mm safety measuring leads with 2 mm measuring tip, two pieces	red/black, L = 1.40 m, with Ø 2 mm measuring tip (L = 18 mm), CAT IV 600 V/ CAT III 1000 V (with protective caps), CAT II 1000 V (without protective caps)	044146				•	•
	Ø 4 mm safety measuring leads with 4 mm measuring tip, two pieces	red/black, L = 1.40 m, with Ø 4 mm measuring tip (L = 18 mm), CAT IV 600 V/ CAT III 1000 V (with protective caps), CAT II 1000 V (without protective caps)	044145				•	•
	CEE measuring adapter 16 A CEE 5-pin	for measurement of voltage/phase-sequence (rotary field), frequency	044148	•	•			
	“Commander” test plug for shock-proof socket	with “TEST”/“MEM” key, display brightness setting, “PASS”/“FAIL” indication by means of green/red LED, PE contact electrode for protective conductor connection	044149	•	•			
	“Commander” probe tip switchable	with “TEST”/“MEM” key, LED measuring point illumination, “PASS”/“FAIL” indication by means of green/red LED, PE contact electrode for protective conductor connection (BENNING IT 130 delivery including “Commander” probe tip!)	044155	•	•			

Photovoltaic Installation Tester

for testing of photovoltaic systems up to 1500 V



INFO

type BENNING	 PV 125   	 SUN 3   	 PV 1-1+  	 SUN 2  
measuring devices for photovoltaic	installation tester for PV systems up to 1500 V	insolation and temperature measuring instrument	installation tester for PV systems up to 1000 V	insolation and temperature measuring instrument
test procedure (EN 62446)	category 1	–	category 1	–

Display

display	3.5" color screen graphic display (illuminated)	LCD	graphic display (illuminated)	LCD
---------	---	-----	-------------------------------	-----

Measuring functions

protective conductor resistance (R_{PE})	0.05 Ω – 199 Ω	–	0.05 Ω - 199 Ω	–
open-circuit voltage with polarity (U_o/c)	10 V - 1500 V DC*	–	5 V - 1000 V DC	–
short-circuit current (I_s/c)	0.5 A - 25 A DC	–	0.5 A - 15 A DC	–
insulating resistance (R_{iso})	0.05 M Ω – 999 M Ω	–	0.05 M Ω - 199 M Ω	–
test voltage 250 V, 500 V, 1000 V / 1500 V	• / •	–	• / –	–
AUTO measurement 1	+/-, U_o/c , I_s/c , R_{iso}	–	+/-, U_o/c , I_s/c , R_{iso}	–
AUTO measurement 2	DC operating power measurement (via CM 3-PV, 11001235)	–	–	–
AUTO measurement 3	R_{PE} , U_{PE} (P2P)	–	–	–
manual measurements	R_{PE} (P2P), R_{iso} (P2P), voltage (P2P), U_o/s + I_s/c , AC/DC current	–	–	–
DC operating current/AC current	0.1 A - 400 A (via CM 3-PV, 11001235)	–	0.2 A - 40 A DC/AC (via CC 3, 044038)	–
DC operating power	0.5 kW - 600 kW (via CM 3-PV, 11001235, & Y-adaptor, 11005075)	–	–	–
insolation	100 W/m ² - 1500 W/m ² (via SUN 3, 11001143)	100 W/m ² - 1500 W/m ²	100 W/m ² - 1250 W/m ² (via SUN 2, 050420)	100 W/m ² - 1250 W/m ²
PV module/ambient temperature	-30 °C - +125 °C (via SUN 3, 11001143)	-30 °C - +125 °C	-30 °C - +125 °C (via SUN 2, 050420)	-30 °C - +125 °C
voltage (P2P)	10 V - 440 V AC/DC	–	30 V - 440 V AC/DC	–
compass bearing	–	0° - 360°	–	0° - 360°
inclinometer (module/roof pitch)	–	0° - 80°	–	0° - 80°

Features

real-time clock	date/time stamp		date/time stamp	
measured value memory	1000 pv strings	for W/m ² and °C 5000 data records	200 pv strings	for W/m ² and °C 5000 data records
interface	Bluetooth®, radio (LoRa)	USB/radio (LoRa)	USB/radio	USB/radio
database management	BENNING Test Equipment Cloud (BTEC)**		csv/MS Excel®	MS Excel®
radio range	LoRa radio technology for long range (approx. 150 m for unobstructed view conditions)		approx. 30 m for unobstructed view conditions	

Generally

BENNING Test Equipment Cloud (BTEC)	free cloud access with basic functions for quick and easy documentation of testing tasks (languages DE, EN)**		–	–
scope of delivery	tester, case, measuring/MC4 compatible leads, alligator clips, rechargeable storage batteries (11.55 V, 2930 mAh), charger, fuse	tester, case, protective rubber holster, module/ambient temperature sensor, batteries (2 x AA), USB cable	tester, case, measuring/MC4/Sunclix leads, alligator clips, batteries (6 x AA), fuse, download software, micro USB cable	tester, case, protective rubber holster, module/ambient temperature sensor, batteries (2 x AA), download software, USB cable
operating manual (languages)	DE, EN, further languages on request		DE, EN, further languages on request	
dimensions (mm) / weight	ca. 265 x 115 x 78 / 1 kg	150 x 80 x 33 / 350 g	270 x 115 x 80 / 1.2 kg	150 x 80 x 33 / 350 g
item no.	10241491	11001143	05042101	050420

Measuring range indications refer to ranges from highest resolution to the final measuring range value.

* Powerful PV generators with high capacitances might reduce the maximum values of the measurable open-circuit voltage of the device. If short-circuit currents are too high, the device protects itself against overload and refuses to measure.

