Tietzsch

Voltage tester | High voltage tester | Ex-testing devices

Made in Germany

Quality creates safety.

Quality is a precondition for safe products.

With our team of experts and many years of experience in development and production of measuring and testing devices, we consistently set new standards in terms of quality and safety of our products.

When using the high-value equipment, our customers gain considerably more safety for workings on electrical systems.

In addition to the security provided, we put emphasis on functionality and large displays.
With energy-saving circuitry as well as maintenance-free testers without battery, we make our contribution to environmental protection.

On the following pages of this product catalogue we are glad to present you our extensive product range of safe voltage testers and Ex-proof measuring devices.

We are happy to advise you with special claims and cooperate with you in finding customised solutions – especially with small series we demonstrate our strength and flexibility.

Please feel free to contact us –
we are looking forward to taking on new tasks!

Your

Dipl.-Ing. Michael Tietzsch

Tietzsch know-how since 1953

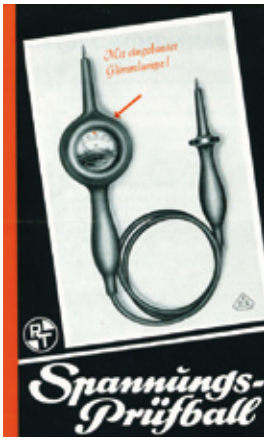
In **1950** Rudolph Tietzsch founded „Feinmechanischen Betrieb und Apparatebau“ in Castrop-Rauxel. In those days, the company built test equipment (e.g. flow testers for use with gases), either as single instruments or in small series for industrial customers in the Ruhr area.

Already in **1953**, the company developed an especially robust and safe voltage tester with precision display. Designed with an innovative dust-proof rubber casing, the „Voltage Prüfball“ achieved rapid recognition among heavy industry and energy suppliers as a result of its reliability and highly safe operation.

This general development in the field of electronics has led since **1980** to the creation of new products which incorporate digital technology. The intrinsically safe multimeter “Variosafe” became a standard equipment item for mining electricians working underground.

Today, Tietzsch is located in Ennepetal and develops and produces voltage testers, high voltage testers and Ex-proof measuring and testing devices.

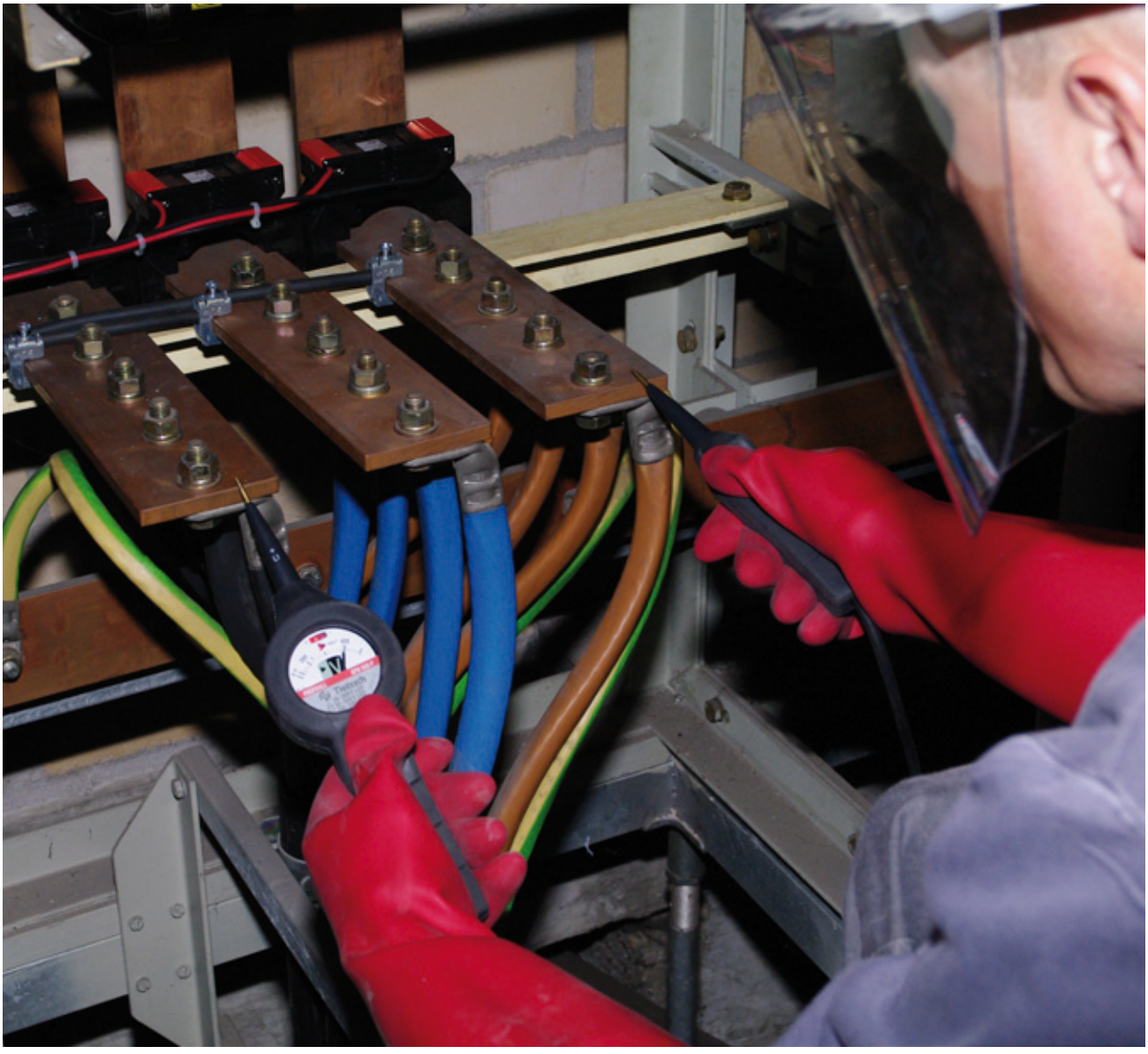
By using modern electronic techniques, high-quality materials and highly developed casing designs, Tietzsch products fulfil the highest demands. For decades, our customers have enjoyed the first-class quality and safety of Tietzsch products.



Tietzsch develops and produces voltage tester since 1953.

Content

Voltage tester up to 1 kV



Type overview

Prüfball SPB Analog

One-piece casing made of solid rubber, extremely safe and robust.
SPB 500 PRA with sounder (57 dB) for voltage

Prüfball SPB Digital

One-piece casing made of solid rubber, extremely safe and robust.
Direct reading with backlight - without battery

	500B	500PR	1000B	1000PR	500PRA	SPB 500L	SPB 1000L
Nominal voltage range (LED) Indicating range (value)	50-500 V	50-500 V	50-1000 V	50-1000 V	50-500 V	50-500 V	50-1000 V
Voltage warning LED without battery	■	■	■	■	■	■	■
Voltage indication with value without battery	■	■	■	■	■	■	■
Acoustic voltage warning					■		
Connectible load for 30 mA RCD		■		■	■	■	■
Connectible load for electricity meter							
Vibration		■		■			
Phase test single-pole	■	■	■	■	■	■	■
Phase sequence test	■	■	■	■	■	■	■
Continuity test	■	■	■	■	■	■	■
Resistance measuring device						■	■
Frequency meter							
Backlighted LCD						■	■
Protection category	IP 65					IP 65	
Power supply	without battery *					without battery *	
Overvoltage category	CAT IV 500 V		CAT V 1000 V		CAT IV 500 V	CAT IV 500 V	CAT IV 1000 V
VDE GS in accordance with IEC 61243-3	■	■	■	■	■	■	■
Article number	81411	81401	81414	81404	81402	81422	81423
Page	10					12	

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

MultiSafe DSP

Versatile, reliable and precise between 10 mV and 1500 V.
**DSP 4-F additionally with rotating field test for ungrounded mains

ProfiSafe LSP

Compact voltage tester, easy handling, without battery

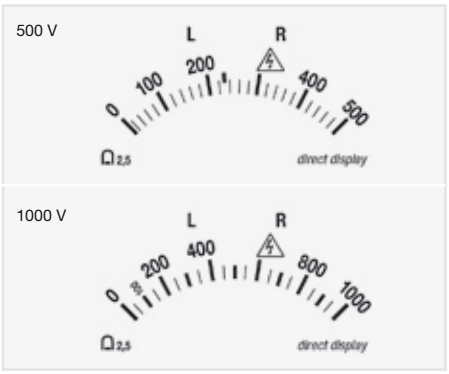
Prüfball ZAP
Electricity meter tester

One-piece casing made of solid rubber, extremely safe and robust. Connectible load and voltage monitoring as well as thermal protection

DSP 4	DSP 4-F	LSP 4L	LSP 4B	ZAP 350	ZAP 350L	ZAP 1050L
24-1000 V AC/1500 DC 0,01-1200 V AC/1500 DC	24-1000 V AC/1500 DC 0,01-1200 V AC/1500 DC	12-690 V	12-690 V	50-500 V	50-500 V	50-500 V
■	■	■	■	■	■	■
		■	■	■	■	■
				■	■	■
				350 W	350 W	1050 W
■	■	■	■	■	■	■
■	■ **	■	■	■	■	■
■	■	■	■	■	■	■
■	■				■	■
	■					
■	■	■	■		■	■
IP 65		IP 65		IP 65		
battery 9 V 6LR61 / 6LF22 / 6LP3146		without battery *		without battery *		
CAT IV 600 V CAT III 1000 V		CAT IV 600 V CAT III 690 V		CAT IV 300 V	CAT IV 500 V	
■	■	■	■			
84402	84403	85422	85421	81314	81315	81316
14		18		20	22	

Prüfball SPB Analog

The classic with safety casing made of solid rubber



Two measurement ranges are optionally available.

