

Type overview voltage tester up to 1 kV

Prüfball SPB Analog



- One-piece casing made of rubber
- Extremely safe and robust
- Maintenance-free without battery

Prüfball SPB Digital



- Casing made of rubber
- Backlit LC-Display
- Maintenance-free

Prüfball ZAP



- Robust rubber casing
- integrated test for electricity meter
- Maintenance-free

MultiSafe DSP 4



- Precise display
- Large measuring range
- Large illuminated LCD

MultiSafe DSP 5



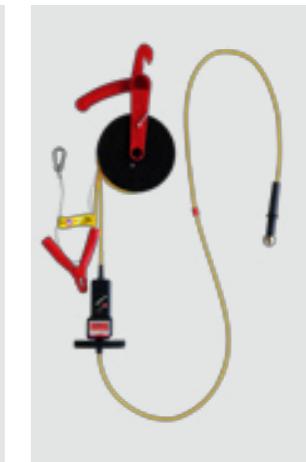
- Precise display
- Very versatile
- 2-colour LC display

LSP 4



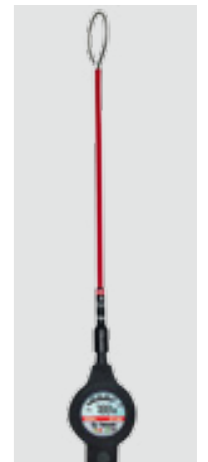
- Compact
- Lightweight
- Maintenance-free

Floodwater



- Easy handling
- Illuminated LCD
- Safe test

Subway



- Rubber casing
- Illuminated
- Maintenance-free

	500B	500PR	1000B	1000PR	500PRA
Indicating range	20-500 V		50-1000 V		20-500 V
Voltage warning LED without battery	■	■	■	■	■
Voltage indication with value without battery	■	■	■	■	■
Connectible load for 30 mA RCD		■		■	■
Connectible load for electricity meter					
Vibration at load		■		■	
Acoustic signal at load					■
Phase test single-pole	■	■	■	■	■
Phase sequence test	■	■	■	■	■
Continuity test	■	■	■	■	■
Resistance measuring device					
Frequency meter					
Front spot lighting					
Backlighting LCD					
Protection category	IP 65				
Power supply	without battery*				
Overvoltage category	CAT IV 500 V		CAT IV 1000 V		CAT IV 500V
VDE GS in accordance with IEC 61243-3	■	■	■	■	■
Article number	81411	81401	81414	81404	81402

	500L	1000L
Indicating range	50-500 V	50-1000 V
Voltage warning LED without battery	■	■
Voltage indication with value without battery	■	■
Connectible load for 30 mA RCD	■	■
Connectible load for electricity meter		
Vibration at load		
Acoustic signal at load		
Phase test single-pole	■	■
Phase sequence test	■	■
Continuity test	■	■
Resistance measuring device		
Frequency meter		
Front spot lighting		
Backlighting LCD	■	■
Protection category	IP 65	
Power supply	Longlife battery**	
Overvoltage category	CAT IV 500 V	CAT IV 1000 V
VDE GS in accordance with IEC 61243-3	■	■
Article number	81422	81423

	ZAP 350	ZAP 350L	ZAP 1050L
Indicating range	20-500 V	50-500 V	
Voltage warning LED without battery	■	■	■
Voltage indication with value without battery	■	■	■
Connectible load for 30 mA RCD	■	■	■
Connectible load for electricity meter	350 W		1050 W
Vibration at load			
Acoustic signal at load			
Phase test single-pole	■	■	■
Phase sequence test	■	■	■
Continuity test	■	■	■
Resistance measuring device			
Frequency meter			
Front spot lighting			
Backlighting LCD		■	■
Protection category	IP 65		
Power supply	without battery*	Longlife battery**	
Overvoltage category	CAT IV 300 V CAT III 500 V	CAT IV 500 V	
VDE GS in accordance with IEC 61243-3	■	■	■
Article number	81314	81315	81316

	4	4F	4ST	4FST
Indicating range	1-1200 V AC / 0,03 - 1500 V DC			
Voltage warning LED without battery	■	■	■	■
Voltage indication with value without battery				
Connectible load for 30 mA RCD				
Connectible load for electricity meter				
Vibration at load				
Acoustic signal at load				
Phase test single-pole	■	■	■	■
Phase sequence test	■	■	■	■
Continuity test	■	■	■	■
Resistance measuring device	1 - 1999 kΩ			
Frequency meter	■			■
Front spot lighting	■	■	■	■
Backlighting LCD	■	■	■	■
Protection category	IP 65			
Power supply	Battery 9V 6LR61			
Overvoltage category	CAT IV 600 V CAT III 1000 V			
VDE GS in accordance with IEC 61243-3	■	■	■	■
Article number	84402	84403	84405	84406

	5B	5	5ST
Indicating range	0,15 - 1200 V AC / 0,03 - 1500 V DC		
Voltage warning LED without battery	■	■	■
Voltage indication with value without battery			
Connectible load for 30 mA RCD		■	■
Connectible load for electricity meter	approx. 15 W		
Vibration at load			
Acoustic signal at load			
Phase test single-pole	■	■	■
Phase sequence test	■	■	■
Continuity test	■	■	■
Resistance measuring device	0,01 - 999 kΩ		
Frequency meter	■	■	■
Front spot lighting	■	■	■
Backlighting LCD	■	■	■
Protection category	IP 65		
Power supply	Battery 2x 1,5 V AAA		
Overvoltage category	CAT IV 1000 V		
VDE GS in accordance with IEC 61243-3	■	■	■
Article number	84502	84501	84503

	LSP 4L
Indicating range	12-690 V
Voltage warning LED without battery	■
Voltage indication with value without battery	■
Connectible load for 30 mA RCD	
Connectible load for electricity meter	
Vibration at load	
Acoustic signal at load	
Phase test single-pole	■
Phase sequence test	■
Continuity test	■
Resistance measuring device	
Frequency meter	
Front spot lighting	
Backlighting LCD	■
Protection category	IP 65
Power supply	without battery*
Overvoltage category	CAT IV 600 V CAT III 690 V
VDE GS in accordance with IEC 61243-3	■
Article number	85422

	DSP-HW 2
Indicating range	12 - 1000 V AC / 1500 V DC
Voltage warning LED without battery	
Voltage indication with value without battery	
Connectible load for 30 mA RCD	
Connectible load for electricity meter	
Vibration at load	
Acoustic signal at load	
Phase test single-pole	
Phase sequence test	
Continuity test	■
Resistance measuring device	
Frequency meter	
Front spot lighting	
Backlighting LCD	■
Protection category	IP 65
Power supply	Battery 9V 6LR61
Overvoltage category	CAT IV 600 V CAT III 1000 V
VDE GS in accordance with IEC 61243-3	■
Article number	81347

	1000L-UB-S
Indicating range	50-1000 V
Voltage warning LED without battery	■
Voltage indication with value without battery	■
Connectible load for 30 mA RCD	■
Connectible load for electricity meter	
Vibration at load	
Acoustic signal at load	
Phase test single-pole	■
Phase sequence test	
Continuity test	■
Resistance measuring device	
Frequency meter	
Front spot lighting	
Backlighting LCD	■
Protection category	IP 65
Power supply	Longlife battery**
Overvoltage category	CAT IV 1000 V
VDE GS in accordance with IEC 61243-3	■
Article number	81391

* Maintenance-free due to integrated Lithium accu for additional functions, which recharges during voltage tests

** Maintenance-free due to integrated Longlife battery for additional functions

Prüfball SPB Analog

Extreme robust safety casing made of solid rubber



500 V or 1000 V measurement range available

B-Type without push buttons (additional load)

The Prüfball SPB is the right voltage tester for operation in energy supply - robust, precise, maintenance-free.