** Furthermore, a suitable service package is offered for all kinds of requirements at btec-info.benning.de or via the following QR code:



btec-info.benning.de

PV short-circuit switch for pv systems of 1500 V and recommendation **BENNING**

professional accessories

7



Recommendation for commissioning tests and periodic inspection of PV systems up to 1000 V

Description	Product data	Item no.
BENNING PV-S 1500	PV short-circuit switch of PV systems up to 1500 V	11002374
BENNING IT 100	insulating resistance and low-impedance measuring instrument (Riso with testing voltage 500 V/1000 V, R _{PE} with 200 mA testing current, voltage of up to 1000 V AC/DC)	044107
BENNING CM 3-PV	TRUE RMS digital current clamp meter (Uo/c of up to 1500 V DC, Is/c of up to 23 A (1500 V), voltage of up to 1000 V/1500 V AC/DC, current of up to 400 A AC/DC, resistance, frequency, capacity, continuity, diode)	11001235
BENNING L-Boxx® 136	toolbox for convenient and safe storage	10236015
Foam insert for L-Boxx® 136	pre-perforated foam insert, easy and perfect adaptation	10236017

Description	Product data	Item no.
-------------	--------------	----------

Photovoltaic short-circuit switch

	BENNING PV-S 1500 for PV systems of 1500 V	Open-circuit voltage (Uo/c) up to 1500 V DC can be measured via 4 mm safety jacks by means of multimeter or current clamp meter, short-circuit current (Is/c) up to 23 A DC (at 1500 V) can be safely switched, can be measured via short-circuit bridge and DC current clamp meter, insulating resistance in case of a short-circuit via insulating resistance measuring instrument. Lockable OFF position to prevent unauthorised operation, connection of the PV string via MC4-compatible connectors. CAT IV 1000 V, CAT III 1500 V. Dimensions 179 x 94 x 82 mm. Weight 700 g. Incl. short-circuit bridge (MC4-compatible).	11002374
--	--	--	----------

Description	Product data	Item no.	PV 125	SUN 3	PV 1-1+	SUN 2	CM 3-PV
-------------	--------------	----------	--------	-------	---------	-------	---------

Digital Current Clamp Meter

	BENNING CM 3-PV for PV systems with high voltages up to 1500 V DC	Safe voltage measurement up to 1000 V AC/1500 V DC, CAT IV 1000 V, current measurement up to 400 A AC/DC with a resolution of 10 mA, radio interface for BENNING PV 125 for operating current measurement of the pv string, TRUE RMS measuring method, low-pass filter (LPF, 1 kHz), inrush current measurement (further information see page 13)	11001235	•				
---	---	---	----------	---	--	--	--	--

Toolbox / stand-by cases

	BENNING L-BOXX® 238 from the Sortimo® system dimensions: 445 x 358 x 254 mm	Innovative click system, can be integrated into all Sortimo® transport solutions, quick securing with lock, also possible with several L-BOXX®es, clearly organised storage system, shock-resistant ABS housing.	10236016	•	•	•	•	
	Stand-by case size S dimensions: 220 x 110 x 50 mm	with belt loop on the back, made of hard-wearing nylon fabric	010912		•		•	

Measuring cable

	BENNING TA 5 40 m measuring cable	with practical winder and strap, for the measurement of protective and bonding conductors, cross-section 0.75 mm², connection Ø 4 mm test socket/plug	044039	•		•		
---	---	---	--------	---	--	---	--	--

Recommended accessories for BENNING PV 125 **NEW!**

	Spare battery pack 11.55 V, 2930 mAh	lithium-ion battery, rechargeable	11005059	•				
	Spare charging base	with USB C interface, can also be used for charging in the car, red and green LEDs to indicate the charging cycle	11005060	•				
	Set of PV measuring leads with Y adapter	for power measurements using the BENNING PV 125 and the BENNING CM 3-PV, MC4 compatible	11005076	•				•

Recommended accessories for BENNING SUN 3 / SUN 2

	Temperature sensor with suction cup	For attachment of the module temperature sensor to the module back Contact sensor version. Cable length 2 m	050424		•		•	
	PV module holder	For safe attachment of the SUN 3 / SUN 2 to the PV module	050425		•		•	

Electrical Testers

safe – easy – multifunctional



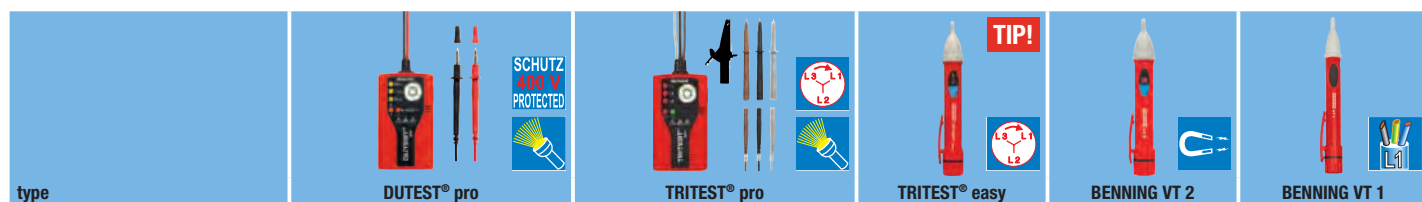
INFO



DUSPOL® Voltage Testers - the original since 1948

indication	LED/LCD (illuminated)	LED	plunger system (illuminated)/LED	LED
voltage range	1.0 V - 1000 V AC/1200 V DC	12 V - 1000 V AC/DC	12 V - 1000 V AC/DC	12 V - 690 V AC/DC
frequency range	1 Hz - 1000 Hz	–	–	–
acoustic and visual continuity test	buzzer + yellow LED 0 - 100 kΩ	buzzer + yellow LED 0 - 100 kΩ	–	buzzer + yellow LED 0 - 100 kΩ
diode test	0.3 V - 2 V	conducting-state/ non-conducting direction	–	–
resistance measuring range	0.1 kΩ - 300 kΩ	–	–	–
phase-sequence test	green LEDs (right/left)	green LEDs (right/left)	LCD ("R" symbol)	–
single-pole external conductor test	red "lightning" LED	red "lightning" LED	LCD ("R" symbol)	red "lightning" LED
polarity test	LCD (+/-)	LED (+/-)	LED (+/-)	LED (+/-)
cable break detector	yellow LED (flashing)	yellow LED (flashing)	–	yellow LED
load connection via push button	Is = 550 mA (1000 V) 30 mA RCD trip	Is = 550 mA (1000 V) 30 mA RCD trip	Is = 550 mA (1000 V) 30 mA RCD trip	–
vibrating alarm	•	•	•	–
measuring point illumination	white LED	white LED	–	–
protection class	IP 65	IP 65	IP 65	IP 54
item no.	050263	050262	050261	020023

Additional accessories on request.