NEW Direct voltage indication **without** pushbuttons! - CAT IV 1000V

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

- One-piece safety casing made of solid rubber, extremely voltage-proof, unbreakable, dust- and waterproof
- Easy operation clear indication
- Phase, phase sequence and continuity tester, RCD tripping[1], acoustic signal[2]
- Reliable phase sequence test by microcontroller analysis, possible with gloves
- Without battery, maintenance-free lifelong
- CAT IV 1000V
- Vibration for load indication

AC/DC 1000 V · 1 MΩ · digital · POL · Volt

IEC / EN 61243-3 · CE · IP 65 · CAT IV 600 V · without battery · Load

[1] not SPB B-Types
[2] only SPB 500PRA

Instrument for professional use in power engineering

For over 60 years, the Prüfball is successfully used in operating ranges with increasing requirements:

- Energy providers with high safety requirements and high accuracy demands
- Industrial firms with extreme ambient conditions
- Service providers who prefer robust and long life test instruments

Approved safety concepts

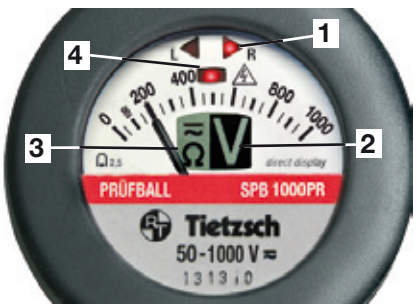
The case of solid rubber encloses the measuring system and switching mechanism:

- Impact resistant, shockproof
- Dust- and waterproof
- Overvoltage protection
- Secure two-hand tripping device for low resistive checks through patented special push-button with wide contact gap

Exact, precise display

Reliable test by three display systems and connectible load:

- Direct indication by LCD indicator and LEDs, clearly visible in bright and dark environments
- Direct moving-coil measruring system indication without pushbuttons
- additional load to identify interference voltage (PR and PRA-Types)
- Without battery, maintenance-free lifelong



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

Three measuring ranges fully equipped

The Prüfball is available in 3 variants:

- Two measurement ranges 500/1000 V
- 500PRA with acoustic signal for voltages
- Phase and phase sequence test without finger contact
- Continuity test
- PR and PRA-Types with additional load for RCD tripping
  (resi-dual-current-operated protective device)

Wide range of accessories

(Accessories are not included in scope of delivery)

- Bags
- 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 the test lines with 4 mm standard plug

Art.- no. / Order data
Type overview on page 8
Accessories on page 30

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 500PR/PRA	50 ... 500 V AC/DC
SPB 1000P/PR	50 ... 1000 V AC/DC

Display range scale

SPB 500PR/PRA	50 ... 500 V AC/DC
SPB 1000PR	50 ... 1000 V AC/DC

Frequency

0...100 Hz

Voltage indication

high-impedance, direct reading:
LCD indicator, LED ≥ 50 V AC / 120 V DC
⏚ low resistive connected:
moving-coil instrument, large 90°scale
50 ... 500 V or 50 ... 1000 V
effective value accuracy
cl. 2,5: basic accuracy 2,5% + reading errors
Acoustic signal (SPB 500PRA)*
> 57 dB interval according to ISO 3744

Continuity*

Ω-symbol in LCD 0 ... 1 MΩ

Phase / Phase sequence* / Polarity

LED and LCD triangle ≥ 165 V
for phase unipolar with contact sensor
for phase sequence two-pole with sensor
type of voltage + / - / ~ by 2 LEDs

Input resistance

direct:	SPB 500PR/PRA:	245 kΩ at 500 V
	SPB 500B:	245 kΩ at 500 V
	SPB 1000PR:	315 kΩ at 1000 V
	SPB 1000B:	315 kΩ at 1000 V
⏚ switched:	4,3...7 kΩ tripping at 30 mA-RCDs	

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
12 kV circuit between test prods

Insulation test voltage

6 kV unit inspection of case and line

Operating temperature

-15°C ... + 45°C

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 control cable, 1000 V, 1m
with protective cap for electrodes

Dimensions / Weight

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

*500PRA with acoustic signal for voltage without additional load for RCD tripping

Tietzsch Made in Germany

Prüfball SPB Digital

Digital indication without battery

SPB 1000L

NEW Additional load for 500 and 1000 V - CAT IV

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

- Safety casing made of solid rubber extremely impact resistant, dust- and waterproof
- Direct reading of all functions without keypress
- Phase, phase sequence and continuity test, connectible 30 mA (RCD-tripping)
- Reliable phase sequence test by microcontroller analysis, possible with gloves
- Without battery, maintenance-free lifelong
- CAT IV 1000 V

Instrument for professional use in power engineering

The Prüfball digital is a maintenance-free voltage tester for energy supply and industry:
The digital Prüfball SPB 500L and SPB 1000L supplements our analog Prüfball series which is successful since over 60 years.

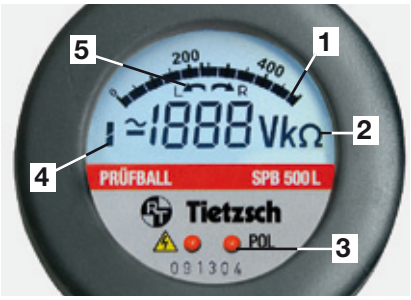
The device provides direct reading without keypress.

A load of approx. 35 mA at 230 V can be connected by actuating the push-button.

Clear display

Reliable test by two display systems and connectible load:

- Bright LEDs and illuminated LCD
- High accuracy
- Connectible low resistive load for RCD tripping and to determine interference voltages
- Without battery, maintenance-free lifelong



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
6. LCD and LED indication when test prod applied to phase

Approved safety concepts

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

- Impact resistant, shockproof
- Dust- and waterproof, outdoor type
- Overvoltage protection - CAT IV
- Current limiting safety components in accordance with latest standards – without semiconductor
- Secure two-hand tripping device for low resistive checks through patented special push-button with wide contact gap

Wide range of accessories

(Accessories are not included in scope of delivery)

- Bags
- 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 the test lines with 4 mm standard plug

Art.-no.	Type / Label
81422	Prüfball SPB 500L
81423	Prüfball SPB 1000L
	Accessories on page 30

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 50 ... 500 V AC/DC
SPB 1000L 50 ... 1000 V AC/DC

Frequency

0 - 2000 Hz

Voltage indication

high-impedance, direct reading:
LED > 50 V ~ and > 120 V + -
LCD > 50 V backlight
(accuracy 2,5% + 5 digit)
⏚ low resistive connected:
additional display 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 unipolar
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

case insulation to user: 19,2 kV
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

Power supply

maintenance-free - without battery,
test functions voltage, phase sequence are 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

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

Dimensions / Weight

274 x 75 x 47 mm (display part) / 415 g

MultiSafe DSP 4

Highest precision from 10 mV up to 1200 V

DSP 4

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

DSP 4ST

with adjustable electrode length from 4 mm up to 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 10 mV up to 1200 V AC / 1500 V DC
- Phase, phase sequence and continuity tester (possible with gloves) continuity tester up to 2 MΩ
- Highest degree of safety provided by protective resistors in both test prods
- Easy operation large illuminated display

Five test functions

Fast and safe measuring and testing of:

- Direct and alternating voltage
- Resistance / continuity
- Polarity
- Phase
- Phase sequence grounded

DSP 4-F additionally:

- 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
- Display of voltage and polarity
- Self-test per keypress
- „DATA HOLD“

Three readout systems

Unambiguous and rapid recognition of function and result:

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

Large display with illumination

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 control 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 and continuity test without sensor

- 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 32)

Increased security of the connection through tightly screwable extensions. Thread set for MultiSafe test prods required (optionally).

Art.-no.	Type / Label
84402	MultiSafe DSP 4
84403	MultiSafe DSP 4-F
84405	MultiSafe DSP 4ST
84404	MultiSafe DSP 4UL
84019	Thread set DSP 4
	Accessories on page 32

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

0,01 V ... 1500 V DC
1 V ... 1200 V AC

Frequency

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

Indication of voltage/phase/phase sequence

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

Measuring ranges - voltage

DC: 0,01...8,99/10,0...99,9/100...1500 V (1,5% + 3 D)
AC: 1...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)

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 switching mechanism 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: zusätzlich nach 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 hose cable, 1000 V, 1 m
with protective cap for electrodes

Dimensions / Weight

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

Tletzsch Made in Germany

MultiSafe DSP 3

No longer available!

Safe testing device with voltage tester functions

Slide tip for adjusting length of electrodes
CAT IV / CAT III in accordance with EN 61010

Security advice:
According to the new standard EN 50110-1 (VDE 0105-1) multimeter and measuring instruments may not be used for testing absence of voltage.

The MultiSafe DSP 3 is a versatile testing tool for all applications in industry and power engineering - multifunctional, precise, reliable.

- Precise indication of voltage from 10 mV up to 1200 V AC / 1500 V DC
- Phase, phase sequence and continuity test up to 6 MΩ, frequency up to 10 kHz
- Constant internal resistance
- Expandable up to 5 kV with high-tension test prods
- Highest degree of safety provided by protective resistors in both test prods
- Large illuminated display
- Phase sequence test applicable for unearthed IT-mains

No longer available!

Seven test functions

Fast and safe measuring and testing of:

- Direct and alternating current
- Resistance / continuity
- Polarity
- Phase / phase sequence grounded
- Phase sequence ungrounded
- Frequency

Easy operation

Fully automated test procedures obviate operating errors:

- At 8 V the MultiSafe switches on, or from continuity over to voltage testing
- Automatic selection of correct measurement range
- Type of voltage and polarity are detected
- Assignable function key for: HOLD, phase sequence ungrounded, frequency measurement, light on/off
- Self-test per keypress
- „DATA HOLD“

Three readout systems

Unambiguous and rapid recognition of function and result:

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

Large display with illumination

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 control 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.
- CAT IV up to 600 V against ground; device is in the highest overvoltage category, device is suitable for operation in all areas of power engineering.

Reliable phase sequence test without earth

- Innovative measuring principle for phase sequence tests **in ungrounded mains** from 165 V up to 1200 V, 50 Hz, applicable for IT-mains

Wide range of safety accessories

(Accessories are not included in scope of delivery)

- Pin prod for test objects that are difficult to access
- Adapter for test lines with 4 mm standard plug
- Extensions for tests at overhead lines
- Bags
- Tightly screwable test prods **for voltages up to 5000 V**

Art.-no.	Type / Label
84301	MultiSafe DSP 3
84019	Thread set see page 37
	Accessories on page 32

Technical data

Voltage- and resistance meter MultiSafe DSP 3 in accordance with EN/IEC 61010

Nominal voltage

8 ... 1000 V AC / 1500 V DC
(automatic switch on/over at ≥ 8 V)

Display range

0,01 V ...1500 V DC
0,6 V ... 1200 V AC

Frequency

0...10.000 Hz

Indication of voltage/phase/phase sequence

3 red LEDs for voltage 8, 230, 400 V
LCD 3½-digit for V-measurement value and type of voltage -/~ and additional functions
red LED-triangle for phase and phase sequence

Measuring ranges - voltage

DC: 0,01...9,99/10,0...99,9/100...1500 V (1,5% + 3 D)
AC: 0,6...99,9/100...1200 V (1,5 % + 3 D)
(TRMS 15...1800 Hz)
15 ...1200 V (15% + 3 D)
(sineff > 1,8 ... 10 kHz)

Indication of resistance/continuity/diodes

green LED for continuity up to 5999 kΩ and diodes, LCD 3½-digit for Ω-measurement value buzzer signal, ≤ 10 kΩ

Measuring ranges - resistance

0...9,9 kΩ measurement current 5 µA (5% + 2 D)
10...1999 kΩ measurement current 1 µA (5% + 2 D)
2,00...5,99 MΩ measurement current 0,035 µA (5% + 2 D)