- One-piece safety casing made of rubber, extremely voltage-proof, unbreakable dust- and waterproof
- Easy operation, clear indication
- Phase, phase sequence and continuity tester, RCD-tripping
- Reliable phase sequence test with fault detection, possible with gloves
- Without battery, maintenance-free lifelong
- CAT IV 1000 V



Approved safety concepts

The case of solid rubber encloses the measuring system and switching mechanism:

- Impact resistant, shockproof
- Dust- and waterproof
- Overvoltage protection

Exact, precise display

Reliable test by three display systems:



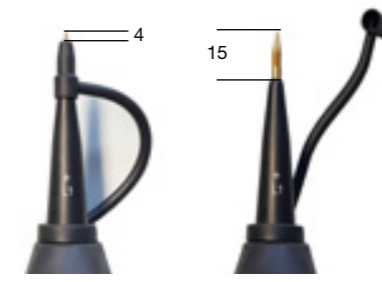
1. LED-triangle for phase sequence
2. LCD indicator with big V for hazardous voltage, type of voltage and continuity
3. Exact analog display, direct-display
4. LED-signal for hazardous voltage between 50 V AC / 120 V DC and for phase indication

Additional functions

- Reliable phase- and phase sequence test with new error detection for reliable indication, possible with gloves
- Continuity tester
- PR-type with additional load and vibration indication for tripping RCDs (Residual Current Device)
- PRA-type with additional load and acoustic signal for tripping RCDs (Residual Current Device)

Maintenance-free

The display of the voltage is supplied from the mains when checking. Also for the additional functions the Prüfball does not need a battery. The integrated Li-battery is charged with every voltage test.



Electrode shortening to avoid short circuits due to new protective cap

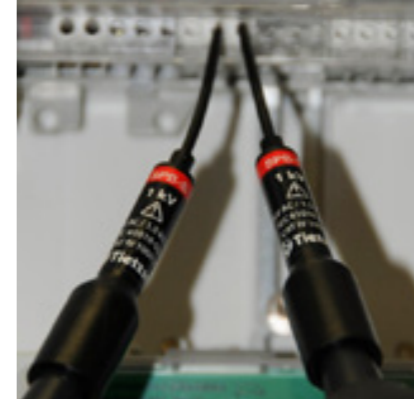


Extensions for higher safety during test at overhead lines and busbars

Wide range of accessories

Accessories are not included in scope of delivery

- Bage
- Extensions for tests at overhead lines
- Plastic casing for extensions
- Test prods for test objects difficult to access
- Insertion prods for underground cable
- Adapter for test lines with 4-mm-standard plug



Close contacts are well reached with flexible pin prods

Technical data

Two-pole voltage tester Prüfball SPB tested and certified by VDE in accordance with EN/IEC 61243-3 (VDE 0682 part 401)

Type / Nominal voltage	
SPB 500B / PR / PRA	50 ... 500 V AC/DC
SPB 1000B / PR	50 ... 1000 V AC/DC

Display range scale	
SPB 500B / PR / PRA	20 ... 500 V AC/DC
SPB 1000B / PR	50 ... 1000 V AC/DC

Frequency	
DC / 15...500 Hz	

Voltage indication

High-impedance, direct reading:
 LCD-indicator, LED ≥ 50 V AC / 120 V DC
 moving-coil instrument, large 90°-scale
 50 ... 500 V or 50 ... 1000 V, effective value accuracy $\leq 2,5$; basic accuracy 2,5% + reading errors
 ⊕ low-impedance, switched additional load:
 vibration-indicator in the handgrip > 180 V (for PR)
 acoustic signal > 57 dB interval (PRA)

Continuity

Ω -symbol in LCD 0 ... 1 M Ω

Phase / Phase sequence / Polarity

LED- and LCD triangle ≥ 165 V for phase unipolar
 for phase sequence two-pole
 type of voltage + / - / ~ by LCD signs

Input resistance

Direct:	SPB 500PR/PRA: 245 k Ω bei 500 V
	SPB 500B: 245 k Ω bei 500 V
	SPB 1000PR: 315 k Ω bei 1000 V
	SPB 1000B: 315 k Ω bei 1000 V
⊕ switched:	4,3...7 k Ω tripping of 30 mA-RCDs

Current peak value

Direct:	< 3,5 mA
⊕ switched:	< 300 mA at 1000 V
	35 mA at 230 V - RCD-tripping

On-time

120 s

Overvoltage category

CAT IV 500 V / CAT IV 1000 V

Surge voltage strength

19,2 kV case insulation to user

12 kV circuit between test prods

Insulation test voltage

6 kV-unit inspection of case and line

Operating temperature

-15°C ... + 45°C

Standards

EN/IEC 61243-3

Power supply

Maintenance-free - without battery, test functions voltage and acoustic are supplied from the mains, continuity, phase and phase sequence by Li-storage, refreshable

Casing

Unbreakable silicone rubber, display cover made of indestructible polycarbonate

Protection category

IP 65, device can be used in moist environments

Line

PUR sheathed cable, 1000 V, 1m

Dimensions / Weight

274 x 75 x 47 mm (display part) / 420 g

Type	Article no.	Phase- / phase sequence test	Continuity test	Additional load 30 mA-RCD-tripping	Vibration indication for load	Acoustic indication for load
SPB 500B 50-500 V	81411	■	■			
SPB 1000B 50-1000 V	81414	■	■			
SPB 500PR 50-500 V	81401	■	■	■	■	
SPB 1000PR 50-1000 V	81404	■	■	■	■	
SPB 500PRA 50-500 V	81402	■	■	■		■

Prüfball SPB Digital

Precise display in casing made of rubber



500 V- or 1000 V-LCD available

The Prüfball SPB digital combines modern microcontroller applications with approved features of the analog Prüfball - robust, precise and maintenance-free

- One-piece safety casing made of rubber, extremely voltage proof, unbreakable, dust- and waterproof
- Direct reading of all functions without pressed buttons
- Phase, phase sequence and continuity test,
- Additional load (RCD-tripping)
- Reliable phase sequence test by microcontroller analysis, possible with gloves
- Maintenance-free
- CAT IV 1000 V



Direct voltage indication without pressed buttons

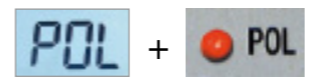
Clear indication

Reliable test by two display systems and connectable load:

- Bright LEDs and illuminated LCD
- High accuracy
- Additional load for tripping RCDs and to determine interference voltages



1. Bargraph
2. Large numerals and symbols for voltage AC/DC and resistance
3. LEDs
4. Indication of connected load
5. Arrows for phase sequence



LCD and LED indication when test prod applied to phase

Maintenance-free

The display is supplied from the mains while performing tests. The additional functions are powered by a Longlife battery.