Continuity and Line Tester, Phase Sequence Indicator and non-contact Phase, Phase Sequence and Magnetic Field Tester

	Continuity and Line Tester	Phase Sequence Indicator	non-contact Phase, Phase Sequence or Magnetic Field Tester		
indication	3 x yellow, 2 x red LEDs	4 x red, 1 x green LEDs	green/red LED probe tip/buzzer	red LED probe tip/buzzer	red LED probe tip/buzzer
voltage range	6 V - 400 V AC/DC	400 V - 500 V AC	200 V - 1000 V AC	12 V - 1000 V AC	200 V - 1000 V AC
frequency range	50 Hz/60 Hz	50 Hz - 60 Hz	–	–	–
acoustic continuity test	loud test buzzer up to 100 Ω	–	–	–	–
visual continuity test	0 - 100 Ω/1 kΩ/10 kΩ (yellow LEDs)	–	–	–	–
phase-sequence indication	–	green/red LED for clockwise/counter-clockwise phase sequence	• (right/left)	–	–
single-pole external conductor test	•	–	red LED probe tip flashing/buzzer		
single-pole polarity test	•	–	–	–	–
magnetic field test	–	–	–	•	–
cable break detector	•	–	•	•	•
luminous LED torch	yes, adjustable to four levels	yes, single-level	–	–	–
measuring category	CAT III 300 V	CAT III 300 V	CAT IV 600 V, CAT III 1000 V		
batteries	3 x 1.5 V batteries of type AA (LR6)		2 x 1.5 V batteries of type AAA (LR03)		
scope of delivery	incl. set of measuring leads	incl. set of measuring leads/test probes, alligator clip	incl. batteries, pen clip		
dimensions	107 x 60 x 28 mm	107 x 60 x 28 mm	153 x 25 x 20 mm	153 x 25 x 20 mm	153 x 22 x 18 mm
weight	130 g	250 g	40 g	40 g	40 g
item no.	050156	020052	020051	044055	020054

Additional accessories on request.

	available as of Q3/2026	
type BENNING	 NEW!	
	CF 1	SDT 1

Fuse Finder and Cable Finder as well as Socket Tester

	Fuse Finder and Cable Finder, Socket Tester	Socket Tester
indication	3 red LEDs for N, PE, L conductor	3 red LEDs for N, PE, L conductor and LC display „Δ“
connection testing of sockets	•	•
RCD testing current	IΔN approx. 30 mA	IΔN approx. 30 mA
fuse assignment	•	–
non-contact voltage detection	12 V - 300 V AC	–
voltage range	230 V AC, ± 10 %	230 V AC, ± 10 %
PE test response threshold	–	UB < 50 V AC to earth
power supply	via test object / battery (LR 61)	via test object (no batteries required)
measuring category	CAT II 300 V	CAT II 300 V
scope of delivery	transmitter, receiver, carrying case	socket tester
item no.	11004475	020053

	 TOP!	 NEW!
type BENNING	TC 30	TC 20

Thermal Imaging Cameras

display	3.5" colour touchscreen (640 x 480 pixels)	2.4" colour LCD screen (240 x 320 pixels)
measuring range / accuracy	- 20 °C to 400 °C / ± (2 °C or 2 % of the measured value)	-20 °C to 550 °C / ± (2 °C or 2 % of the measured value)
radiometric resolution of thermal images	256 x 192 (49,152 pixels)	96 x 96 (9,216 pixels)
enhanced-IR resolution of thermal images	–	240 x 240 (57,600 pixels)
thermal sensitivity (NEDT)	<0.04 °C (40 mK) @ 25 °C	< 0.05 °C (50 mK) @ 25 °C
frame rate	25 Hz	25 Hz
visual image resolution / spatial resolution (IFOV)	2 MP, 5 MP and 8 MP / 3.43 mrad	0.3 MP (640 x 480 pixels) / 8.89 mrad
automatic measurements	MAX, MIN, CENTER temperature	MAX, MIN, CENTER temperature
capture mode	"Capture One Image", "Continuous Capture" (1 to 9 images), "Scheduled Capture" (time interval: 1 s to 60 s)	"Capture One Image", "Continuous Capture" with time interval (hh:mm:ss), and number of images
screen casting to PC	via USB cable using UVC protocol	via USB cable using UVC protocol
flash memory / file format	16 GB / radiometric JPEG (images), MP4 (videos)	4 GB / radiometric JPEG (images)
storage capacity	max. 60,000 images or 54 hours of video recording time	approx. 30,000 images
interfaces	USB-C, WLAN, device hotspot	USB Type C
scope of delivery	protective pouch, wrist strap, charger with USB-C connecting cable, PC software "BENNING TC Analyser", app, lithium-ion battery (built-in)	wrist strap, USB-C connecting cable, PC software "BENNING TC Analyser", lithium-ion battery (built-in)
protection class / drop test height	IP 54 (protection against dust/splash water) / 2 m	IP 54 (protection against dust/splash water) / 2 m
item no.	050530*	050520

* Macro lens (10237623) on request.

	 TIP!	
type BENNING	LD 60	LD 40

Laser Distance Meters

special features	in addition LD 40: 6 different indirect measurements, stake-out function, digital level and circular level	length measurement, area and volume calculation, indirect height and continuous measurement, selection of reference plane
indication	LCD (colour, automatic rotating, illuminated)	LCD (illuminated)
measuring range / accuracy / units	0.05 ... 60 m / ± 1.5 mm / m, cm, mm, ft, in	0.05 ... 40 m / ± 3 mm / m, ft, in
laser type / measuring speed	650 nm, Class II, < 1 mW / 0.5 seconds	
measured value memory	50	–
protection class	IP 54	
scope of delivery	protective rubber holster, carrying case, wrist strap, batteries (2 x AAA)	batteries (2 x AAA)
item no.	050501	050500

Digital Multimeter

technical data

10

					
type BENNING	MM 12	MM 10-PV	MM 10-1	MM 7-2	MM 6-2
special features	Logging Multimeter for professional use. With data logger, Bluetooth®, PC software and app.	For photovoltaic systems and for applications with high voltages up to 1500 V AC/ 2000 V DC. With data logger, Bluetooth® and app.	For HVAC and for service use in harsh environments. With data logger, Bluetooth® and app.	Top performance, quality and safety for all demanding measuring tasks.	With highest safety, "AutoV" and "LoZ" function.