Measuring ranges - frequency

15 ... 1999 Hz, 2,00 ... 10,00 kHz

Input resistance

311 kΩ at 25 ... 1000 V linear

Current peak value

3,2 mA at 1000 V

On-time

2 min

Overvoltage category

CAT IV 600 V / CAT III 1000 V

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 ... + 55°C

Power supply

9 V-block IEC 6LR61 / 6LF22 / 6LP3146 power 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, accessible electrode (Pol-L1-sensor)

Protection category

IP 65, device can be used in moist environments

Line

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

Dimensions / Weight

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

ProfiSafe LSP 4

compact and maintenance-free voltage tester

LSP 4L:
digital indication of 12...690 V

LSP 4B:
bargraph in 7 steps for 12...690 V

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

- Voltage indication by LED and backlighted LCD
- Phase, phase sequence and continuity test
- Reliable phase sequence test by microcontroller analysis, test possible with gloves
- Without battery, maintenance-free lifelong

Five test functions

Fast and safe testing of:

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

Highest level of safety

- CAT IV /600 V highest overvoltage category, device is suitable for operation in all areas of power 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 high-performance 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 rubber sheated cable

Two models to choose

- LSP 4B with bargraph in 7 steps
- LSP 4L with digital display in 1-Volt steps

Accessories

(Accessories are not included in scope of delivery)

- Extensions
- Pin tip
- 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	
Nominal frequency range	
0 ... 500 Hz	
Display range	
LSP 4B	7 steps (bargraph) 12, 24, 50, 120, 230, 400, 690 V
LSP 4L	DC: 12 ... 690 V (± 3 % + 4 D) AC: 12 ... 690 V (± 3 % + 4 D)
Continuity	
0 ... 1 MΩ	
Input resistance	
approx 167 kΩ AC / DC at 690 V approx 200 kΩ AC / DC at 50 V	
Current peak value I_s	
4,2 mA at 690 V AC / DC	
On-time	
TR_{on} 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 kΩ 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 prods	
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 hose 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 / Weigth	
231 x 48 x 37 mm (display part) / 170 g	

Art.-no.	Type / Label
85421	ProfiSafe LSP 4B
85422	ProfiSafe LSP 4L
	Accessories on page 32

Prüfball ZAP 350 Analog

Electricity meter tester with 350 W load

NEW Direct voltage indication **without** pushbuttons!

ZAP 350

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.

- Indication of voltages up to 500 V
- Connectible load of 350 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 network technology

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 LED at > 50 V
- Connection of measuring system and start-up load in two stages
- Unambiguous direct indication of load with 350 W by load-LED 1,5 A
- High accuracy through moving-iron instrument class 2,5

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 the bending of the connection lead
- Pin prod for tight contacts
  (see accessories for Prüfball SPB)

Art.-no.	Type / Label
81314	Electricity meter tester ZAP 350
	Accessories on page 30

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 scale

50 ... 500 V AC/DC

Frequency

0...100 Hz

Voltage indication

high-impedance, direct reading:
1 LED and LCD ≥ 50 V,
⏚ low resistive connected:
moving-coil system 50 … 500 V
cl. 2,5: basic accuracy 2,5 % + reading errors
large 90° scale, effective value display

Continuity

Ω-symbol in LCD 0 ... 1 MΩ
automatic switch-over to voltage

Phase / Phase sequence

LED and LCD triangle ≥ 165 V
for phase unipolar and
phase sequence bipolar with sensor

Input resistance

direct (hig-impedance) 245 kΩ

⏚ switched 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 capacity

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

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

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

Prüfball ZAP 350L / 1050L Digital

Electricity meter tester with 350 W / 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 350/1050 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 network technology

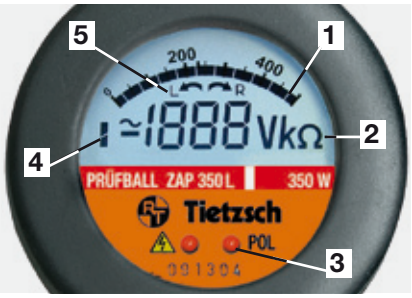
Five important functions combined in one device

- 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
6. Indication if one test prod is applied to phase

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

ZAP – line

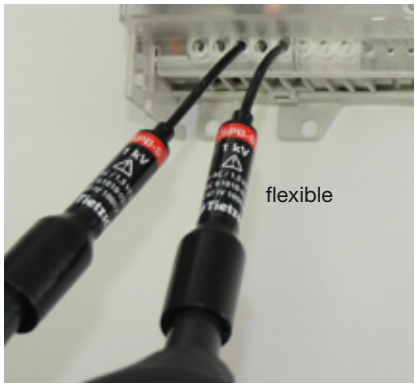
The patented special cable allows space-saving and water-protected design

- 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 the bending of the connection lead
- Pin prod for tight contacts (see accessories for Prüfball SPB)



Art.-no.	Type / Label
81315	Electricity meter tester ZAP 350L
81316	Electricity meter tester ZAP 1050L
81023	flexible pin prod
	Accessories on page 30

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 backlight
(accuracy 2,5% + 5 digit)
⏚ low resistive switched:
additional display 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 unipolar
tests possible with gloves
voltage type - / ~

Input resistance

direct (high-impedance) approx. 150 - 190 kΩ
⏚ switched (start-up): 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 capacity

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 > 70°C

Overvoltage category

CAT IV 500 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

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 Ø 10 mm / 1,8 m,
Ø 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***

MultiSafe DSP TT1

Telescope voltage tester for light rail systems

The MultiSafe DSP TT1 is a safe equipment for fast voltage testing at overhead lines of light rail systems.

- Precise indication of voltage up to 1000 / 1500 V
- Testing height up to 6,2 meter variable height adjustment
- Highest degree of safety provided by protective resistors within test prod, maximum current under 3,2 mA
- Easy operation with one single push-button, self-test for testing function, protective resistors and proper ground connection

Application

The MultiSafe DSP TT1 is a two-pole telescope voltage tester for voltages up to 1000 V AC / 1500 V DC.
It is particularly suitable to detect quickly and securely voltage at catenary lines of light rail systems.

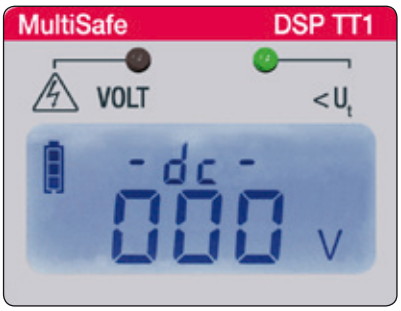
The voltage tester consists of a telescopic tube with test electrode to be connected to the overhead line, a display part and a contact magnet / contact clamp for the grounded rail.

The display part was designed on the basis of the two-pole voltage tester MultiSafe DSP which is certified by VDE in accordance with EN/IEC 61243-3.
A high level of safety is provided by resistor decades that are moulded within the test probe. The current is securely limited to 3,2 mA.

Three readout systems

Unambiguous and rapid recognition of function and result:

- Round red flares for voltage, green square symbol for standby and abscence of voltage
- Illuminated display shows precise values, voltage type and polarity
- Acoustic signal > 50 V AC / 120 V DC.



The MultiSafe switches on at 50 V automatically.

MultiSafe DSP TT1M
Protective resistors, function of the voltage tester and the connection between magnet and rail are checked easily and quickly with the self-test.

MultiSafe DSP TT1K
Contact clamp for rail base as an alternative to the contact magnet

Bei Spannung wechselt die LCD-Beleuchtung auf rot

Robust design

High-quality elements guarantee function and safety:

- 4-part GRP-telescopic tube with variable height adjustment
- Display part made of impact-proof plastic with break-proof display cover
- Dust- and waterproof
- Solid PUR hose cable with contact magnet or clamp, easily exchangeable

Accessories

(Accessories are not included in scope of delivery)

- Bag with ring bolt and shoulder belt 176 x 24 cm
- Wall holder

Variable locking

Wall holder

Technical data

MultiSafe DSP TT1 Telescope voltage tester for light railway overhead lines

Nominal voltage	50 ... 1000 V AC / 1500 V DC
Display range	50 ... 1000 V AC / 1500 V DC
Frequency	0 ... 500 Hz
Indication of voltage	two redundant systems 1. LCD at > 50 V auto-on (accuracy 3% + 5 digit) 2. LEDs at > 50 V Detection of operating mode +/ -/ ~
Self-test	testing function, protective resistors and ground contact
Input resistance	311 kΩ, therefrom 186 kΩ in the moulded resistance cartridge beneath the test electrode
Measurement current	3,2 mA at 1000 V AC / DC
On-time	15 min
Overvoltage category	CAT IV in accordance with IEC 60664-1 (VDE 0110)
Surge voltage strength	> 12 kV case insulation to user > 8 kV switching mechanism between test prods
Operating temperature	–15°C ... + 55°C
Power supply	9 V-block IEC 6LR61 / 6LF22 / 6LP3146 power saving circuit, automatic switch-off after 30 s without measuring, multi-stage battery indicator
Protection category	IP 65, device can be used in moist environments
Design	Two-pole voltage tester Display unit DSP: impact-proof, dust-proof plastic casing with unbreakable display cover, Telescope DSP TT1: 4-part telescopic tube made of GRP with integrated PUR spiral line moulded resistor decade, approx. 186 kΩ PUR hose cable with contact magnet/contact clamp
Standards	Display unit, function and test procedur EN/IEC 61243-3 Extension and telescopic tube in accordance with EN/IEC 61010-031 Surge voltage strength in accordance with EN/IEC 60071
Dimensions / Weight	1650 x 120 x 110 mm run-out length up to 5,2 m device incl. line and magnet 2,3 kg device with clamp for the rail foot 2,6 kg

Art.-no.	Type / Label
89306	MultiSafe DSP TT1M (magnet)
84332	Bag 176 x 24 cm
63042	Wall holder
further designs are available on request	

Tietzsch Made in Germany

Prüfball SPB-HW for floods

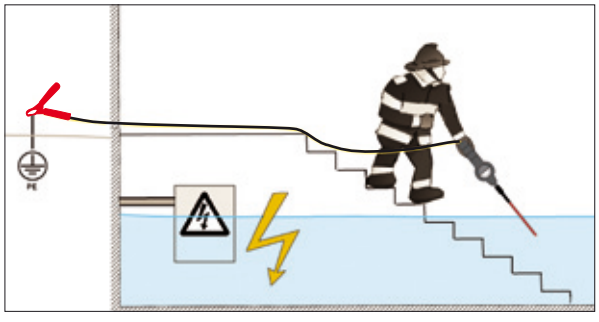
determine absence of voltage in flooded cellars

SPB 500L-HW

- One-piece safety casing made of solid rubber, extremely impact resistant, dust- and waterproof
- Direct voltage indication by red LED and backlighted LCD
- Integrated self-test by green LED and LCD
- Perfectly readable in dark environments

Flooded electrical installations, e.g. domestic power connections or feeders of solar panels can cause hazardous voltages in the water.