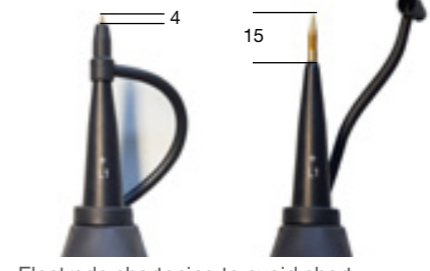


Extensions for higher safety during test at overhead lines and busbars

Approved safety concepts

The case encloses the measuring system and switching mechanism:

- Impact resistant, shockproof
- Dust- and waterproof
- Overvoltage protection
- Current-limiting safety components for CAT IV 1000 V
- Safe two-hand operation for the low-resistance test with special switches with large contact distance



Electrode shortening to avoid short circuits due to new protective cap

Wide range of accessories

Accessories are not included in scope of delivery

- Bags
- Extensions for tests at overhead lines
- Plastic sleeve for extensions
- Test prods for test objects difficult to access
- Insertion prods for underground cable
- Adapter for test lines with 4-mm-standard plug



Technical data

Two-pole voltage tester Prüfball SPB-L tested and certified by VDE in accordance with EN/IEC 61243-3 (VDE 0682 part 401)

Type / Nominal voltage	
SPB 500L	50 ... 500 V AC/DC
SPB 1000L	50 ... 1000 V AC/DC
Display range	
SPB 500L	24 ... 500 V AC/DC
SPB 1000L	24 ... 1000 V AC/DC
Frequency	
DC / 15...2000 Hz	
Voltage indication	
high-impedance, direct reading: LED ≥ 50 V AC and ≥ 120 V DC LCD ≥ 50 V backlight	
(accuracy 2,5 % + 5 digit)	
⊕ low-impedance, switched: symbol for connected load	
Continuity	
0 - 1000 kΩ (resolution 50 kΩ +/- 150 kΩ)	
Phase / Phase sequence / Polarity	
capacitive, without accessible electrode arrows for phase sequence POL for phase single-pole tests possible with gloves voltage type - / -	
Input resistance	
direct:	500L: 150 - 190 kΩ, 1000L: 300 - 350 kΩ
⊕ switched:	4,3...7 kΩ
Current peak value	
direct:	< 3,5 mA
⊕ switched:	< 300 mA (35 mA at 230 V - RCD-tripping)
On-time	
120 s	
Overvoltage category	
CAT IV 500 V / CAT IV 1000 V	
Surge voltage strength	
19,2 kV case insulation to user circuit between test prods: 8 kV, SPB 500L, 12 kV SPB 1000L	
Insulation test	
6 kV unit inspection of case and line	
Operating temperature	
-15°C ... + 45°C	
Standards	
EN/IEC 61243-3	
Power supply	
maintenance-free - without battery, test functions voltage, phase sequence are supplied from the mains, continuity by Li-Longlife battery	
Casing	
unbreakable silicone rubber, display cover made of indestructible polycarbonate	
Protection category	
IP 65, device can be used in moist environments	
Line	
PUR sheathed cable, 1000 V, 1m	
Dimensions / Weight	
274 x 75 x 47 mm (display part) / 415 g	

Type	Article no.	Phase- / phase sequence test	Continuity test	Additional load 30 mA-RCD-tripping	LCD value
SPB 500L 50-500V	81422	■	■	■	■
SPB 1000L 50-1000V	81423	■	■	■	■

Prüfball ZAP 350 Analog

Electricity meter tester with 350 W load



The Prüfball ZAP 350 is an extremely safe testing device for fast start-up tests at initial operation of electricity meters, combined with a high-quality voltage tester.

- Direct indication of voltage up to 500 V
- Connectible load of 350 W for fast start-up tests of electricity meters
- Phase, phase sequence and continuity tester
- Thermal and overvoltage protection
- Without battery, maintenance-free lifelong



Integrated 350W-load for fast start-up tests at electricity meters

Universal testing device for meter installation and power suppliers

- Five important functions combined in one device
- Electricity meter tester for all directly measuring electricity meters
 - Voltage tester 50 - 500 V
 - Phase tester
 - Phase sequence tester
 - Continuity and self-tester

Technology and safety

- High-quality elements guarantee operation and safety under extreme conditions
- Solid rubber case, dust- and waterproof IP 65
 - Overvoltage protection – CAT IV
 - Maintenance-free - no battery required
 - Secure two-hand tripping device for low resistive checks through special push button with wide contact gap in both handles
 - Integrated thermo-switch to avoid overheating at multiple use
 - Voltage monitoring as protection against mistakes in voltage ranges (phase/phase) during load tests

Exact, precise display

- Reliable test by three display systems and connectible load:
- Direct indication by LCD indicator and LEDs at 50 V
 - Direct indication of analog measuring system
 - Direct indication of load with 350 W by load-LED 1,5 A
 - High accuracy through moving-coil instrument class 2,5

Maintenance-free

The display of the voltage is supplied from the mains when checking. Also for the additional functions the Prüfball does not need a battery. The integrated Li-battery is charged with every voltage test.



ZAP - line

- The patented special cable allows space-saving and water-protected design
- Fast start-up test through high power
 - No overheating of device or handles
 - Enclosed casing without ventilation

Accessories

- Accessories are not included in scope of delivery
- Bag of leather or artificial leather keeping the ZAP in the bag avoid bending the connection line
 - Pin prod for tight contacts (see accessories for Prüfball SPB)



Flexible pin prods for tight contacts



Technical data

Electricity meter and voltage tester ZAP 350 according to EN/IEC 61243-3 with special cable in accordance with BG test report

Nominal voltage	
50 ... 500 V AC/DC	
Display range	
20 ... 500 V AC/DC	
Frequency	
DC / 15...500 Hz	
Voltage indication	
High-impedance, direct reading: 1 LED and LCD-indicator ≥ 50 V, moving-coil instrument 50 ... 500 V Cl 2,5: basic accuracy 2,5 % + reading errors large 90°-scale, effective value display ⊕ low resistive connected: load LED 1,5 A	
Continuity	
Ω-symbol in LCD 0 ... 1 MΩ automatic switch-over to voltage	
Phase / Phase sequence	
LED- and LCD-triangle ≥ 165 V for phase single-pole and for phase sequence two-pole	
Input resistance	
Direct (high-impedance)	245 kΩ
⊕ switched load for start-up test	150 Ω
Current peak value	
< 30 mA / 500 V with connected load approx. 1,5 A / 230 V	
On-time	
120 s	
Connectible load	
Approx. 350 W at 230 V	
Overvoltage protection	
Automatic switch-off of load at > 260 V	
Overload protection	
Thermo-switch, thermo-point at > 70°C	
Overvoltage category	
CAT IV 300 V in accordance with IEC 60664-1 (VDE 0110)	
Surge voltage strength	
8 kV case insulation to user 6 kV circuit between test prods	
Insulation test voltage	
6 kV unit inspection of case and line	
Operating temperature	
-15°C ... + 45°C	
Standards	
EN/IEC 61243-3	
Power supply	
Maintenance-free - without battery, test functions voltage, phase sequence and acoustic signal are supplied from the mains, continuity by Li-storage, refreshable	
Casing	
Unbreakable silicone rubber, display cover made of indestructible polycarbonate	
Protection category	
IP 65, device can be used in moist environments	
Line	
Patented thermo-line Ø 10 mm / 1,8 m, twin insulated, PA-thermo protection meshwork	
Dimensions / Weight	
274 x 75 x 47 mm (display part) / 515 g	

Type	Article no.	Phase- / phase sequence test	Continuity test	Additional load	Direct analog indication
ZAP 350 50-500 V	81314	■	■	350 W	■

Prüfball ZAP 350L / 1050L Digital

Electricity meter tester with 350 W or 1050 W load



The Prüfball ZAP digital is an extremely safe testing device for fast start-up tests at initial operation of electricity meters, combined with a high-quality voltage tester.