Display

indicating range	4 000 / 40 000	6 000	6 000	60 000	6 000
bar graph / backlight	• / •	• / •	• / •	• / •	• / •

Measuring functions

basic accuracy	0.5 %	0.5 %	0.5 %	0.03 %	0.5 %
measuring method	TRUE RMS	TRUE RMS	TRUE RMS	TRUE RMS	TRUE RMS
AC voltage	10 µV - 1000 V	100 µV - 1000 V (1500 V via TA PV)	100 µV - 1000 V	10 µV - 1000 V	100 µV - 1000 V
DC voltage	10 µV - 1000 V	100 µV - 1000 V (2000 V via TA PV)	100 µV - 1000 V	10 µV - 1000 V	100 µV - 1000 V
AC current	10 µA - 10 A	1 mA - 10 A	0.1 µA - 400 mA	0.01 µA - 10 A	20 mA - 10 A
DC current	10 µA - 10 A	1 mA - 10 A	0.1 µA - 400 mA	0.01 µA - 10 A	1 mA - 10 A
resistance	0.1 Ω - 40 MΩ	0.1 Ω - 40 MΩ	0.1 Ω - 40 MΩ	0.01 Ω - 60 MΩ	0.1 Ω - 40 MΩ
frequency	5 Hz - 100 kHz	1 Hz - 100 kHz	1 Hz - 100 kHz	5 Hz - 1 MHz	1 Hz - 100 kHz
capacity	0.01 nF - 40 mF	1 nF - 10 mF	1 nF - 10 mF	0.01 nF - 10 mF	1 nF - 10 mF
temperature	-200 °C up to +1200 °C	-40 °C up to +400 °C	-40 °C up to +400 °C	-200 °C up to +1090 °C	–
continuity/diode	• / •	• / •	• / •	• / •	• / •
indication (continuity)	buzzer	buzzer / red LED	buzzer / red LED	buzzer / LCD	buzzer / red LED
volt sensor (single-pole external conductor test / cable break detector)	•	•	•	•	•

Features

interface	Bluetooth®, USB	Bluetooth®	Bluetooth®	–	–
software	PC-SW, app (iOS, Android)	app (iOS, Android)	app (iOS, Android)	–	–
filter function	HFR (800 Hz)	HFR (800 Hz)	HFR (800 Hz)	HFR (1000 Hz)	–
measuring range switching	automatic / manual	automatic	automatic	automatic / manual	automatic/ manual
Auto Power Off / low battery indication	• / •	• / •	• / •	• / •	• / •
Data HOLD / MAX / MIN / AVG	• / • / • / •	• / • / • / –	• / • / • / –	• / • / • / •	• / – / – / –
PEAK	•	–	–	•	•
AutoV / LoZ	• / •	– / –	• / •	• / •	• / •
relative value function (REL)	•	•	•	•	•
level measurement (dB/dBm)	•	–	–	–	–
memory MEM	1 000 measuring values (A-SAVE, SAVE)	–	–	–	–
Data Log function	40 000 measuring values (interval: 1s - 600 s)	4 000 measuring values (interval: 1s - 600 s)	4 000 measuring values (interval: 1s - 600 s)	–	–
measuring category	CAT IV 600 V CAT III 1000 V	CAT IV 600 V CAT III 1000 V	CAT IV 600 V CAT III 1000 V	CAT IV 600 V CAT III 1000 V	CAT IV 600 V CAT III 1000 V

Scope of delivery

carrying case / batteries / fuses	• / • / •	• / • / •	• / • / •	• / • / •	• / • / •
measuring leads / TA PV / alligator clips	• / – / –	• / • / •	• / – / –	• / – / –	• / – / –
rubber holster / with magnetic hanger	• / •	• / •	• / •	• / –	• / •
wire temperature sensor (K)	•	•	•	•	–
PC software / USB data cable	•	–	–	–	–
operating manual / calibration certificate	• / •	• / –	• / –	• / –	• / –

Generally

dimensions* (mm) / weight*	206 x 94 x 54 / 640 g	163 x 82 x 50 / 425 g	163 x 82 x 50 / 425 g	193 x 89 x 51 / 420 g	163 x 82 x 50 / 410 g
item no.	044088	044089	044687	044690	044087

Measuring range indications refer to ranges from highest resolution to the final measuring range value

* incl. rubber holster



INFO

BENNING

11

 MM 5-2	 MM 2-3	 MM 2-2	 MM 2-1	 MM 2	 MM P3
For HVAC and for service use in harsh environments. Compact, precise and innovative.	With an excellent price/performance ratio. With current, capacity and temperature measurement.	With an excellent price/performance ratio. With current measurement.	With an excellent price/performance ratio.	Für education. With precise current measuring ranges.	A variety of function in pocket size.

6 000	6 000	6 000	6 000	2 000	5 000
- / •	- / •	- / •	- / •	- / -	- / -

0.5 %	0.2 %	0.2 %	0.2 %	0.5 %	0.6 %
TRUE RMS	TRUE RMS	TRUE RMS	TRUE RMS	RMS	RMS
100 μ V - 600 V	10 μ V - 600 V	10 μ V - 600 V	10 μ V - 600 V	100 μ V - 600 V	100 μ V - 300 V
100 μ V - 600 V	10 μ V - 600 V	10 μ V - 600 V	10 μ V - 600 V	100 μ V - 600 V	100 μ V - 300 V
20 mA - 10 A	1 mA - 10 A	1 mA - 10 A	-	0.1 μ A - 20 A	-
0.1 μ A - 10 A	1 mA - 10 A	1 mA - 10 A	-	0.1 μ A - 20 A	-
0.1 Ω - 40 M Ω	0.1 Ω - 60 M Ω	0.1 Ω - 60 M Ω	0.1 Ω - 60 M Ω	0.1 Ω - 20 M Ω	0.1 Ω - 40 M Ω
10 Hz - 50 kHz	10 Hz - 1 kHz	10 Hz - 1 kHz	10 Hz - 1 kHz	-	5 mHz - 5 MHz
0.01 nF - 1 mF	0.01 nF - 10 mF	0.01 nF - 10 mF	-	-	10 pF - 100 μ F
-40 °C up to +400 °C	-40 °C up to +400 °C	-	-	-	-
• / •	• / •	• / •	• / •	• / •	• / •
LCD / red LED	buzzer / LCD	buzzer / LCD	buzzer / LCD	buzzer	buzzer
•	•	•	•	-	-

-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
automatic	automatic/ manual	automatic/ manual	automatic/ manual	manual	automatic/ manual
• / •	• / •	• / •	• / •	• / •	• / •
• / - / - / -	• / • / • / •	• / • / • / •	• / • / • / •	- / - / - / -	• / - / - / -
•	-	-	-	-	-
- / -	- / -	- / -	- / -	- / -	- / -
•	•	•	•	-	-
-	-	-	-	-	-
-	-	-	-	-	-
CAT IV 300 V CAT III 600 V	CAT III 600 V	CAT III 600 V	CAT III 600 V	CAT III 600 V	CAT III 300 V

• / • / •	• / • / •	• / • / •	• / • / •	• / • / •	• / • / -
• / - / -	• / - / -	• / - / -	• / - / -	• / - / -	• / - / -
• / •	• / -	• / -	• / -	• / -	- / -
•	•	-	-	-	-
-	-	-	-	-	-
• / -	• / -	• / -	• / -	• / -	• / -