Flooded fuse elements cannot provide protection. The SPB-HW gives a clearly warning against hazardous voltages before entering the hazard zone or using pumps.



Technical data SPB-HW

Voltage testing	
two-pole by connected ground electrode, additionally unipolar in case of erroneous grounding	
Nominal voltage	
50 – 500 V AC/DC	
Voltage indication	
LED ≥ 50 V AC / 120 V DC LCD ≥ 50 V backlighted accuracy 2,5 % + 5 digit	
Self-test	
integrated self-test with checking proper ground connection	
Casing	
unbreakable silicone rubber, display cover made of indestructible polycarbonate, IP 65	
Earth connection	
PUR hose cable, 1000 V, 30 m grounding terminal with safety rope	
Extension	
insulated stainless steel tube, screwable, 60 cm	
Dimensions / Weight	
180 x 240 x 360 mm / 3,2 kg (Set)	

Art.-no.	Type / Label
81417	SET SPB-HW
81317	SPB 500L-HW (basic)
	Accessories on page 30

Prüfball SPB-UB for undergrounds

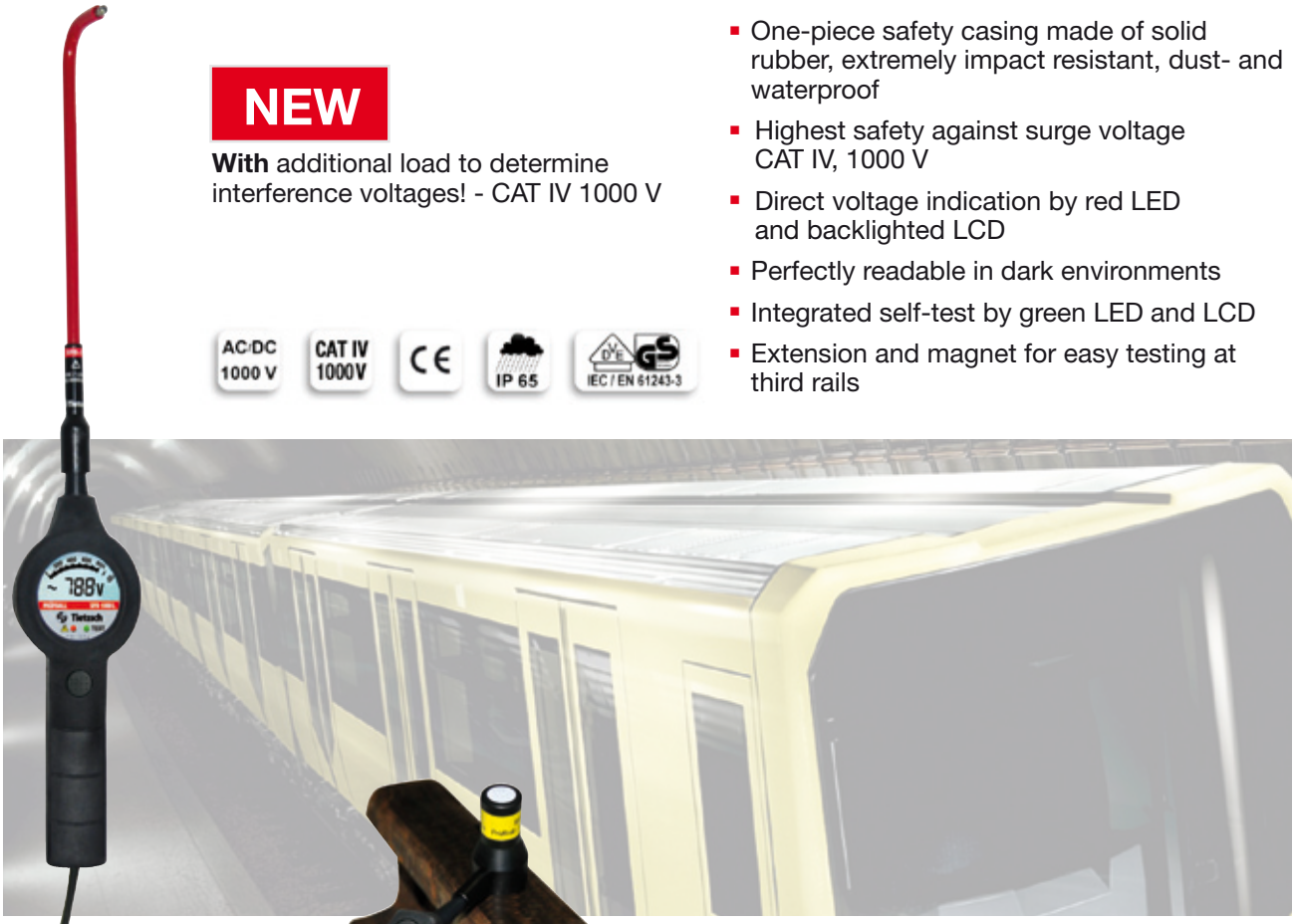
for voltage testing on railways with a third rail

NEW

With additional load to determine interference voltages! - CAT IV 1000 V

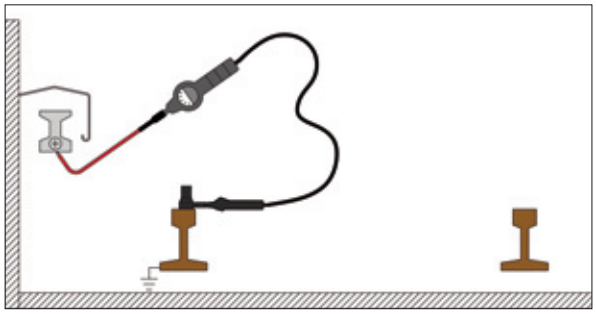
AC/DC 1000 V | CAT IV 1000V | CE | IP 65 | IEC / EN 61243-3

- One-piece safety casing made of solid rubber, extremely impact resistant, dust- and waterproof
- Highest safety against surge voltage CAT IV, 1000 V
- Direct voltage indication by red LED and backlighted LCD
- Perfectly readable in dark environments
- Integrated self-test by green LED and LCD
- Extension and magnet for easy testing at third rails



SET SPB-UB

The two-pole voltage tester SPB-UB facilitates voltage testing on third rail at the side.
The bended extension increases safety while testing.
The magnet of the SPB-UB can be attached on one side to the rail.
With the additional load up to 1000 V, interference voltages can be determined.



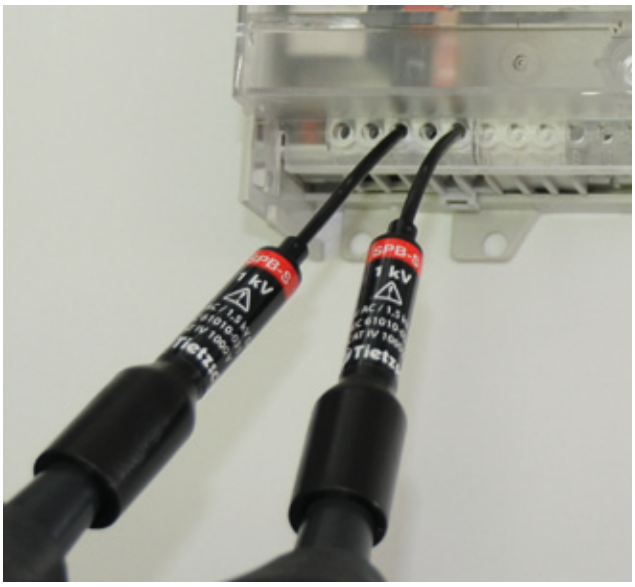
Technical data SPB-UB

Nominal voltage	
50 –1000 V AC / DC Indication up to 1500 V DC on request	
Voltage indication	
LED ≥ 50 V AC / 120 V DC LCD ≥ 50 V backlighted accuracy 2,5 % + 5 digit	
Self-test	
green LED for test of contact to the earth	
Additional load	
Push-buttons for load (7kΩ) , LCD symbol indication	
Casing	
unbreakable silicone rubber, display cover made of indestructible polycarbonate, IP 65	
Earth connection	
PUR hose cable, 1000 V AC/ 1500 V DC, 1 m	
Extension	
Insulated stainless steel tube, attachable, L formed, 250 mm, magnet for rail	
Dimensions / Weight	
274 x 75 x 47 mm / 400 g (basic)	

Art.-no.	Type / Label
81390	SET SPB-UB
81391	SPB 1000L-UB (basic)
81091	Extension 250 mm L-shape

Accessories on page 30

Accessories voltage tester



81090

High voltage tester up to 36 kV AC/DC
Two-pole

MultiSafe DSP HS5

Two-pole high voltage tester up to 5 kV AC / 7 kV DC

The MultiSafe DSP HS5 is a two-pole high voltage tester with LED signals and precise indication of voltage level and frequency.

- Precise indication of voltage up to 5 kV AC / 7 kV DC
- Highest degree of safety provided by moulded protective resistors within the GRP-tube
- Surge voltage strength >100 kV
- Self-test for checking protective resistors and function

Application
The MultiSafe DSP HS5 is a two-pole voltage tester for alternating voltages up to 5 kV and direct voltages up to 7 kV.

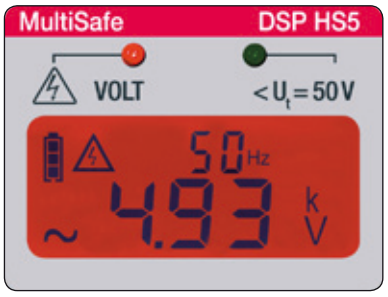
It is particularly suitable to detect voltage quickly and securely at capacitor banks and links of converters, etc.
Voltage level, polarity and frequency are indicated by several systems.

Safety
Due to moulded protective resistors the MultiSafe DSP HS5 has a tested surge voltage strength of > 100 kV.
The obligatory self-test assures function before voltage testing.

Easy operation
Easy operation due to one-button control. The result is clearly indicated by LEDs and on the display.