- Direct indication of voltages up to 500 V
- Connectible load of 350 or 1050 W for fast start-up tests
- Phase, phase sequence and continuity tester
- Thermal and overvoltage protection
- Without battery, maintenance-free lifelong

Universal testing device for meter installation and power suppliers

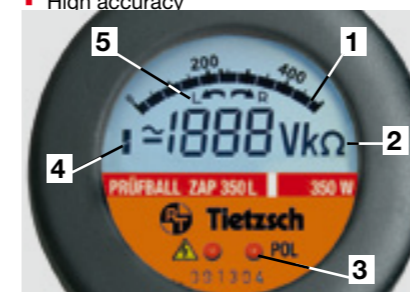
Five important functions combined in one device

- Electricity meter tester for all directly measuring electricity meters
- Voltage tester 50 ... 500 V
- Phase tester
- Phase sequence tester
- Continuity and self-tester

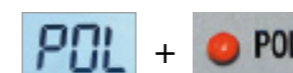
Exact, precise display

Reliable test by two display systems and connectible load:

- Direct indication by LEDs and LCD at 50 V
- Connection of start-up load
- Clear indication of load
- High accuracy



1. Bargraph
2. Large numerals and symbols for voltage AC/DC and resistance
3. Light diodes
4. Indication of connected load
5. Arrow for phase sequence
Indication if one test prod is applied to phase



LCD and LED indication when connecting phase to one electrode

Technology and safety

High-quality elements guarantee operation and safety under extreme conditions

- Solid rubber case, dust- and waterproof IP 65
- Overvoltage protection – CAT IV
- Maintenance-free - no battery required
- Secure two-hand tripping device for low resistive checks through special push button with wide contact gap in both handles
- Thermo-switch to avoid overheating at multiple use
- Voltage monitoring as protection against mistakes in voltage ranges (phase/phase) during load tests

Maintenance-free

The display of the voltage is supplied from the mains when checking. The additional functions are powered by a Longlife battery.

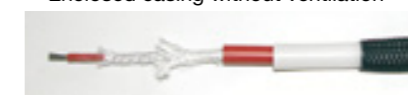


Integrated load up to 1050 W for fast start-up of electricity meters.

ZAP - line

The patented special cable allows space-saving and water-protected design

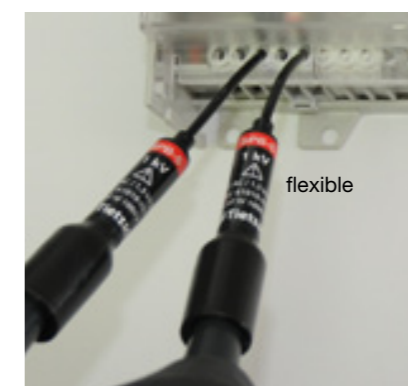
- Fast start-up through high capacity
- No overheating of device or handles
- Enclosed casing without ventilation



Accessories

Accessories are not included in scope of delivery

- Bag of leather or artificial leather
Keeping the ZAP in the bag avoid bending the connection lead
- Pin prod for tight contacts
(see accessories for Prüfball SPB)



Technical data

Electricity meter and voltage tester ZAP 350L according to EN/IEC 61243-3 with special cable in accordance with BG test report

ZAP 1050L

Nominal voltage	50 ... 500 V AC/DC
Display range	50 ... 500 V AC/DC
Frequency	0...2000 Hz
Voltage indication	High-impedance, direct reading: LED ≥ 50 V ~ and ≥ 120 V + - LCD ≥ 50 V backlighted (accuracy 2,5 % + 5 Digit)
Continuity	0 ... 1000 k Ω (resolution 50 k Ω +/- 150 k Ω)
Phase / Phase sequence / Polarity	Capacitive, without accessible electrode arrows for phase sequence POL for phase single-pole tests possible with gloves voltage type - / ~
Input resistance	Direct (high-impedance) approx. 150 - 190 k Ω switched: (start-up test) 150 Ω 50 Ω
Current peak value	Direct: < 3,5 mA switched: 1,5 A / 230 V 4,6 A / 230 V
On-time	120 s
Connectible load	Approx. 350 W at 230 V approx. 1050 W at 230 V
Overvoltage protection	Automatic switch-off of load at > 260 V
Overload protection	Thermo-switch, thermo-point at approx 70°C
Overvoltage category	CAT IV 500V according to IEC 60664-1 (VDE 0110)
Surge voltage strength	12 kV case insulation to user 8 kV circuit between test prods
Insulation test voltage	6 kV unit inspection of case and line
Operating temperature	-15°C ... + 45°C
Standards	EN/IEC 61243-3
Power supply	Maintenance-free - without battery, test functions voltage, phase sequence is supplied from the mains, continuity by Li-accu with automatic charging function
Casing	Unbreakable silicone rubber, display cover made of indestructible polycarbonate
Protection category	IP 65, device can be used in moist environments
Line	Patented thermo-line \varnothing 10 mm / 1,8 m \varnothing 15 mm / 1,8 m twin insulated, PA-thermo protection meshwork
Dimensions / Weight	274 x 75 x 47 mm (display part) / 510 g 720 g


Type	Article no.	Phase- / phase sequence test	Continuity test	Additional load	LCD display with value
ZAP 350L 50-500 V	81315	■	■	350 W	■
ZAP 1050L 50-500 V	81316	■	■	1050 W	■

Accessories Prüfball SPB / ZAP



The Prüfball SPB and ZAP is equipped with a thread for fast and safe extension with test probes. With the test probes, the Prüfball can be used perfectly and safely in various applications.

Extensions



With screwed-on extensions, it is possible to work at a safe distance from open circuits and current rails in switchgear.

Nominal voltage
50 ... 1000 V AC / 1500 V DC

Insulating strength
> 6000 V

available shape of electrodes


Y **i**

81020 SPB-S500-Y 515 mm

81022 SPB-S600-Y 615mm

81028 SPB-S820-Y 820 mm

Flexible pin prods



With screwed pin prods tight terminal strips or contacts at test holes can be contacted. In addition, the bare electrode length is shortened to <4 mm in order to minimize the risk of short circuits in narrow switchgears.

Nominal voltage
50 ... 1000 V AC / 1500 V DC

Insulating strength
> 6000 V

flex

81023 SPB-S65 Flexible pin prod 65 mm

Complete accessories list starting on page 74

Adapter and accessories



The Prüfball SPB can be used with adapters, cables and accessories for various test tasks.

81041 SP 200 Testbox



84311 L-SETR Test line



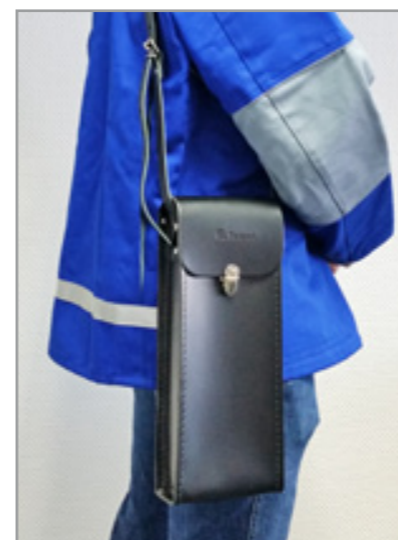
81029 SPB-S-ADA Screwable adapter with 4 mm socket



81021 SPB-S20-A Insertion prod 20 mm



Bags and storage



Various bags and containers facilitate the transport and protect the Prüfball SPB and accessories.