150 x 77 x 44 / 310 g	161 x 80 x 50 / 334 g	161 x 80 x 50 / 334 g	161 x 80 x 50 / 334 g	192 x 95 x 50 / 550 g	132 x 86 x 19 / 130 g
044071	044693	044692	044691	044028	044084

See page 14 for further accessories

Digital Current Clamp Meters

technical data

12

	 TOP! Watt cos phi B	 1500V _{AC} 2000V _{DC} Auflösung 1 mA Resolution	 1500 A _{AC/DC} Inrush	 TIP! RE	 1000 A _{AC/DC} Hz	 AUTO TEST LoZ	 TIP! Auflösung 1 mA Resolution	 Auflösung 1 mA Resolution 600 V _{AC/DC}
type BENNING	CM 12	CM 10-PV	CM 10-1	CM E1	CM 7	CM 5-1	CM 11	CM 9-1
special features	power current clamp for power analysis in single-phase, three-phase and DC mains	microampere/ temperature measuring range for HVAC, non-slip/ break-proof SoftGrip housing	large current measurement range up to 1500 A AC/DC, non-slip/ break-proof SoftGrip housing	earth measuring clamp for earth loop resistance/ leakage, load current measurement	large clamp opening for clamping large conductor cross-sections/busbars	autotest, non-slip/ break-proof SoftGrip housing	ideal for trouble-shooting, fire and intrusion alarm systems	leakage current clamp with multimeter functions

Display

indicating range	9 999	6 000	6 000	9 999	4 000	9 999	6 000	6 000
LCD / LED / bar graph	• / - / •	• / - / -	• / - / -	• / - / -	• / - / •	• / - / -	• / - / -	• / - / -
backlight / measuring point illumination	• / -	• / •	• / •	- / -	• / -	• / -	• / -	• / -

Measuring functions

basic accuracy	1 %	1 %	1 %	1.5 %	0.7 %	0.9 %	1 %	1 %
measuring method	TRUE RMS	TRUE RMS	TRUE RMS	TRUE RMS	TRUE RMS	TRUE RMS	TRUE RMS	TRUE RMS
AC voltage	10 mV - 1000 V	100 mV - 1000 V (1500 V via TA PV)	100 mV - 1000 V	-	100 mV - 750 V	1.3 V - 750 V	10 mV - 600 V	10 mV - 600 V
DC voltage	10 mV - 1000 V	100 µV - 1000 V (2000 V via TA PV)	100 mV - 1000 V	-	100 mV - 1000 V	0.7 V - 1000 V	10 mV - 600 V	10 mV - 600 V
AC current	10 mA - 600 A	0.1 µA - 4000 µA 10 mA - 600 A	10 mA - 1500 A	0.3 mA - 35 A	100 mA - 1000 A	0.9 A - 600 A	100 µA - 20 A	1 µA - 60 A
DC current	10 mA - 600 A	0.1 µA - 4000 µA 10 mA - 600 A	10 mA - 1500 A	-	100 mA - 1000 A	0.9 A - 600 A	100 µA - 10 A	-
current AC + DC	•	•	•	-	•	•	•	-
fault current (leakage)	-	• (0.1 µA)	-	• (0.3 mA)	-	-	• (0.1 mA)	• (1 µA)
resistance	0.1 Ω - 100 kΩ	0.1 Ω - 600 kΩ	0.1 Ω - 600 kΩ	RE lus: 0.025 Ω - 1500 Ω	0.1 Ω - 400 Ω	1 Ω - 10 kΩ	0.1 Ω - 600 kΩ	0.1 Ω - 600 kΩ
frequency / capacity	• / •	• / •	• / •	- / -	• / -	- / -	- / -	- / -
effective power / (cos φ)	1 W - 600 kW / •	- / -	- / -	- / -	- / -	- / -	- / -	- / -
inrush current / THD	• / •	• / -	• / -	- / -	- / -	- / -	- / -	- / -
stand-by current / process signals	- / -	- / -	- / -	- / -	- / -	- / -	• / •	- / -
temperature	-	-40 °C up to 400 °C	-	-	-	-	-	-
continuity (buzzer) / diode	• / •	• / •	• / •	- / -	• / -	• / •	• / -	• / -
phase-sequence test	•	-	-	-	-	-	-	-
external conductor / polarity test	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
volt sensor	•	•	•	-	-	-	-	-

Features

interface / software	Bluetooth® / app	Bluetooth® / app	Bluetooth® / app	- / -	- / -	- / -	- / -	- / -
filter function	HFR (1000 Hz)	HFR (800 Hz)	HFR (800 Hz)	-	-	-	-	HFR (1 kHz), LPF (40 Hz - 70 Hz)
measuring range switching	automatic/ manual	automatic	automatic	automatic	automatic	automatic	automatic/ manual	automatic
Auto Power Off	•	•	•	•	•	•	•	•
low battery indication	•	•	•	•	•	•	•	•
Data HOLD / MAX / MIN / AVG	• / • / • / •	• / • / • / -	• / • / • / -	• / - / - / -	• / • / • / -	• / - / - / -	• / • / • / -	- / - / - / -
PEAK / REL	• / -	- / -	- / -	- / -	• / -	- / -	- / -	• / -
null balance ZERO (A DC)	-	•	•	-	•	•	•	•
measuring input for CFlex 1	•	•	•	-	-	-	-	-
AutoV / LoZ	- / -	- / -	• / •	- / -	- / -	- / •	- / -	- / -
memory MEM	1 000 measuring values (A-SAVE)	-	-	-	-	-	-	-
Data Log function	9 999 measuring values (interval: 1s - 600 s)	4 000 measuring values (interval: 1s - 60 s)	4 000 measuring values (interval: 1s - 60 s)	116 measuring values (interval: 1s - 255s)	-	-	-	-
clamp opening	33 mm	37 mm	42 mm	38 mm	53 mm	35 mm	23 mm	23 mm
measuring category	CAT IV 600 V CAT III 1000 V	CAT IV 600 V CAT III 1000 V	CAT IV 600 V CAT III 1000 V	CAT III 300 V	CAT IV 600 V CAT III 1000 V	CAT IV 600 V CAT III 1000 V	CAT IV 300 V CAT III 600 V	CAT IV 300 V CAT III 600 V

Generally

dimensions (mm)	243 x 103 x 55	240 x 86 x 48	254 x 86 x 48	276 x 100 x 47	275 x 105 x 51	215 x 85 x 51	206 x 76 x 34	210 x 76 x 34
weight	540 g	445 g	490 g	750 g	534 g	360 g	262 g	296 g
item no.	044680	044683	044688	044684	044059	044066	044067	044682