Three readout systems
- LEDs red for voltage, green for standby and absence of voltage
- Display for voltage level, frequency, as well as type of voltage and polarity
- Acoustic signal indicates voltage > U_t = 50 V

Indication of absence of voltage



With voltage the LCD backlight changes color to red

Robust design
High-quality elements guarantee function and safety under extreme conditions:
- Impact resistant plastic casing with break-proof display cover
- Dust- and waterproof (IP 65)
- Twin insulated PUR control cable
- High-tension probes made of glass fibre-reinforced plastic with moulded resistor decade

Accessories
(Accessories are not included in scope of delivery)
- Test electrodes

i: Semicircular standard electrode for conductor rails and test holes

Other shapes of electrodes on request:
G: Peaked with thread M5 for special applications
Y: Bifurcated for fixed ball points or overhead lines

Bag with shoulder belt

Solid box with aluminium frame

Technical data
Two-pole high voltage tester
MultiSafe DSP HS5

Nominal voltage range
50 ... 5000 V AC / 7000 V DC
Display range
6 ... 5000 V AC / 7000 V DC
Frequency
0 ... 1000 Hz
Input resistance
2,7 MΩ
Measurement current
> 2,6 mA with 7000 V DC
Surge voltage strength
> 100 kV (test report available)
Indicator group
I and III
Display
1. Red LED for voltage > U_t green LED for standby / absence of voltage 2. Two-line LCD with backlight white /red for indication of voltage, frequency, type of voltage and battery condition 3. Acoustic signal at >U_t
Measurement range / limit deviation
50 … 1000 V DC ± 2,5% + 5 digits 50 … 1000 V AC ± 5% + 10 digits 1,01 … 16,00 (16,50) kV DC ± 2,5% + 5 digits 1,01 … 11,00 (12,00) kV AC ± 5% + 10 digits
On-time
15 min, auto-off when tension-free
Construction
only for indoor installations
Operating temperature
–15°C … + 55°C
Self-test
testing function and protective resistors obligatory before indication of measurement results
Power supply
9 V block IEC 6LR61/6LF22 / 6LP3146 alkali-manganese, multi-stage battery indicator
Design
• Two-pole voltage tester with two firmly attached high-tension probes made of GRP with moulded resistor decades, approx. 1,35 MΩ each probe • Impact resistant, dust-proof plastic casing with unbreakable display cover, protection category IP 65 • Twin insulated PUR control cable
Standards
EN/IEC 61243-2 high voltage tester EN/IEC 60071 surge voltage strength further applied standards: EN/IEC 61010 and EN 50110-1 (VDE 0105-1) (further details see risk analysis)
Test label
date of the next examination on the sticker repeated inspection at least every 6 years
Dimensions / Weight
550 x 70 x 70 mm / 500 g

Art.-no.	Type / Label
89300	MultiSafe DSP HS5-i*

* shape of electrodes: -Y, -G, please specify

Accessories on page 33

Tietzsch Made in Germany

MultiSafe DSP HS11

Two-pole high voltage tester up to 11 kV AC / 16 kV DC

The MultiSafe DSP HS11 is a two-pole high voltage tester with LED signals and precise indication of voltage level and frequency.

- Precise indication of voltages up to 11 V AC / 16 V DC
- Highest degree of safety provided by protective resistors within the GRP- tube
- Surge voltage strength > 300 kV
- Self-test for checking protective resistors and function

Application
The MultiSafe DSP HS11 is a two-pole voltage tester for alternating voltages up to 11 kV and direct voltages up to 16 kV.

It is particularly suitable to detect voltage quickly and securely at capacitor banks and links of converters, as well as at feeders for railway systems.

Voltage level, polarity and frequency are indicated by several systems.

Safety
Due to moulded protective resistors the MultiSafe DSP HS11 has a tested surge voltage strength of > 300 kV.
The obligatory self-test assures function before voltage testing.

Easy operation
Easy operation due to one-button control. The result is clearly indicated by LEDs and on the display.

Three readout systems
- LEDs red for voltage, green for standby and absence of voltage
- Display for voltage level, frequency, as well as type of voltage and polarity
- Acoustic signal indicates voltage > 50 V AC / 120 V DC

Indication of absence of voltage

With voltage the LCD backlight changes color to red

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)
- Twin insulated PUR control cable, currogated tube for additional mechanical protection
- High-tension probes made of glass fibre-reinforced plastic with moulded resistor decade

Test electrodes
(Accessories are not included in scope of delivery)
- Test electrodes

i: Semicircular standard electrode for conductor rails and test holes

Other shapes of electrodes on request:
G: Peaked with thread M5 for special applications
Y: Bifurcated for fixed ball points or overhead lines

Accessories
(Accessories are not included in scope of delivery)

Solid box for transportation and storage

Bag with ring bolt and shoulder belt

Art.-no.	Type / Label
89304	MultiSafe DSP HS11-i*
84330	Solid box 124 x 27 x 12 cm / 6,9 kg
84331	Bag 111 x 28 cm
* shape of electrodes: -Y, -G, please specify	

Technical data
Two-pole high voltage tester MultiSafe DSP HS11

Nominal voltage range
50 ... 11000 V AC / 16000 V DC

Display range
30 ... 11000 V AC / 16000 V DC

Frequency
0 ... 500 Hz

Input resistance
55,8 MΩ

Measurement current
0,29 mA bei 16000 V DC

Surge voltage strength
> 300 kV (VDE test report available)

Indicator group
I and III

Display
1. Red LED for voltage > 50 V AC / 120 V DC green LED for standby / absence of voltage
2. Two-line LCD with backlight white /red for indication of voltage, frequency, type of voltage and battery condition
3. Acoustic signal at > 50 V AC / 120 V DC

Measurement range / limit deviation
50 … 1000 V DC ± 2,5% + 5 digits
50 … 1000 V AC ± 5% + 10 digits
1,01 … 16,00 (16,50) kV DC ± 2,5% + 5 digits
1,01 … 11,00 (12,00) kV AC ± 5% + 10 digits

On-time
15 min, auto-off when voltage-free

Construction
for indoor and outdoor installations
IP 65, device can be used in moist environments

Operating temperature
– 15°C … + 55°C

Self-test
testing function and protective resistors obligatory before indication of measurement results

Power supply
9 V block IEC 6LR61 / 6LF22 / 6LP3146 alkali-manganese, multi-stage battery indicator

Design
- Two-pole voltage tester with firmly attached high-tension probes made of GRP with moulded resistor decades, approx. 27,9 MΩ each probe
- Impact resistant, dust-proof plastic casing with unbreakable display cover, protection category IP 65
- Twin insulated PUR control cable
- Connection line additionally protected by currogated tube

Standards
EN/IEC 61243-2 high voltage tester
EN/IEC 60071 surge voltage strength
further applied standards:
EN/IEC 61010 and EN 50110-1 (VDE 0105-1)
(further details see risk analysis)

Test label
date of the next examination on the sticker
repeated inspection at least every 6 years

Dimensions / Weight
1150 x 200 x 60 mm / 1,0 kg
length of test probes 675 mm

MultiSafe DSP HS36

Compact high voltage tester up to 36 kV AC/DC

Compact, lightweight and dismountable

With the MultiSafe DSP HS36 voltages up to 36 kV against ground can be tested quickly and safely.
Additionally, voltage level and frequency are indicated on the two-line display.

- Precise indication of voltages up to 36 V AC / DC and frequency 0 - 200 Hz
- Highest degree of safety provided by moulded protective resistors within the double-walled GRP-tube surge voltage strength > 300 kV
- Dismountable for easy transportation

Application

The MultiSafe DSP HS36 is a two-pole voltage tester for alternating and direct voltages up to 36 kV against ground.

It is particularly suitable to detect voltages at capacitor banks and rail converter systems with frequencies between 0-200 Hz quickly and securely.

Voltage is signalised by the red LED and the value is indicated digital on the LCD. Simultaneously, the upper display line indicates the mains frequency.

Design

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

- High-voltage probe with moulded resistor decade made of double-walled GRP-tube
- Dust- and waterproof display part made of ABS with unbreakable display cover
- Twin insulated line with large universal clamp for secure grounding
- Modular design with impact resistant, glass fibre-reinforced plastic tube, dismountable in test probe, basic pipe with display part, ground line and clamp

Safety

Maximum safety is provided by high surge voltage strength, integrated self-test and the certified display part.

The MultiSafe DSP HS36 is equipped with moulded protective resistors with surge voltage strength of > 300 kV.

Easy operation

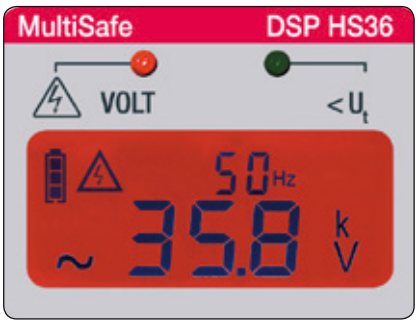
Fully automated test procedures obviate operating errors:

- Self-test indicates with green LED + “rdy”
- Voltage is indicated by red LED, the LCD and an acoustic signal
- Voltage, frequency, battery condition, type of voltage and polarity are simultaneously indicated on the large backlighted LCD

High variability

With the exchangeable test electrodes the MultiSafe DSP HS36 is versatile applicable.

Indication of absence of voltage



With voltage the LCD backlight changes color to red

Test electrodes

(Accessories are not included in scope of delivery)

- Test electrodes

i G Y

i: standard round electrode for conductor rails and test holes

Other shapes of electrodes on request:
G: Peaked with thread M5 for special applications
Y: Bifurcated for fixed ball points or overhead lines

Hard-top case, 119 x 42 x 16 cm for HS36, 10 kg, robust and waterproof
(Accessories are not included in scope of delivery)

Technical data

Two-pole high voltage tester
MultiSafe DSP HS36

Nominal voltage range
50 ... 36000 V AC / DC
Display range
40 ... 36000 V AC / DC
Display
1. Red LED for voltage > U_t green LED for standby 2. Two-line LCD with backlight for indication of voltage, frequency, type of voltage and battery 3. Acoustic signal > U_t
Indicator group
I and III
max. interference voltage U_t (change green / red)
1200 V
Measurement ranges / Accuracy
40 … 1000 V AC/DC ± 5% + 10 digits resolution 1 V 1,0 … 9,9 kV AC/DC ± 5% + 10 digits resolution 10 V 10 … 36 kV AC/DC ± 5% + 10 digits resolution 100 V automatic range switching
Frequency range
0 ... 200 Hz
Input resistance
119 MΩ
Current peak value
< 0,4 mA at 36000 V
On-time
15 min
Self-test
testing function, grounding and protective resistors
Surge voltage strength
> 300 kV (test report available)
Construction
for indoor and outdoor installations IP 65, device can be used in moist environments
Operating temperature
– 15°C … + 55°C
Power supply
9 V block IEC 6LR61 / 6LF22 / 6LP3146 alkali-manganese, multi-stage battery indicator
Design
• Two-pole voltage tester with fixed connection to ground • Two-piece high-tension probes, screwable, made of double-walled GRP-tube with moulded resistor decade • Display part made of impact resistant, dust-proof plastic casing IP 65 with unbreakable display cover • 6 m PUR high voltage cable 40 kV with universal clamp for busbars, fixed ball points up to Ø 25 mm
Standards
EN/IEC 61243-2 high voltage tester EN/IEC 60071 surge voltage strength further applied standards: EN/IEC 61010 and EN 50110-1 (VDE 0105-1) (further details see risk analysis)
Test label
date of the next examination on the sticker repeated inspection at least every 6 years
Dimensions / Weight
1430 x 100 x 100 mm / 2,1 kg transportation length demounted: 900 mm

Art.-no.	Type / Label
89308	MultiSafe DSP HS36-i*
84334	HS36-KOF

*shape of electrodes: -Y, -G, please specify

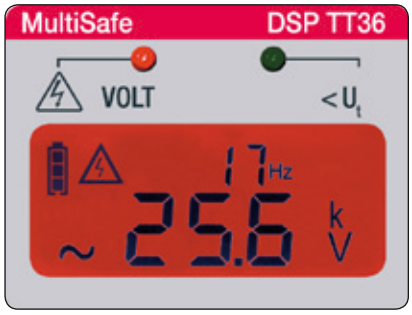
Tietzsch Made in Germany

MultiSafe DSP TT3 / TT36

Telescope voltage tester for catenary lines up to 3 or 36 kV AC/DC

Variable locking
for testing heights
up to 8,2 m

Anzeige bei Spannungsfreiheit



Bei Spannung wechselt die
LCD-Beleuchtung auf rot

With the MultiSafe DSP TT3 / TT36 voltages up to 3 / 36 kV against ground can be tested quickly and safely. Additionally, voltage level and frequency are indicated on the two-line display.