81031 S-HUELSE Plastic sleeve for extension and test probes



Bags for every requirement on page 76



MultiSafe DSP 4

Precise indication up to 1200 V AC / 1500 V DC



DSP 4-F
with push button **F** for:
phase sequence tests in ungrounded
mains, frequency measurement or data hold



DSP 4ST - Slide tip
with adjustable electrode length to
4 mm or 16 mm

The MultiSafe DSP 4 is a safe testing device for all applications in power engineering – easy handling, precise, reliable.

- Precise indication of voltage from 1 V up to 1200 V AC
30 mV up to 1500 V DC
- Phase and phase sequence tests (possible with gloves)
continuity tester 1 kΩ up to 2000 kΩ
- Highest degree of safety provided by protective resistors in both test prods
- Easy operation
large illuminated display



EN/IEC 61243-3
CAT IV 600 V



Many test-functions

Fast and safe measuring and testing of:

- Direct and alternating voltage
- Resistance / continuity
- Polarity
- Phase
- Phase sequence grounded
- Phase sequence test ungrounded for IT mains
- Frequency measurement

Easy operation

Fully automated test procedures obviate operating errors:

- At 24 V the MultiSafe switches on, or from continuity over to voltage testing
- Automatic selection of correct measurement range
- Indication of voltage and polarity
- Self-test per keypress
- Hold-function

Three readout systems

Unambiguous and rapid recognition of function and result:

- Round red flares for voltage, green square symbol for resistance and two red triangles for phase sequence.
- The display shows precise values in V or kΩ as well as voltage type and polarity
- An acoustic signal indicates continuity up to 10 kΩ.

Robust design

High-quality elements guarantee function and safety under extreme conditions:

- Impact resistant plastic casing and break-proof display cover
- Dust- and waterproof (IP 65, approved for operation in outdoor areas)
- Spring-mounted test contacts
- Twin insulated PUR sheathed cable



Highest level of safety

- Protective resistors located directly behind both test electrodes protect user and device especially against dangerous voltage peaks and energy from external sources
- Clear LED indication of hazardous voltages > 50 V AC / 120 V DC, which works without battery
- The MultiSafe has been tested and certified by VDE

Phase sequence test

- Exact phase sequence test in grounded mains from 165 V up to 1200 V / 50 Hz by microcontroller analysis.
- The phase sequence test is possible with gloves.

DSP 4-F additionally:

- New measuring principle for phase sequence tests works also in unearthed mains, applicable for IT mains

Safety accessories

Accessories are not included in scope of delivery

- Pin prod, adapter and extensions (page 30)



Technical data

Two-pole voltage tester
MultiSafe DSP 4 / DSP 4-F tested and certified by VDE in accordance with EN/IEC 61243-3 (VDE 0682 part 401)

Nominal voltage

24 ... 1000 V AC / 1500 V DC
(according to VDE: automatic switch on/over at ≥ 24 V)

Display range

1 V ... 1200 V AC
0,03 V ... 1500 V DC

Frequency

15 Hz ... 10 kHz < 500 V, 15 Hz ... 4 kHz > 500 V

Indication of voltage/phase/sequence

4 LEDs for voltage, continuity, phase sequence
LCD digital indication, backlit
7-segment display, 2 lines, 0 ... 1999 digit

Measuring ranges - voltage

AC: 1,0...99,9/100...1200 V (1,5% + 3 D)
(TRMS 15...1800 Hz)
15...1200 V (15% + 3 D)
(sineff > 1,8...4/10 kHz.)
DC: 0,03...8,99/9,0...99,9/100...1500 V (1,5% + 3 D)

Indication of resistance/continuity/diodes

Green LED for continuity up to 1999 kΩ and diodes,
LCD 3½-digit for kΩ-measurement value
buzzer ≤ 10 kΩ

Measuring range - resistance

0 ... 1999 kΩ (5% + 3 D)

Measuring ranges - frequency

Only DSP 4-F: 15 ... 1999 Hz, 2,00 ... 10,00 kHz

Input resistance

412 kΩ at 50 V / 50 Hz
311 kΩ at 1000 V AC, 720 kΩ at 1000 V DC
protective resistors directly behind both test electrodes

Current peak value

3,2 mA at 1000 V

On-time

30 s

Overvoltage category

CAT IV 600 V / CAT III 1000 V
in accordance with IEC 60664-1 (VDE 0110)

Surge voltage strength

>12 kV case insulation to user
> 8 kV circuit between test prods

Insulation test voltage

6 kV unit inspection of case and line

Operating temperature

-15°C ... + 45°C

Standards

DSP 4/DSP 4-F: EN/IEC 61243-3 (VDE 0682 Teil 401)
DSP 4ST: additionally according to UK HSE GS38
DSP 4UL: UL 61010-1, 3rd Edition
CAN/CSA-C22.2 No. 61010-1, 3rd Edition

Power supply

9 V-block IEC 6LR61 / 6LF22 / 6LP3146 energy-saving circuit, automatic switch-off after 30 s without measuring, multi-stage battery indicator

Casing

ABS, display cover PC impact resistant, test electrodes spring-mounted

Protection category

IP 65, device can be used in moist environments

Line

PUR sheathed cable, 1000 V, 1 m with protective cap for electrodes

Dimensions / Weight

240 x 62 x 39 mm (display part) / 270 g

Type	Article no.	Phase- / phase sequence test	Phase sequence test for IT power grids	Continuity test with value	Additional load 30 mA-RCD-tripping	Slide tip 4 / 16 mm
DSP 4						
1 - 1200 V AC 0,03 - 1500 V DC	84402	■		■		
DSP 4F						
1 - 1200 V AC 0,03 - 1500 V DC	84403	■	■	■		
DSP 4ST						
1 - 1200 V AC 0,03 - 1500 V DC	84405	■		■		■
DSP 4FST						
1 - 1200 V AC 0,03 - 1500 V DC	84406	■	■	■		■

MultiSafe DSP 5

Highest precision and safety up to 1200 V AC / 1500 V DC



NEW



DSP 5ST - Slide tip with adjustable electrode length 4 mm / 16 mm



Colour change of the LCD lighting during voltage

Der MultiSafe DSP 5 is a safe testing device for all applications in power engineering - easy handling, high-precision, multifunctional and reliable.

- Precise indication of voltage from 150 mV up to 1200 V AC
30 mV up to 1500 V DC
- Extended measuring range for low- and battery-voltage up to 19,99 V
- Phase, phase sequence tester (possible with gloves)
- Fast continuity test 0,01 kΩ up to 1000 kΩ
- Easy operation, large illuminated display with two colour display
- Additional load to determine interference voltages and RCD-tripping (not DSP 5B)



EN/IEC 61243-3
CAT IV 1000 V



Many functions

Fast and safe measuring and testing of:

- Direct and alternating voltage (TRMS)
- Resistance / continuity
- Polarity
- Phase
- Phase sequence grounded from 165 up to 1200 V / 50 Hz
- Phase sequence ungrounded (IT power grids)
- Frequency measurement
- Monitored additional load / RCD-tripping (push button on the back)*
- Additional load for start-up tests of electronic electricity meters*
- Front spot lightning
- Integrated self-test by buttonpress
- One-hand operation for testing sockets
- Adjustable electrode length*
- Belt clip for easy transport

* Type-dependent, see table



Spotlight and illuminated LCD for dark environments



extremely robust for use in all weather conditions

Highest level of safety

- Large protective resistors protect the user and device especially against dangerous voltage peaks and energy from external sources, CAT IV 1000 V.
- Large two-colour display for hazardous voltages > 50 V AC / 120 V DC, and LED-warning which works without battery
- The MultiSafe has been tested and certified by VDE