Measuring range indications refer to ranges from highest resolution to the final measuring range value



INFO

BENNING

13

 CM 9-2 Auflösung 1 µA Resolution Bluetooth® and app	 CM 3-PV NEW! 1000V _{AC} 1500V _{DC} Inrush	 CM 1-4 multifunctional current clamp with various measuring and voltage tester functions, one-hand operation	 CM 2-1 TIP! Auto V LoZ	 CM P2 MINI! Inrush	 CM P1 MINI! Inrush	 CM 1-3 open current clamp head, slim design	 CM 1-2 compact design	 CM 1-1 compact design	 CFlex 2 3000 A _{AC} flexible AC current transformers for narrow measuring points, large cable cross-sections
---	---	--	---	--	--	--	-------------------------------------	-------------------------------------	---

6 000	4 000	9 999	4 000	4 200	4 200	2 000	2 000	2 000	3 150
• / - / -	• / - / -	• / • / -	• / - / -	• / - / -	• / - / -	• / - / -	• / - / -	• / - / -	• / - / -
• / •	• / •	• / •	• / -	• / -	• / -	- / -	- / -	- / -	• / -

1 %	1 %	1 %	0.5 %	2 %	2 %	1 %	1 %	2 %	3 %
TRUE RMS	TRUE RMS	TRUE RMS	TRUE RMS	TRUE RMS	TRUE RMS	RMS	RMS	RMS	TRUE RMS
-	1 mV - 1000 V	6 V - 1000 V	100 µV - 600 V	-	-	100 mV - 750 V	100 mV - 600 V	-	-
-	1 mV - 1500 V	6 V - 1000 V	100 µV - 600 V	-	-	100 mV - 1000 V	100 mV - 600 V	-	-
1 µA - 60 A	0.1 µA - 400 µA 10 mA - 400 A	100 mA - 200 A	10 mA - 400 A	10 mA - 400 A	10 mA - 400 A	100 mA - 200 A	100 mA - 400 A	10 mA - 400 A	100 mA - 3000 A
-	0.1 µA - 400 µA 10 mA - 400 A	-	10 mA - 400 A	10 mA - 400 A	-	-	-	-	-
-	•	-	•	•	-	-	-	-	-
• (1 µA)	• (0.1 µA)	-	-	-	-	-	-	-	-
-	0.1 Ω - 40 MΩ	1 Ω - 50 kΩ	0.1 Ω - 40 MΩ	-	-	0.1 Ω - 20 MΩ	0.1 Ω - 20 MΩ	-	-
- / -	• / •	- / -	• / •	- / -	- / -	- / -	- / -	- / -	- / -
- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
- / -	• / -	- / -	- / -	• / -	• / -	- / -	- / -	- / -	- / -
- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
-	-	-	-	-	-	-	-	-	-
- / -	• / •	• / -	• / •	- / -	- / -	• / •	• / -	- / -	- / -
-	-	•	-	-	-	-	-	-	-
- / -	- / -	• / •	- / -	- / -	- / -	- / -	- / -	- / -	- / -
-	•	-	•	•	•	•	-	-	-

Bluetooth® / app	radio (see page 6) / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
HFR (1 kHz), LPF (50 Hz - 160 Hz)	LPF (1 kHz)	-	HFR (800 Hz)	LPF (160 Hz)	LPF (160 Hz)	-	-	-	-
automatic	automatic	automatic	automatic	automatic	automatic	manuell	manuell	manuell	manuell
•	•	•	•	•	•	•	•	•	•
•	•	•	•	•	•	•	•	•	•
• / • / • / -	• / • / • / -	• / - / - / -	• / • / • / -	• / - / - / -	• / - / - / -	• / - / - / -	• / - / - / -	• / • / - / -	• / • / • / -
- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
-	•	-	•	•	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
- / -	- / -	- / -	• / •	- / -	- / -	- / -	- / -	- / -	- / -
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
40 mm	30 mm	16 mm	27 mm	23 mm	23 mm	16 mm	30 mm	30 mm	160 mm
CAT IV 300 V CAT III 600 V	CAT IV 1000 V	CAT IV 600 V CAT III 1000 V	CAT IV 300 V CAT III 600 V	CAT III 600 V	CAT III 600 V	CAT IV 600 V CAT III 1000 V	CAT III 600 V	CAT III 600 V	CAT IV 600 V CAT III 1000 V

230 x 100 x 46	220 x 80 x 42	220 x 57 x 35	198 x 69 x 39	149 x 59 x 28	149 x 59 x 28	190 x 60 x 40	190 x 70 x 38	180 x 70 x 42	120 x 70 x 26
450 g	268 g	200 g	250 g	140 g	140 g	265 g	225 g	200 g	286 g
044685	11001235	044686	044689	044679	044678	044063	044062	044061	044069