- For testing heights up to 6,2 m or 8,2 m variable height adjustment
- Precise indication of voltages up to 3 / 36 V AC/DC
- Highest degree of safety provided by moulded protective resistors GRP-tube, surge voltage strength > 100 kV

Application

The MultiSafe DSP TT3 / TT36 is a two-pole high voltage tester for alternating and direct voltages up to 3 or 36 kV against ground.

It is particularly suitable to detect voltages quickly and securely at capacitor banks and rail converter systems.

Voltage is signalised by 3 red LEDs and the value is indicated digital on the LCD. Simultaneously, the upper display line indicates the mains frequency.

Design

High-quality elements guarantee function and safety:

- Telescopic tube with variable height adjustment 1,75 - 5,2 m / 7,2 m extension length
- Moulded resistor decade within GRP-tube
- Dust- and waterproof display part made of ABS with unbreakable display cover
- Twin insulated line with clamp for secure connection to rail

Safety

Maximum safety is provided by high surge voltage strength, integrated self-test and the certified display part.

The MultiSafe DSP TT3 / TT36 is equipped with moulded protective resistors with surge voltage strength of > 100 kV.

Accessories

(Accessories are not included in scope of delivery)

- Bag with ring bolt and shoulder belt 176 x 24 cm
- Wall holder

Easy operation

Due to clear signals and only one push-button operating errors are prevented:

- Self-test indicates with green LED + “rdy”
- Voltage is indicated by red LEDs and the LCD with backlight and additionally an acoustic signal
- Voltage, frequency, battery condition, type of voltage and polarity are simultaneously indicated on the large backlit LCD

Art.-no.	Type / Label
89307	MultiSafe DSP TT3M (magnet)
89337	MultiSafe DSP TT3K (clamp)
89309	MultiSafe DSP TT36 (clamp)
89310	MultiSafe DSP TT36-8m (clamp)

Technical data

Two-pole telescope high voltage tester
MultiSafe DSP TT3 ***DSP TT36***

Nominal voltage range

AC / DC 50 ... 3000 V ***36000 V***

Display range

40 ... 3000 V AC / DC ***40 ... 36000 V AC / DC***

Display

1. Three red LEDs for voltage > 50 V green LED for standby
2. Two-line LCD with backlight for indication of voltage, frequency, type of voltage and battery condition
3. Acoustic signal > 50 V AC / 120 V DC

Indicator group

I and III

Measurement ranges / Accuracy

40 … 1000 V AC/DC ± 5% + 10 digits resolution 1 V
1,0 … 3,00 kV AC/DC ± 5% + 10 digits resolution 10 V
10 … 36 kV AC/DC ± 5% + 10 digits resolution 100 V
automatic range switching

Frequency range

0 ... 200 Hz

Input resistance

1664 kΩ ***42 MΩ***

Current peak value

< 1,8 mA at 3000 V ***< 0,9 mA at 36000 V***

On-time

5 min ***15 minutes***
auto-off when voltage-free

Self-test

testing function, grounding and protective resistors

Surge voltage strength

> 100 kV ***> 150 kV***

Construction

for indoor and outdoor installations
IP 65, device can be used in moist environments

Operating temperature

–15°C … + 55°C

Power supply

9 V block IEC 6LR61 / 6LF22 / 6LP3146 alkali-manganese, multi-stage battery indicator

Design

- Two-pole voltage tester with fixed connection to ground
- 4-piece telescope high-tension test probe, made of double-walled GRP-tube with moulded resistor decade approx. 1540 kΩ ***approx.120 MΩ***
- Display part made of impact resistant, dust-proof plastic casing IP 65 with unbreakable display cover
- 1,8 m 3 m PUR high voltage cable with clamp for rail foot

Standards

EN/IEC 61243-2 high voltage tester
EN/IEC 60071 surge voltage strength
further applied standards:
EN/IEC 61010 and EN 50110-1 (VDE 0105-1)
(further details see risk analysis)

Test label

date of the next examination on the sticker
repeated inspection at least every 6 years

Dimensions / Weight

1740 x 120 x 110 mm
run-out length up to 5,2 m ***5,2 m / 7,2 m***
for testing heights up to 6,2 m ***6,2 m / 8,2 m***
device incl. line and magnet 2,8 kg
device with clamp for the rail foot 3,1 kg ***3,1 kg***
TT36K-8m ca. 4,2 kg

Tietzsch Made in Germany

Ex-proof measuring and testing devices

ΩMegaSafe EP 4 / EP 4Ex

Compact earth resistance tester for safe areas & hazardous Ex-areas

EP 4Ex

Test lines in accordance with
EN-61010-031 CAT III
Cap removable for CAT II environments

NEW Quicker test and energy-saving!

The ΩMegaSafe EP 4 is a manageable resistance measuring device for fast testing according to VDE 0413 of protective and grounding lines, equipotential bonding lines and lines at lightning arrester.

- Safe and universal between 10 mΩ and 2 MΩ
- High measurement current 0,2 A for Lo-Ω-range up to 10 Ω
- Fast compensation of measuring line per keypress
- Automatic pole change and storage of measurement results

Ω 2 MΩ

CE IP 65 VDE 0413-4

Low resistive line tests

Easy testing of resistances in protective lines and grounding systems, equipotential bonding lines, shielding etc. in accordance with EN 61557-4 (VDE 0413-4).

Universal and safe

Measurements between 10 mΩ and 2 MΩ with extreme safety against external voltage

- Lo-Ω-measurement range up to 10 Ω with high measurement current 0,2 A
- Further measurement ranges up to 2000 kΩ
- Usable in mains up to 500 V
- Acoustic and optic warning in case of external voltage, flashing indication of voltage value
- Robust, manageable casing with attached test prod for heavy demands, IP 65

EP 4 for reliable and fast low resistance tests

Easy handling

- Zero balance (compensation) of measuring line per keypress
- Supports several measuring lines with an impedance up to 3,5 Ω (approximately 200 m) for quick results
- Automatic pole change and storage of measurement results (can be switched off)

Three readout systems

Unambiguous and rapid recognition of function, result and danger:

1. Bright LED for external voltage, polarity and Lo-Ω-measurement with 0,2 A
2. Clear display for measurment result and function with backlight
3. Acoustic warning signal

Accessories

Test lines 73009 and battery are included in the delivery of the EP 4 (standard version) or EP 4Ex (Ex-proof version).

(Accessories are not included in scope of delivery)

- 50 m measuring line on decoiler with standard socket, not for ex-areas
- 50 m measuring line on wire reel
- Contact clamp with standard socket
- Leather bags
- Sawtooth test prod for rusty and varnished test sites

Test prod for rusty and varnished test sites

Technical data

Line and resistance measuring device
EP 4 / EP 4Ex according to EN/IEC 61010-1 and EN/IEC 61557-4 (VDE 0413 part 4)
Ex-proof version EP 4Ex additionally according to DIN EN 60079-0 and 60079-11

EC type examination certificate (EP 4Ex)	
Ⓔx II 2 G Ex ib IIC T4	ATEX 552826
Measurement ranges	
10 Ω (Lo-Ω)	resolution 0,01 Ω
100, 2000 Ω	resolution 0,1 ... 1 Ω
20, 200, 2000 kΩ	resolution 0,01 ... 1 kΩ
Accuracy	
1,5% + / - 4 digit at 20°C	
Measurement current	
10 Ω (Lo-Ω)-range:	200 mA
100 Ω-range:	20 mA
further ranges:	1 µA ... 20 mA
Open-circuit voltage	
> 4 V	
Measuring line balance	
automatic 0-balance (CAL) up to 3,5 Ω	
Digital indication	
2-line LCD-display, 3 ½ digit, overflow indication via OL backlight	
Voltage indication	
red LED and acustic warning signal as well as indication of the value in Volt	
Overvoltage protection	
up to 400 V reversible via semiconductor, between 400 up to 500 V via special fuse	
Overvoltage category	
CAT III 300 V / CAT II 600 V according to EN/IEC 61010-1	
Operating temperature	
-10°C ... + 50°C	
Power supply	
Battery 9 V-Block AlMn EP 4: 9 V-Block IEC 6LR61 / 6LF22 / 6LP3146 (alkaline-manganese) any manufacturer EP 4Ex: nur DAIMON MN1604, 6LR61 (yellow) or Duracell MN 1604, 6LF22 Plus Power Duralock (black /yellow) multi-stage battery indicator automatic switch-off	
Casing	
made of impact resistant ABS with unbreakable display cover	
Protection category	
IP 65, device can be used in moist environments	
Dimensions / Weight	
60 x 230 x 40 mm EP 4: 180 g EP 4Ex: 220 g	

Art.-no.	Type / Label
83302	EP 4
83301	EP 4EX
	Accessories on page 54

ΩMegaSafe ISO 1Ex

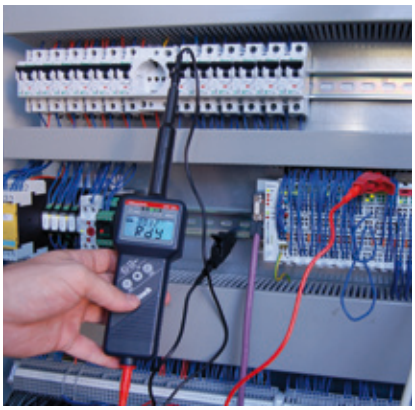
Compact megohmmeter for Ex-areas

The ΩMegaSafe ISO 1Ex is a compact high-impedance testing device for insulating resistances and bleeder resistors in potentially explosive atmospheres.