One-hand operation for testing sockets

Safety accessories

Accessories are not included in scope of delivery

- Pin prods for measuring points that are difficult to reach
- Adapter for test lines with 4 mm plug
- Extensions for overhead lines

Technical data

Two-pole voltage- and continuity tester
MultiSafe DSP 5 / DSP 5B / DSP 5ST
tested and certified by VDE in accordance with EN/IEC 61243-3 (VDE 0682 part 401)

Nominal voltage

12 ... 1000 V AC / 1200 V DC DSP 5 / DSP 5ST
12 ... 1000 V AC / 1500 V DC DSP 5B
(according to VDE: automatic switch on / over >12 V and additional load up to max. 1200 V AC / DC)

Display range

0,15 V ... 1200 V AC
0,03 V ... 1500 V DC

Frequency

15 Hz ... 10 kHz < 500 V,
15 Hz ... 2 kHz > 500 V

Indication of voltage/phase/phase sequence

Red LED for voltage, green for continuity, yellow for phase sequence, LC display, two color backlit 7-segment-letters, 2 lines, 0 ... 1999 Digit

Measuring ranges - voltage

AC: 0,10...19,99/20,0...99,9/100...1200 V
TRMS 15... 500 Hz (1,5% + 3 D)
sineff > 500 Hz (15% + 3 D)
DC: 0,01...19,99/20,0...99,9/100...1500 (1,5% + 3 D)

Indication of resistance/continuity/diodes

Green LED for continuity up to 1000 kΩ and diodes, LCD 3½-digit for kΩ-measurement value, buzzer ≤ 10,00 kΩ

Measuring range - resistance

0,01 ... 1000 kΩ (5 % + 4 D)

Measuring ranges - frequency

15,0 ... 99,9 Hz / 100 ... 9999 Hz

Input resistance

412 kΩ at 50 V / 50 Hz
200 kΩ at 1000 V AC, 720 kΩ at 1000 V DC

Current peak value

5 mA at 1000 V direct
< 300 mA at 1000 V switched (not for DSP 5B)

On-time t_{ON} / recover-time t_{OFF}

at 230 V / 400 V unlimited
at U_N 2 min t_{ON} / 2 min t_{OFF}

Overvoltage category

CAT IV 1000 V
in accordance with IEC 60664-1 (VDE 0110)

Surge voltage strength

>19,2 kV case insulation to user
>12 kV circuit between test prods

Insulation test voltage

6 kV unit inspection of case and line

Operating temperature

-15°C ... + 55°C

Power supply

2 x 1,5 V AAA energy- saving circuit, automatic switch-off after 30 s without measuring multi-stage battery indicator

Standards

DSP 5B / DSP 5: EN/IEC 61243-3 (VDE 0682 Teil 401)
DSP 5ST: in addition to UK HSE GS38

Casing

ABS-PC/ TPE , display cover PC impact resistant, handgrip to clip in, belt clip

Protection category

IP 65, device can be used in moist environments

Connection line

PUR sheathed cable, 1000 V, 1 m, with protective cap

Repeated inspection / calibration

Recommended every 6 years

Dimensions / Weight

275 x 89 x 35 mm (handgrip and display part)
275 x 60 x 35 mm (display part)
270 g

Type	Article no.	Phase- / phase sequence test	Phase sequence test for IT power grids	Continuity test with value	Additional load 30 mA-RCD-tripping	4 mm slide tip
DSP 5B 0,15 - 1200 V AC 0,03 - 1500 V DC	84502	■	■	■		
DSP 5 0,15 - 1200 V AC 0,03 - 1500 V DC	84501	■	■	■	■	
DSP 5ST 0,15 - 1200 V AC 0,03 - 1500 V DC	84503	■	■	■	■	■

ProfiSafe LSP 4

Compact and maintenance-free voltage tester



The ProfiSafe LSP 4 is an particularly managable and safe tester without battery, maintenance-free and environmentally friendly

- Voltage indication from 12 V up to 690 V AC / DC
- backlighted LCD
- Phase, phase sequence and continuity test
- Reliable phase sequence test by microcontroller analysis, test possible with gloves
- limited test current without FI / RCD tripping
- Without battery, maintenance-free lifelong



EN/IEC 61243-3
CAT IV 600 V



Five test functions

Fast and safe testing of:

- Direct and alternating current
- Continuity
- Polarity
- Phase
- Phase sequence

Highest level of safety

With CAT IV / 600 V, the device is in the highest overvoltage category, and can be used in all areas of energy engineering. The ProfiSafe has been tested and certified by VDE.

Clear signals

Unambiguous and rapid recognition:

- Red round LED warns against hazardous voltages
- Green square symbol for continuity
- Backlighted display for all functions

Maintenance-free

Lifelong indication of continuity, phase and phase sequence – function without battery

- Voltage tests can always be performed power supply from the mains
- Without battery, maintenance-free lifelong environmentally friendly
- Power supply for continuity, phase and phase sequence from highperformance accu
- Accu is charged automatically during voltage tests

Robust design

High-quality elements guarantee function and safety under extreme conditions:

- Impact resistant plastic casing
- Dust- and waterproof (IP 65, approved for operation in outdoor areas)
- Spring-mounted test contacts
- Twin insulated PUR sheathed cable

Accessories

Accessories are not included in scope of delivery

- Extensions
- Flexible pin prods
- Adapter
- Bags



Technical data

Two-pole voltage tester ProfiSafe LSP 4B / 4L tested and certified by VDE in accordance with EN/IEC 61243-3 (VDE 0682 part 401)

Nominal voltage range

12 ... 690 V AC / DC

Display range

DC: 12 ... 690 V ($\pm 3\% + 4 D$)
AC: 12 ... 690 V ($\pm 3\% + 4 D$)

Frequency

DC / 15... 500 Hz

Continuity test

0 ... 1 M Ω by green LED

Input resistance

Approx. 167 k Ω AC / DC at 690 V
approx. 200 k Ω AC / DC at 50 V

Current peak value I_s

4,2 mA at 690 V AC / DC

On-time

TR_{off} 30 s at 690 V

RT_{off} max. 240 s (recovery time)

Display

Red LED for voltage ≥ 50 V AC / 120 V DC

green LED for continuity 0 ... 1000 k Ω

LCD with backlight

measuring rate 2/s

Power supply

Maintenance-free – without battery

voltage tests from the mains
functions continuity / phase / phase sequence
by integrated Li-accu

Overvoltage category

CAT IV 600 V / CAT III 690 V

Surge voltage strength

> 12 kV case insulation to user

> 8 kV circuit between test electrodes

Insulation test voltage

6 kV unit inspection of case and line

Operating temperatures

-15°C ... + 45°C

Casing

Impact resistant, dust proof ABS plastic casing
display cover made of polycarbonate

Protection category

IP 65

Connecting line

PUR sheathed cable, 1000 V, 1 m
with protective cap for electrodes

Standards

IEC 61243-3:2009

EN 61243-3:2010

DIN-EN 61243-3:2011

EMV requirements




DIN-EN 61326

Dimensions / Weight

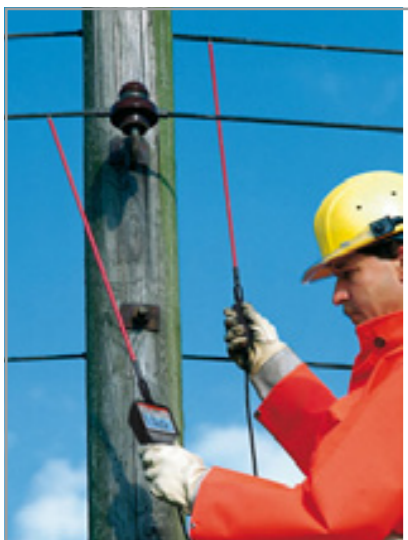
231 x 48 x 37 mm (display part) / 170 g

Type	Article no.	Phase- / phase sequence test	Continuity test	Additional load 30 mA-RCD-tripping	LCD value
LSP 4L 12 - 690 V	85422	■	■		■

Accessories MultiSafe DSP / ProfiSafe LSP

-  Standard probe without thread DSP 4 / DSP 4F / LSP 4 Only attachable DSP-accessories can be used.
-  Standard probe with thread set DSP 4 / DSP 4F / LSP 4 Attachable DSP-accessories or screwable DSP accessories can be used.
-  Slide-tip probe with thread set DSP 4ST / DSP 4FST / DSP 4UL Only screwable DSP-accessories can be used.