See page 15 for further accessories

Accessories for Digital Multimeter

safe – functional – indispensable

14

	Description	Product data	Item no.	MM 12	MM 10-PV	MM 10-1	MM 7-2	MM 6-2	MM 5-2	MM 2-3	MM 2-2	MM 2-1	MM 2	MM P3
Current Clamp Adapters														
	BENNING CFlex 1 AC current transformer	basic accuracy: 3 % current: 0.3 A - 3000 A AC output: 100 mV/10 mV/1 mV AC per 1 A AC	044068	•	•	•	•	•	•	•	•	•	•	
	BENNING CC 3 AC/DC current clamp adapter	basic accuracy: 1 % - 2 % current: 0.2 A - 300 A AC/DC output: 1 mV/10 mV AC/DC per 1 A AC/DC	044038	•	•	•	•	•	•	•	•	•	•	
Toolboxes / stand-by cases														
	BENNING L-BOXX® 238 from the Sortimo® system dimensions: 445 x 358 x 254 mm	Innovative click system, can be integrated into all Sortimo® transport solutions, quick securing with lock, also possible with several L-BOXX®es, clearly organised storage system, shock-resistant ABS housing.	10236016	•	•	•	•	•	•	•	•	•	•	•
	BENNING L-BOXX® 136 from the Sortimo® system dimensions: 445 x 358 x 152 mm		10236015	•	•	•	•	•	•	•	•	•	•	•
	BENNING pre-perforated foam insert 136 dimensions: 405 x 315 x 85 mm	Easy and perfect adaptation, individually adaptable insert for safe transport. Grey. Incl. foam insert as bottom plate. Dimensions: grid of 15 x 15 mm. Suitable foam insert for L-BOXX® 136.	10236017	•	•	•	•	•	•	•	•	•	•	•
	Robust hard case dimensions: 375 x 190 x 250 mm	With foam insert, separate shelf and lid compartment for accessories and small parts. Safe transport protection for high-quality testing and measuring instruments. Made of ABS material, dust and waterproof.	10198412	•	•	•	•	•	•	•	•	•	•	•
	Stand-by case size S dimensions: 220 x 110 x 50 mm	with belt loop on the back, made of hard-wearing nylon fabric	010912		•	•		•	•					
	Stand-by case size M dimensions: 240 x 180 x 70 mm	made of hard-wearing nylon fabric	010913	•	•	•	•	•	•	•	•	•	•	
	Stand-by case size L dimensions: 350 x 260 x 95 mm	made of hard-wearing nylon fabric	10241436	•	•	•	•	•	•	•	•	•	•	
Measuring accessories														
	BENNING TA 1 alligator clips, two pieces	Ø 4 mm plug-in technology, red/black, CAT III 1000 V	044124	•	•	•	•	•	•	•	•	•	•	
	BENNING TA 2 set of measuring leads, six pieces	Ø 4 mm plug-in technology, red/black, incl. measuring leads (silicone) CAT III 1000 V, test probes (Ø 4 mm measuring tip) CAT II 1000 V, alligator clips CAT III 1000 V	044125	•	•	•	•	•	•	•	•	•	•	
	BENNING TA 3 set of measuring leads, eight pieces	Ø 4 mm plug-in technology, red/black, CAT III 1000 V, incl. measuring leads (silicone), test probes (slender measuring tip), claw clamps, alligator clips	044126	•	•	•	•	•	•	•	•	•	•	
	BENNING TA 4 magnetic holder, three pieces	For attachment of multimeters to switching cabinets, machine and system parts. Consisting of: magnetic holder, adapter and belt	044120	•			•			•	•	•	•	
	Ø 4 mm safety measuring leads with 2 mm measuring tip , two pieces	Red/black, L = 1.40 m, with Ø 2 mm measuring tip (L = 18 mm), CAT IV 600 V/CAT III 1000 V (with protective caps), CAT II 1000 V (without protective caps)	044146	•	•	•	•	•	•	•	•	•	•	
	Ø 4 mm safety measuring leads with 4 mm measuring tip , two pieces	Red/black, L = 1.40 m, with Ø 4 mm measuring tip (L = 18 mm), CAT IV 600 V/CAT III 1000 V (with protective caps), CAT II 1000 V (without protective caps)	044145	•	•	•	•	•	•	•	•	•	•	
	Ø 4 mm silicone measuring leads with 2 mm and 4 mm measuring probe six pieces	Red/black, l = 1 m, with gold-plated Ø 2 mm and Ø 4 mm measuring probe (screw-on type) (l = 18 mm), CAT IV 1000 V/CAT III 1000 V (with protective caps), CAT II 1000 V (without protective caps)	10231315	•	•	•	•	•	•	•	•	•	•	
	Temperature probe, type K, insertion probe (V4A steel tube)	For flexible substances, liquids, gases and air. Measuring range: - 196 °C up to + 800 °C	044121	•	•	•	•		•	•				
	BENNING TA PV (4 mm) measuring adapter with 4 mm measuring tips	For safe DC and AC voltage measurement up to 1500 V AC/ 2000 V DC. Measuring category: 1000 V CAT III, 600 V CAT IV (with protective cap), 1000 V AC CAT II/ 1500 V DC CAT II (without protective cap). Length 1.4 m. Incl. protective caps CAT III/ IV	10217846		•									
	BENNING TA PV (PV plug) measuring adapter with PV connector	For voltage measurement up to 2000 V DC. For direct connection to PV generators with PV connector. L = 1.40 m.	10231740		•									

Additional accessories on request.

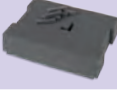
* figure similar

	Description	Product data	Item no.	CM 12	CM 10-PV	CM 10-1	CM 7	CM 5-1	CM 11	CM 9-1	CM 9-2	CM 3-PV	CM 1-4	CM 2-1	CM P2	CM P1	CM 1-3	CM 1-2	CM 1-1	CFlex 2
--	-------------	--------------	----------	-------	----------	---------	------	--------	-------	--------	--------	---------	--------	--------	-------	-------	--------	--------	--------	---------

AC current transformer

	BENNING CFlex 1 AC current transformer	basic accuracy: 3 % current: 0.3 A - 3000 A AC output: 100 mV/10 mV/1 mV AC per 1 A AC	044068	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
---	--	--	--------	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Toolboxes / stand-by cases

	BENNING L-BOXX® 238 from the Sortimo® system dimensions: 445 x 358 x 254 mm	Innovative click system, can be integrated into all Sortimo® transport solutions, quick securing with lock, also possible with several L-BOXX®es, clearly organised storage system, shock-resistant ABS housing.	10236016	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	BENNING L-BOXX® 136 from the Sortimo® system dimensions: 445 x 358 x 152 mm		10236015	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	BENNING pre-perforated foam insert 136 dimensions: 405 x 315 x 85 mm	Easy and perfect adaptation, individually adaptable insert for safe transport. Grey. Incl. foam insert as bottom plate. Dimensions: grid of 15 x 15 mm. Suitable foam insert for L-BOXX® 136.	10236017	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	Robust hard case dimensions: 375 x 190 x 250 mm	With foam insert, separate shelf and lid compartment for accessories and small parts. Safe transport protection for high-quality testing and measuring instruments. Made of ABS material, dust and waterproof.	10198412	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	Stand-by case size S dimensions: 220 x 110 x 50 mm	with belt loop on the back, made of hard-wearing nylon fabric	010912					•	•	•				•	•	•	•	•	•	•
	Stand-by case size M dimensions: 240 x 180 x 70 mm	made of hard-wearing nylon fabric	010913					•	•	•	•	•	•	•	•	•	•	•	•	•
	Stand-by case size L dimensions: 350 x 260 x 95 mm	made of hard-wearing nylon fabric	10241436					•	•	•	•	•	•	•	•	•	•	•	•	•