- Safe and universal between 1 k Ω and 2 TΩ
- Test voltage 32, 100, 500 V
- Indication of external voltage and integrated voltage indication up to 500 V
- Push-button for rapid discharge of capacities

Ω 2 TΩ

CE IP 65 VDE 0413-2



Easy insulation tests

In Ex-areas with EN 61557-2 (VDE 0413-2), connectible bleeder test in accordance with EN 61340

Universal and safe

Measurements between 10 kΩ and 2 GΩ / 2 TΩ with extreme safety against sparking

- Robust, manageable casing with fixed test prod, IP 65
- 4/7 measurement ranges with automatic range selection
- Acoustic and optic warning in case of external voltage, flashing indication at voltages 32 V
- Push-button for rapid discharge of capacities

Reliable and fast

Easy handling

- Test voltage selection per push-button
- Simultaneous indication of test voltage and resistance value on the two-line display
- Warning against voltages > 32 V and rapid discharge of capacities per push-button
- Fast measurements in GΩ ranges, measurement option TΩ switchable (3 additional measurement ranges)

Three readout systems

Unambiguous and rapid recognition of function, result and danger:

1. LED for external voltage, active testing and selected test voltage
2. Display for test voltage and measurment value with backlight
3. Acoustic warning signal

Accessories

- 2 test lines 84311 / 84314 600 V CAT III red and black 80 cm incl. 2 safety crocodile clips and battery are included in the scope of delivery

(Accessories are not included in scope of delivery)

- Leather bags
- Attachable test probe

Special accessories for measurements up to 2 TΩ:

Special measuring lines and electrodes are required for measurements at bleeder and surface resistances

- ISO-TΩ measuring line
- Annular electrode in accordance with EN 61340-5-1 and EN 61340-2-3 for measurements of surface resistance and volume resistivity weight: 0,515 kg
- Electrode in accordance with EN 61340-4-1 and EN 61340-2-3 for measurements of surface and bleeder resistance weight: 2,27 kg

Attachable test probe CAT III (not suitable for Ex-application)

Technical data

High-impedance megohmmeter ΩMegaSafe ISO 1Ex according to EN/IEC 61010-1 and EN/IEC 61557-2 (VDE 0413 part 2)
Ex-proof version in accordance with EN 60079-0 und EN 60079-11

EC type examination certificate (ISO 1Ex)

Ⓔx II 2 G	Ex ib IIBT4	BVS 06 ATEX E130
Ⓔx I M2 (M1)	EX ib [ia] I	BVS 06 ATEX E130

Measurement ranges

1,999 MΩ	resolution	1 kΩ	5% +/- 5D
19,99 MΩ	resolution	10 kΩ	5% +/- 5D
1,999 GΩ	resolution	1 MΩ	5% +/- 5D

with selected measurement option TΩ

19,99 GΩ	resolution	10 MΩ	10% +/- 5D
199,9 GΩ	resolution	100 MΩ	10% +/- 5D
1999 GΩ	resolution	1 GΩ	25% +/- 5D

Accuracy

5% +/- 5 digit at 20°C

Test voltage/measurement current

32 V	64 µA	+/-20 %
100 V	200 µA	+/-20 %
500 V	1 mA	+/-20 %

Discharge push-button

for rapid discharge of capacities

Digital indication

2-line LCD-display, 3 ½ digit, overflow indication via OL backlight

Voltage indication

red LED and acustic warning signal as well as indication of the value in Volt
24 - 400 V AC
15 - 500 V DC

Overvoltage category

CAT IV 600 V according to EN/IEC 61010-1

Operating temperature

-10°C ... + 50°C

Power supply

battery 9 V-block AlMn Daimon MN 1604; 6LR61 or Duracell MN 1604 Plus Duralock 6LF22
multi-stage battery indicator
automatic switch-off

Casing

made of impact resistant ABS with unbreakable display cover, antistatic coated

Protection category

IP 65, device can be used in moist environments

Dimensions / Weight

60 x 230 x 40 mm / 220 g

Art.-no.	Type / Label
83310	ΩMegaSafe ISO 1EX
	Accessories on page 54

VarioSafe EXM 25

Multimeter for mining and chemical industries

The VarioSafe EXM 25 is an intrinsically safe multimeter for potentially explosive atmospheres.

- Universal for resistance, current, frequency, temperature and voltage up to 2000 V
- For intrinsically safe and not intrinsically safe circuits up to 2000 V according to ATEX directive 94/9 EG
- Highest degree of safety provided by moulded protective resistors in DATA-HOLD test prods CAT IV, 1000 V
- Intrinsically safe source of energy NiMH-accu or Li-battery
- Robust casing made of antistatic plastic

AC/DC 2 kV | Ω 20 MΩ | A | Hz | °C

CE | IP 54 | Ex | CAT IV

Universal and variable

- 5 integrated measurement functions
- Illuminated two-line display for voltage, resistance, current, frequency and temperature with test attachment
- Power supply either from battery or accu
- Multifunctional accessories

Safe

Voltage tester functions

- Moulded resistors directly behind the test prods guarantee an absolutely safe voltage testing - **CAT IV 1000 V**
- Approved for **intrinsically safe** and **not intrinsically safe** circuits up to **2000 V** (1000 V standard / 2000 V with measuring tips SPA-HS2, optional)
- Distinctive by separate test prods for voltage or resistance
- Voltage test prods lockable by bayonet fastenings additional LED signal for voltage
- Moulded safety barrier protects against voltage up to 1000 V during resistance measurements
- Integrated control of current range up to 1000 V

Easy operation

Automatic function and integrated safety against operating errors

- Automatic selection of measurement range
- Indication of type of voltage + - ~
- Red LED signalises voltage, green LED indicates continuity
- DATA-HOLD push-button within the measuring tip saves the displayed value
- Self-test and automatic battery check
- Automatic switch-off after 60 sec when no measurements are taken

Robust casing

For decades approved in mining

- Special casing made of impact resistant antistatic plastic and unbreakable display cover
- Universal jack with bayonet fastening for DATA-HOLD test prods and further accessories
- Standard sockets for resistance and current
- LEDs for voltage and resistance

Standard accessories

DATA-HOLD test prods for voltage and frequency up to 1 kV and standard prods for resistance/current, as well as an intrinsically safe energy source, accu or battery are included in the scope of delivery.

Accessories / spare parts

(Accessories are not included in scope of delivery)

- Ever-ready bag
- Plug-in power supply
- NiMH-accu intrinsically safe T4
- Lithium-battery intrinsically safe T6
- Temperature measurement accessory, intrinsically safe, -80°C up to +600°C
- Universal sensor Fe-CuNi
- surface sensor Fe-CuNi
- High-tension probes up to 2000 Volt (Ex I)
- Clamp-on ammeter for AC/DC up to 1000 A (for Ex I only)

Technical data

Intrinsically safe multimeter VarioSafe EXM 25 tested an certified in accordance with EN 60079-0 and EN 60079-11

EC type examination certificate	
	DMT 03 ATEX E 013 Ⓔx II 2G Ex ib T6/T4 and Ⓔx I M2 Ex ib I
Nominal measurement ranges	
	usable in electricity networks group Ex I up to 1(2) kV, Ex IIB and Ex IIC up to 690 V
Direct current 1 kV (2 kV – request information)	
	red LED up to 12 V, LCD 3 1/2-digit: 1, 10, 100, 1000 V (1610 V), ± 1,5% + 3 digit resolution 0,001 ... 1 V
Alternating voltage 1 kV (2 kV – request information)	
	red LED up to 12 V, LCD 3 1/2-digit, TRMS; 10, 100, 1000 V (1160 V) resolution 0,01 ... 1 V ± 1,5% + 3 digit up to 0 ... 100 Hz, ± 5% + 5 Digit up to 101 ... 500 Hz
Input resistance	
	2 MΩ distributed to 4 resistances, moulded into DATA-HOLD test prods
Continuity/resistance	
	green LED LCD 3 1/2-digit 200, 2000 Ω 20, 200, 2000 kΩ, 2 MΩ, 20 MΩ ± 1 % + 5 digit, resolution 0,1 Ω ... 10 kΩ
Current	
	AC/DC 1000 mA, 2 A ± 1 % + 2 digit, resolution 1 ... 10 mA
Current with clamp	
	AC/DC 100, 1000 A, ± 1,5 % + 2/3 digit, resolution 0,1 ... 1 A
Frequency	
	200, 2000 Hz ± 1 % + 2 digit, resolution 0,1 ... 1 Hz 10 kHz ± 3 % + 2 digit, resolution 0,01 kHz
Temperature with measurement accessory	
	-80 ... +150° C ± 1,5 % + 3 digit, resolution 0,1° C -80 ... +600° C ± 1,5 % + 2 digit, resolution 1° C
Further functions	
	automatic selection of measurement range, indication of function, self-test, automatic switch-off
Power supply	
	intrinsically safe energy source, exchangeable Li-battery (T6) or NiMH-accu (T4) exchange in Ex-areas admitted
Operating temperature	
	- 10°C ... + 40° C
Casing	
	PA impact resistant, antistatic, LCD cover PC unbreakable
Protection category	
	IP 54, device can be used in moist environments
Dimensions / Weight	
	85 x 180 x 38 mm / 335 g

Art.-no.	Type / Label
82025	VarioSafe EXM 25A (with accu)
82026	VarioSafe EXM 25LB (with Li-battery)
	Accessories on page 55

VarioSafe EXM 24

Voltage and resistance measuring device for mining and chemical industries

The VarioSafe EXM 24 is an intrinsically safe voltage and resistance measuring device for potentially explosive atmospheres.

- For intrinsically safe and not intrinsically safe circuits up to 1000 V according to ATEX directive 94/9 EG
- Highest degree of safety provided by moulded protective resistors in DATA-HOLD test prods CAT IV, 1000 V
- Intrinsically safe source of energy NiMH-accu or Li-battery
- Robust casing made of antistatic plastic

AC/DC 1000 V | Ω 2 MΩ | CE | IP 54 | Ex | CAT IV

Simple design

The VarioSafe EXM 24 is provided with less functions than the EXM 25 but with similar mechanical construction and safety features as the fully equipped multimeter

- Single-line display for voltage and resistance
- Alternative supply through accu or battery

Safe

Voltage tester functions

- Moulded resistors directly behind the test prods guarantee an absolutely safe voltage testing - **CAT IV 1000 V**
- Approved for **intrinsically safe** and **not intrinsically safe** circuits up to **1000 V**
- Distinctive by separate test prods for voltage or resistance
- Voltage test prods lockable by bayonet fastenings additional LED signal for voltage
- Moulded safety barrier protects against voltage up to 1000 V during resistance measurements

Easy operation

Automatic function and integrated safety against operating errors

- Automatic selection of measurement range
- Indication of type of voltage + - ~
- Red LED signalises voltage, green LED indicates continuity, DATA-HOLD button records the displayed value
- Self-test and automatic battery check
- Automatic switch-off after 60 sec when no measurements are taken

Robust casing

For decades approved in mining

- Special casing made of impact resistant antistatic plastic and unbreakable display cover
- Universal jack with bayonet fastening for DATA-HOLD test prods and plug-in power supply
- standard sockets for resistance and current
- LEDs for voltage and resistance

Standard accessories

DATA-HOLD test prods for voltage up to 1 kV and standard prods for resistance, as well as an intrinsically safe energy source, accu or battery are included in the scope of delivery.