Extensions




With screwed-on extensions, it is possible to work at a safe distance from open circuits and current rails in switchgear.

Nominal voltage 50 ... 1000 V AC / 1500 V DC
 Insulating strength > 6000 V

available shape of electrodes
 Y i

- 84313 LSP-S500-Y 505 mm attachable
- 84010 DSP-S550-Y 550 mm screwable
- 84014 DSP-S850-Y 850 mm screwable

Flexible pin prods



With screwed pin prods tight terminal strips or contacts at test holes can be contacted. In addition, the bare electrode length is shortened to <4 mm in order to minimize the risk of short circuits in narrow switchgear.


Nominal voltage 50 ... 1000 V AC / 1500 V DC
 Insulating strength > 6000 V

flex

- 84013 DSP-S57 flexible pin prod 57 mm attachable
- 84318 DSP-S110 flexible pin prod 110 mm screwable

Complete accessories list starting on page 74

Adapter and accessories



The MultiSafe DSP can be used with adapters, cables and accessories for various test tasks.

- 81041 SP 200 Testbox
- 84311 L-SETR Test line
- 84312 DSP-S-ADAS Screwable adapter with 4 mm socket
- 84321 DSP-S20-A Insertion prod 20 mm screwable

Bags and storage



Various bags and containers facilitate the transport and protect the MultiSafe DSP and accessories.

- 81031 S-HUELSE Plastic sleeve to store extensions

Bags for every requirement on page 76



MultiSafe DSP-HW 2

Voltage warner for flooded cellars or maintenance shafts



Flooded electrical installations, such as house connections or feed-in of solar systems, can cause life-threatening voltage in the water. As soon as the safety elements are flooded, they cannot provide protection any longer. The MultiSafe DSP-HW 2 warns the user of voltage in the water before working or inserting pumps.

- easy and fast testing for electrical hazards in the water
- versatile - compact - safe
- easy to use, also suitable for electrical amateurs
- clear signals by red and green LEDs
- integrated self-test to check the function and ground connection
- meets the new regulations of the professional association



Application

Compact, easy-to-use voltage tester for:

- Testing of flooded basements and flooded electrical systems
- Checking stair railings and objects protruding into the water
- Testing of flooded maintenance shafts
- Testing when inserting pumps
- Testing residual water



Testing of stair rails that protrude into the water

User qualification

„Electrical laymen“ may also use the voltage warning device if they are authorized to use it. This is done through product training. The training documents are provided by the manufacturer. Authorization is given after the training by the responsible manager on site, e.g. an extinguishing group leader.



The ball electrode probes voltage in the water from a safe distance

Safety

- constant self-monitoring of electronics and software
- meets the requirements of the professional association GS-ET-43 „Principles for the testing and certification of two-pole voltage detectors for flooded areas“ Edition: 2021-03“
- meets the requirements of the accident prevention regulation fire brigades GUV-V C53 (Germany)

Functions

- voltage warning by red LEDs and indication of no voltage by green LEDs
- digital voltage display with illuminated LCD up to 1000 V AC / 1500 V DC
- Integrated self-test for checking the display, battery, connecting cable and earth connection
- battery operated, multi-stage battery indicator
- waterproof plastic housing



Display with bright LEDs and two-color LCD

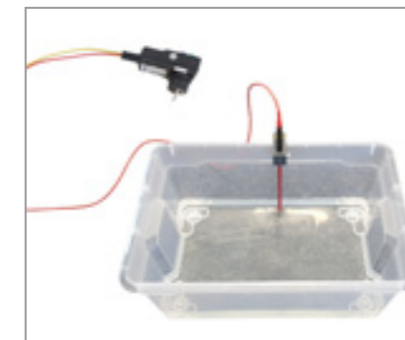


Earth connection, e.g. with earthing spike through clamp with strain relief

Training demo box

The demo box enables easy implementation of the practical training with the DSP-HW 2 (not included in the scope of delivery).

- demobox for water
- contactelectrode
- connection cable with personal protection plug for safe connection



Safe training with the demo box

Accessories

This accessory is only included in the set

- bag for device and accessories
- screw clamp for contacting masts
- earthing spike 400 mm



Technical data

Two-pole voltage tester MultiSafe DSP-HW 2 for testing flooded electrical systems

Nominal voltage range

12 ... 1000 V AC / 1500 V DC

Display range

DC: 12 ... 1000 V (± 3 % + 4 D)

AC: 12 ... 1500 V (± 3 % + 4 D)

Frequency

DC / 15... 500 Hz

Input resistance

ca. 445 kΩ

Current peak value I_s

3,4 mA at 1000 V AC / DC

On-time

TR_{on} 120 s at 1000 V AC / 1500 V DC

RT_{off} max. 240 s (recovery time)

Display

2 red LEDs for voltage ≥ 25 V AC / 40 V DC

2 green LEDs for absence of voltage

LCD digital display, with backlight white / red measuring rate 2/s

Power supply

9 V battery (6LR61) - multi-stage battery indicator

Overvoltage category

CAT IV 600 V / CAT III 1000 V

Surge voltage strength

> 12 kV case insulation to user

> 8 kV circuit between test electrodes

Insulation test voltage

6 kV unit inspection of case and 30 m cable

Operating temperatures

-15°C ... + 55°C

Casing

Impact resistant, dust proof ABS plastic casing

display cover made of polycarbonate

Protection category

IP 65

Ground connection

30 m PUR sheathed cable, 1000 V

with insulated earth clamp and safety rope

Standards

professional association „voltage tester water“ GS-ET-43

„Principles for the testing and certification of two-pole voltage detectors for flooded areas“ Edition: 2021-03

accident prevention regulation fire brigades GUV-V C53

DIN VDE 0100-410 (IEC 60364-4-41)