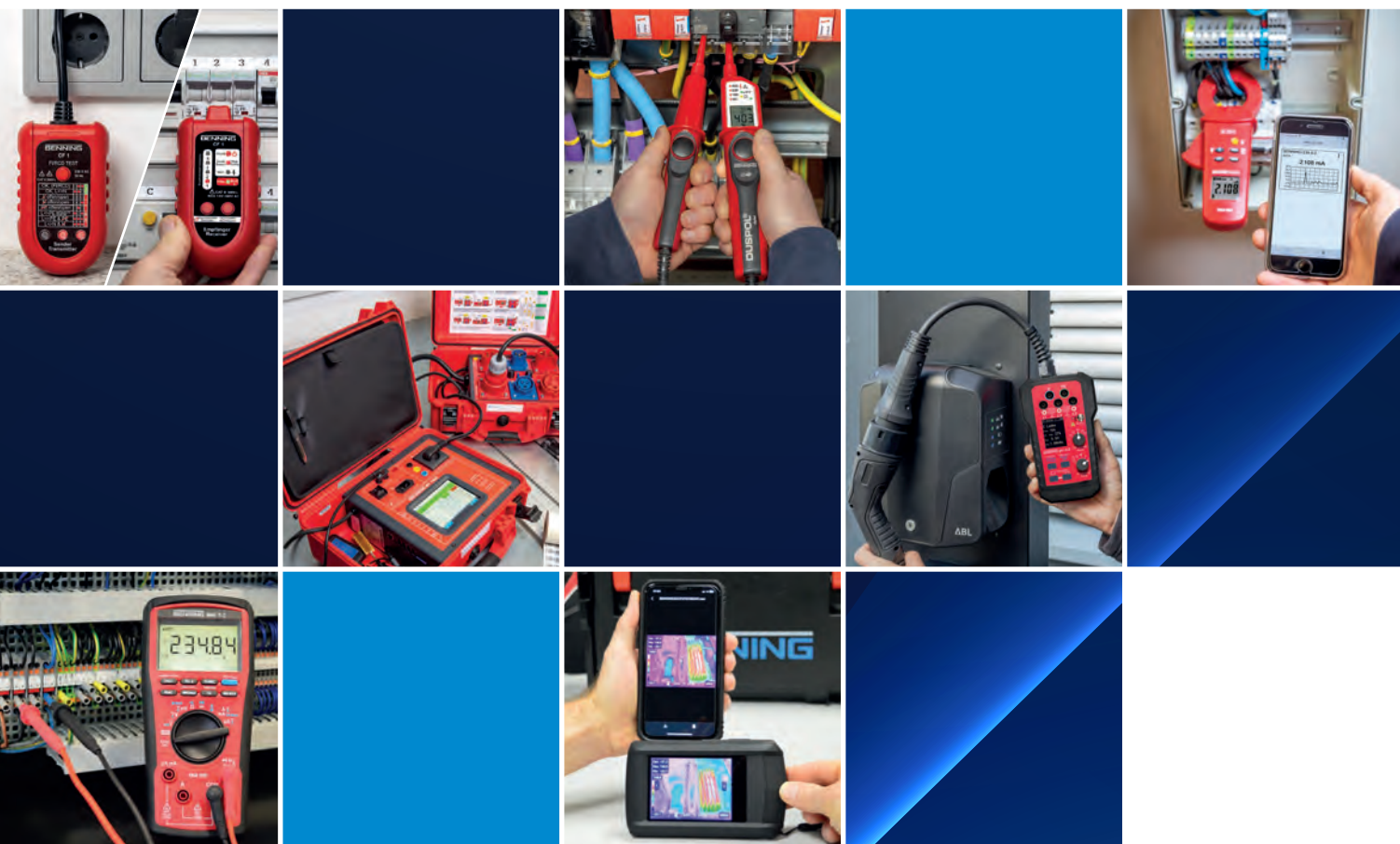
Measuring accessories

	BENNING TA 1 alligator clips, two pieces	Ø 4 mm plug-in technology, red/black, CAT III 1000 V	044124	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	BENNING TA 2 set of measuring leads, six pieces	Ø 4 mm plug-in technology, red/black, incl. measuring leads (silicone) CAT III 1000 V, test probes (Ø 4 mm measuring tip) CAT II 1000 V, alligator clips CAT III 1000 V	044125	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	BENNING TA 3 set of measuring leads, eight pieces	Ø 4 mm plug-in technology, red/black, CAT III 1000 V, incl. measuring leads (silicone), test probes (slender measuring tip), claw clamps, alligator clips	044126	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	Ø 4 mm safety measuring leads with 2 mm measuring tip , two pieces	Red/black, L = 1.40 m, with Ø 2 mm measuring tip (L = 18 mm), CAT IV 600 V/CAT III 1000 V (with protective caps), CAT II 1000 V (without protective caps)	044146	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	Ø 4 mm safety measuring leads with 4 mm measuring tip , two pieces	Red/black, L = 1.40 m, with Ø 4 mm measuring tip (L = 18 mm), CAT IV 600 V/CAT III 1000 V (with protective caps), CAT II 1000 V (without protective caps)	044145	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	BENNING TA PV (4 mm) measuring adapter	For safe DC and AC voltage measurement up to 1500 V AC/2000 V DC. Measuring category: CAT IV 600 V/CAT III 1000 V (with protective cap), CAT II 1000 V AC/CAT II 1500 V DC (without protective cap). Length 1.4 m. Incl. protective caps CAT III/ IV	10217846	•																
	BENNING TA PV (PV plug) measuring adapter with PV connector	For voltage measurement up to 2000 V DC. For direct connection to PV generators with PV connector. L = 1.40 m.	10231740	•																

Measuring adapters for leakage current clamps BENNING CM 9-1 / CM 9-2

	Measuring adapter, single-phase shock-proof plug/coupling	Conductors led through individually and with double insulation, for current measurements on CEE equipment. Measurement: I _{PE} by means of differential current/direct measurement method, load current	044131							•	•									
	Measuring adapter, three-phase 16 A/400 V CEE plug/coupling, 5-pin	Conductors led through individually and with double insulation, for current measurements on CEE equipment. Measurement: I _{PE} by means of differential current/direct measurement method, load current	044127							•	•									
	Measuring adapter, three-phase 32 A/400 V CEE plug/coupling, 5-pin		044128							•	•									

BENNING



Где купить:

ООО "КОМПАНИЯ ОПТУЛС"

РФ, г.Москва

Tel.: +7 (495) 646-00-96

E-Mail: sale@opttools.ru

Internet: www.opttools.ru

BENNING Elektrotechnik und Elektronik GmbH & Co.KG
factory I (administration): Münsterstraße 135-137 · D-46397 Bocholt
factory II (production/calibration): Robert-Bosch-Straße 20 · D-46397 Bocholt
Tel.: +49 / (0) 28 71/93-111
www.benning.de · E-Mail: duspol@benning.de