Accessories / spare parts

(Accessories are not included in scope of delivery)

- ever-ready bag
- plug-in power supply
- NiMH-accu intrinsically safe T4
- Lithium-battery intrinsically safe T6

Technical data

Intrinsically safe multimeter VarioSafe EXM 24 tested an certified in accordance with EN 60079-0 and EN 60079-11

EC type examination certificate
DMT 03 ATEX E 013 Ⓔx II 2G Ex ib T4/T6 Gb and Ⓔx I M2 Ex ib I Mb
Nominal measurement range
usable in electricity networks group Ex I up to 1000 V, Ex IIB and Ex IIC up to 690 V
Direct current 1 kV
red LED up to 12 V, LCD 3 1/2-digit, TRMS; 1, 10, 100, 1000 V (1610 V) ± 1,5% + 3 digit resolution 0.001 ... 1 V
Alternating voltage 1 kV
red LED up to 12 V, LCD 3 1/2-digit, TRMS 10, 100, 1000 V (1160 V) resolution 0,01 ... 1 V ± 1,5% + 3 Digit up to 0 ... 100 Hz ±5% + 5 Digit uo to 101 ... 500 Hz
Input resistance
2 MΩ distributed to 4 resistances, moulded into DATA-HOLD test prods
Continuity/resistance
green LED LCD 3 1/2-digit 200, 2000 Ω 20, 200, 2000 kΩ, 2 MΩ ± 1 % + 5 digit, resolution 0,1 Ω ... 10 kΩ
Further functions
automatic selection of measurement range, indication of function, self-test, automatic switch-off
Power supply
intrinsically safe energy source, exchangeable Li-battery (T6) or NiMH-accu (T4) exchange in Ex-areas admitted
Operating temperature
- 10°C ... + 40°C
Casing
PA impact resistant, antistatic, LCD cover PC unbreakable
Protection category
IP 54, device can be used in moist environments
Dimensions / Weight
85 x 180 x 38 mm / 335 g

Art.-no.	Type / Label
82024	VarioSafe EXM 24A (with accu)
82023	VarioSafe EXM 24LB (with Li-battery)
	Accessories on page 55

Accessories ΩMegaSafe EP / ISO

Art.-no.	Type	Description	EP	ISO
62015	BAT-AlMn	Battery MN 1604 Plus Power Duralock, Al-Mn-block 9 V, black / gold for ex-areas	■	■
73009	EP-LEI	Test line for EP 4 CAT II, with protective cap CAT III, 1000 V, black	■	
84311	L-SETR	Test line 0.8 m with crocodile clip 1000 V, CAT III, red	□	■
84314	L-SETS	Test line 0.8 m with crocodile clip 1000 V, CAT III, black	□	■
73021	EP-LED	Leather bag, 37 x 20 x 12 cm for EP / ISO	□	□
81030	SP-LED	Leather bag, 33 x 12 x 6 cm for SPB / DSP / EP / ISO	□	□
73006	EP-DH50	50 m measuring line on wire reel	□	
73004	EP-RH50	50 m measuring line on decoiler, NOT for ex-areas!	□	
73001	EP-EK	Earth clamp with 4 mm standard socket	□	
73007	EP-SAW	Sawtooth test prod for EP attachable, CAT II	□	
73008	ISO-PROBE	Attachable test probe for ISO 1Ex, CAT IV		□
73010	ISO-TOL	Terraohm line for high bleeder resistors		□
73011	ISO-ELR	Annular electrode for surface resistance and volume resistivity, delivery in solid box with calibration plate in accordance with EN 61340-5-1 / 61340-2-3		□
73012	SO-ELVO	Electrode for ISO 1Ex, EN 61340-4-1 / 61340-2-3		□
73013	ISO-3FUSS	Tripod electrode for ISO 1Ex, surface / probe 1081		□

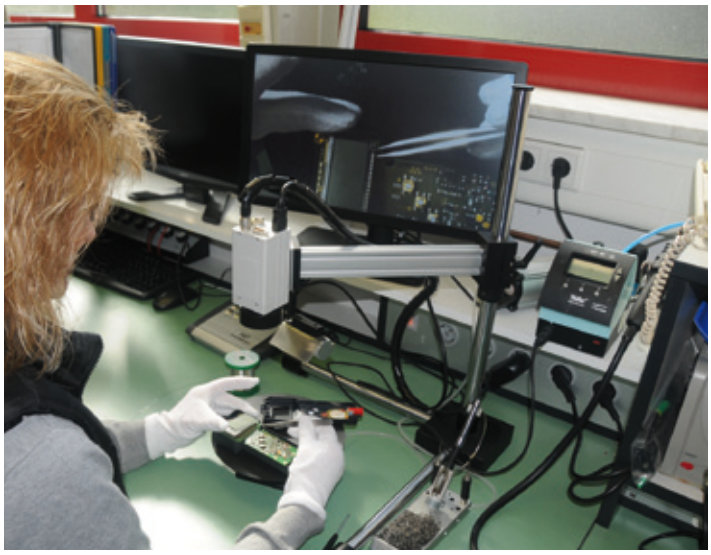
■ included in the delivery □ available accessories

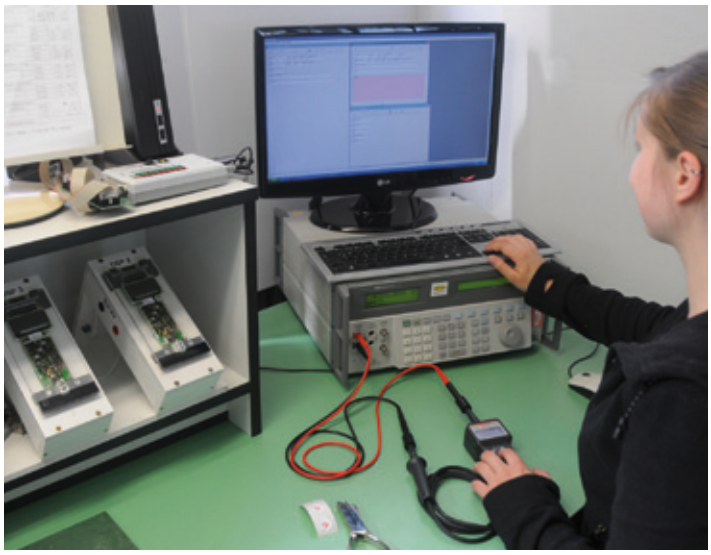
Accessories VarioSafe EXM

Art.-no.	Type	Description	EXM 24	EXM 25
72025	EXM-AK9	EXM NiMH-accu , 9 V, 170 mAh / 40 h operation	■*	■*
72026	EXM-LB3	EXM Lithium-battery 3,6 V,2400 mAh / 300 h operation	■*	■*
82010	WID	Test lines for resistance and current	■	■
72010	SPA	Voltage test prods for EXM 3,4,5,24,25, 1000 V, CAT IV	■	■
72011	SPA-HS2	Voltage test prods for EXM 25, 2000 V, only Ex 1		□
72012	SPA-HS7	Voltage test prods for EXM 25, 7000 V, only Ex I limited		□
82011	EXM-LED	Leather ever-ready bag, 18 x 19 x 5 mm for EXM	□	□
72328	NG4	Plug-in power supply NG4 for charging the NiMH-accu	□	□
82318	TMZ 25	Temperature measurement accessory for EXM 25, without sensor		□
82107	EXM-TFU	Universal sensor for TMZ, 250 mm		□
82108	EXM-TFO	Surface sensor for TMZ, 110 mm		□
82319	MZ 1005	Clamp-on ammeter for EXM 25, 1000 A AC / DC, incl. battery		□
62015	BAT-AlMn	Battery MN 1604 Plus Power Duralock, Al-Mn-block 9 V, black / gold for ex-areas for clamp-on ammeter MZ 1005		□

■ included in the delivery □ available accessories *Scope of delivery 1 power block according to type

Service





Repair

Our measurement and test devices undergo continuous quality checks and production controls by VDE and EXAM. Most modern electronics and high-quality materials guarantee a long life.
In case a tester should show visible damage or a significant malfunction, we repair the device.

Therefore please send back the device with a short description of failure to:

Rudolph Tietzsch GmbH & Co. KG
Service
Willringhauser Str. 18
58256 Ennepetal

or inform us in advance by sending an e-mail message to:

service@tietzsch.de

You receive an estimate of costs after first examination by our technicians.

Calibration / Repeated examination

Repeated examinations with voltage testers exceeding 1 kV may not exceed the time-limit of 6 years.
Recently, this also applies to voltage testers up to 1000 V.
Depending on range of application and operation conditions, regularly repeated examinations within shorter deadlines and if necessary a recalibration can be recommendable.

Please send back the device to be checked and place an order to:

Rudolph Tietzsch GmbH & Co. KG
Service
Willringhauser Str. 18
58256 Ennepetal

or inform us in advance by sending an e-mail message to:

service@tietzsch.de

All devices must pass a predetermined test plan. When successful, they receive a test label as well as a detailed test protocol.

Take-back of used equipment

In case one of our devices should be irreparably damaged, if desired by the customer, we undertake the correct and environmentally compatible disposal free of charge. We are registered with:
EAR foundation “stiftung elektro-altgeräte register” (German national clearing house) under WEEE-Reg.-Nr. DE 61591058

In this case opt for a new equipment from our company, ask for fidelity rebates.

Please send the device to be disposed with following reference “Please dispose correctly” to:

Rudolph Tietzsch GmbH & Co. KG
Take-back
Willringhauser Str. 18
58256 Ennepetal

Explanation of symbols

Functions

Voltage testing up to ... V

Continuity / Self-test up to ... kΩ

Phase test


Phase sequence test

Digital evaluated phase sequence test without accessible electrode

Acoustic signal at voltage


Acoustic signal at continuity

Frequency measurement

Current measurement

Temperature measurement

Voltage tests work without battery

Push-button for load

Safety / Range of application


EC conformity

Mark of approval from VDE in accordance with IEC/EN 61243-3

Overvoltage category

Can be used in moist environments Protection category

For indoor and outdoor applications


Approved for Ex-areas


Suitable for grounded voltage


Suitable for ungrounded voltage

Suitable for tests in accordance with VDE 0413-4 / protective conductor test

Suitable for tests in accordance with VDE 0413-2 / Insulation test

Equipment labelling


Attention! Observe user instructions!


Mark of approval from VDE test authority


EC conformity


Device for live working


Push-button (switched)


This devices may not be disposed with the domestic waste (WEEE 2002/96 EG).


Approved for Ex-areas in accordance with ATEX (DIN IEC 60079-0 and DIN IEC 60079-11)

11-2014

Quality creates safety.

Rudolph Tietzsch GmbH & Co. KG
Willringhauser Straße 18
D-58256 Ennepetal

Fon +49 2333 / 75989
Fax +49 2333 / 75257

info@tietzsch.de
www.tietzsch.de