„Protection for safety - Protection against electric shock“ for voltage limits

EMV requirements

DIN-EN 61326

Dimensions / Weight

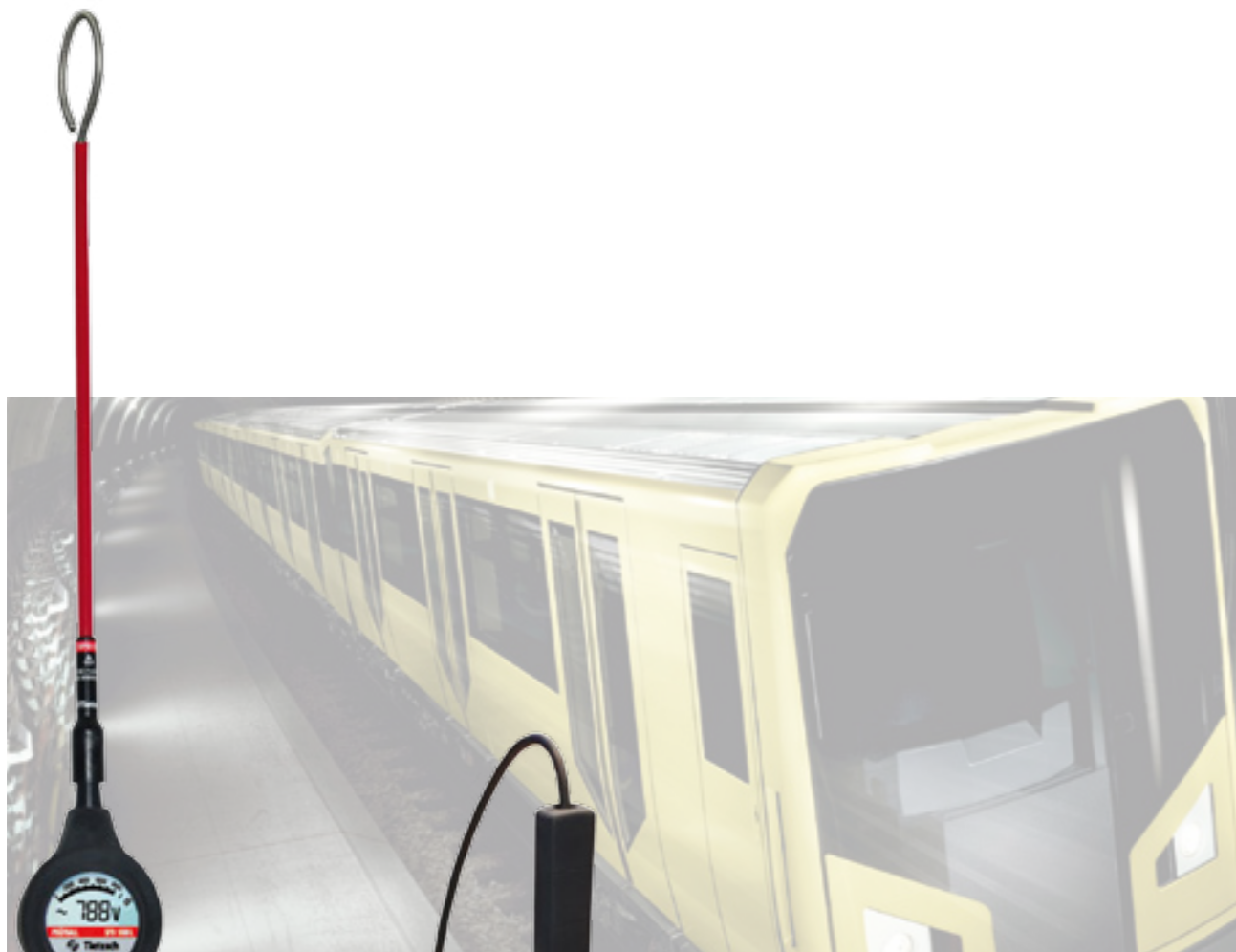
DSP-HW 2 330 x 200 x 240 mm / 2,5 kg

Set with bag 370 x 200 x 260 mm / 4,2 kg

Article no. Type	Voltage tester DSP-HW 2 with 30 m cable with clamp	Screw on clamp	Bag	Earthing spike
81347 DSP-HW 2	■			
81348 SET DSP-HW 2	■	■	■	■

Prüfball SPB-UB-S for subways

Voltage testing on railways with a third rail and installations



EN/IEC 61243-3
CAT IV 1000 V

The SPB 1000L-UB-S with its accessories makes voltage testing on third rail installations fast and safe.

- One-piece safety casing made of rubber, extremely impact resistant, dust- and waterproof
- Highest safety against surge voltage CAT IV, 1000 V
- Additional load to determine interference voltage
- Integrated self-test by green LED and LCD
- very easy to read in dark environments
- Extension and magnet for easy testing at third rails

Field of application:

Due to the modular design, the SPB-UB can be adapted to different areas of application for testing.

The extension allows greater safety distances to the side busbar.

With the magnet, the grounded side can be firmly connected. The user can focus better on the voltage test.

Clear display

Reliable test with two display systems and switchable load:

- bright LEDs and illuminated LCD
- high accuracy
- switchable low-impedance load for the detection of interference voltages



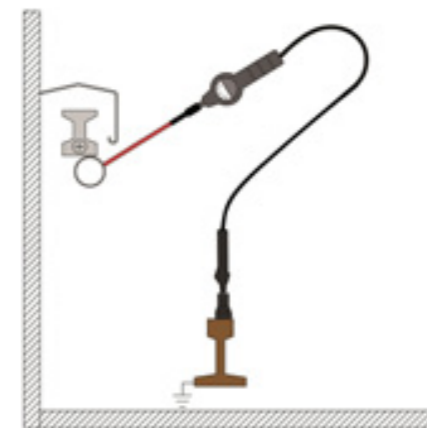
Highest level of safety

- CAT IV 1000 V - VDE certificated
- integrated self-test for checking function and earth connection
- Extension with ring-shaped electrode for always safe contact with the busbar



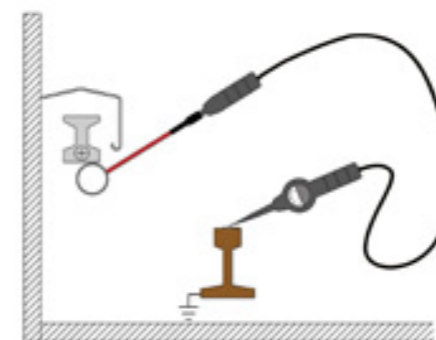
Check on side busbars with extension and magnet

The extension increases the safety distance to the side busbar and the magnet allows the fixed connection to the grounded rail.



Check on side busbars with extension

The extension ensures a greater safety distance to the busbar. With the test electrode, the rail is touched by hand.



Check without accessories

Without accessories, the SPB-UB can be used as a universal and safe voltage tester up to 1000 V AC / DC.



Technical data SPB 1000L-UB-S

Nominal voltage	50 - 1000 V AC / DC	indication up to 1500 V DC
Display range	LED ≥ 50 V AC / 120 V DC LCD ≥ 50 V backlighted accuracy 2,5 % + 5 Digit	
Self test	Checking function and earth connection Display by LCD and green LED	
Additional load	Switch for 7kΩ load LCD symbol as load indication	
Casing	unbreakable silicone rubber, display cover made of indestructible polycarbonate	
Earth connection	sheathed cable, 1000 V AC / 1500 V DC, 1m	
Accessories	Insulated stainless steel tube, attachable, O-formed, 400 mm / 500 mm, screwable magnet for rail	
Dimensions / Weight	274 x 75 x 47 mm / 400 g (basic unit)	

Accessories

Accessories are not included in scope of delivery

- Extensions with ring electrode for testing on covered busbars, length 400 mm / 500 mm
- Magnet for rail
- Bag for device, extension and magnet



Type	Article no.	Self-test with green LED	Single pole voltage warning	Additional load, to determine interference voltage	Extension	Magnet for rail	Bag
SPB 1000L-UB-S 50 - 1000 V	81391	■	■	■			
SPB-S-400-O	81094				400 mm, screwable		
SPB-S-500-O	81093				500 mm, screwable		
SPB-S-MA	81095					screwable	
HSS-KLT	84333						■