User Instructions

MultiSafe HS 11

Two-pole high voltage tester

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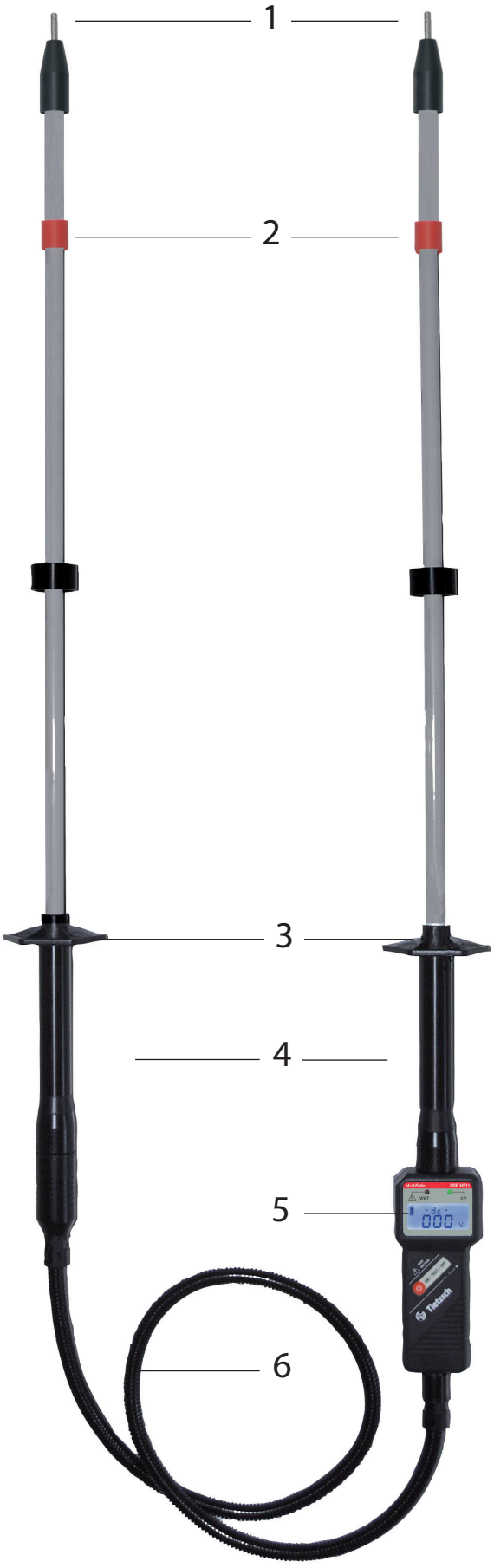
HS_11_BA_01-2022



1. Test electrode
2. Red limiting mark
3. Limiting disc
4. Handle
5. Display
6. Connecting line

Symbols on the instrument

Attention! Observe user instructions!

EC conformity

Device for live working

This device has to be disposed of according to the applicable regulations and laws (for Europe: WEEE 2012/19/EU). Please contact service@tietzsch.de in regard to the return of old devices.

1. Application

The MultiSafe HS 11 is a two-pole voltage tester for alternating voltages up to 11 kV AC and direct voltages up to 16 kV. It is particularly suitable to detect voltage quickly and securely at capacitor banks and links of converters. The HS 11 is approved for indoor and outdoor applications.
Voltage is signalised by one LED and the value is indicated digital on the LCD. With the self-test the functions of the testing device can be checked easily and quickly. Stand-by and abscence of voltage are signalised by a green LED.

1.1 Intended use

This device is intended for use in applications as described in the operating instructions only.
Thus, it is imperative to observe the notes on safety and the technical data in conjunction with the ambient conditions. Any other form of usage is not permitted and can lead to accidents or destruction of the unit.
Any misuse will result in the expiry of all guarantee and warrantly claims.

2. Safety Precautions

In order to maintain flawless technical safety conditions, and to assure safe use, it is imperative that you read these operating instructions thoroughly and carefully before placing your instrument into service, and that you follow all instructions contained therein otherwise there is danger of life!

<u>Please observe the following safety precautions:</u>

- The voltages indicated on the MultiSafe HS 11 are rated voltages. The voltage tester may only be used in systems working within this rated voltage range.
- Faultless indication of display values is only guaranteed between -15°C ... +55°C.
- Hold the instrument only beneath its hexagonal limiting discs, do not touch test probes and test electrodes.
- The test probes may only be connected up to the red limiting mark to live or grounded plant components. With all other parts of the voltage tester the distance has to be kept as big as possible.
- The maximum on-time of the HS11 is 15 minutes.
- Only qualified persons may carry out work with these device. The user needs to be farmiliar with the risks for measuring voltage and compliance with safety regulations and the proper use of the voltage detector.
- Workings may only be performed with appropriate personal protective equipment. Observe the minimum object distance to other plant components that are energized or earthed and use personal protective equipment as specified by national accident prevention regulations (in Germany: DGUV V3 or EN 50110-1).
- Just before they are used, and as possible afterwards as well, voltage testers need to be checked to ensure they function correctly. Check the instrument by performing the self-test / function test. If the display of one or several systems fails in the course of checking, the instrument must not be used again.
- The red LED ⚠ only serves as a indication for hazardous voltage and not as measurement value.
- This voltage detector may not permit to clearly indicate the absence of operating voltage in case of interference voltage because of its relatively high internal impedance. When the indication "voltage present" appears on a part that is expected to be disconnected of the installation, it is recommended confirming by an other means that there is no operating voltage on the part to be tested.
- Before use, the battery compartment must be closed.
- The voltage tester may only be dismantled by authorized personnel.
- Before using the device check the housing and connecting line for visible damage. If damages are visible the voltage tester may not be placed into operation. In case of strong dirt contamination, the tester must be cleaned before use.
- The tester has to be stored in a clean and dry environment.

3. Putting into operation

3.1 General information

Switch-on: Press button ⏻ . The HS 11 **does not** switch on automatically at voltage. For voltage tests the self-test must be performed (see 3.3) first.
Switch-off: Press button ⏻ until „oFF" is indicated. When no voltage is applied, the device switches off automatically after 90 s. The display illumination switches off after approximately 5 s when no voltage is applied.

3.2 Battery
Your instrument is already supplied with a 9 V block battery.
The battery status is indicated by a battery symbol on the display (see section 5). You need to change the battery of the device before continuing with testing when the empty battery symbol on the display flashes.

3.3 Testing correct display and function (self-test)
Voltage testers must be checked if they function correctly, briefly before and whenever possible after the use, for determining absence of voltage.

Step 1 – Test of the display
The device must be switched off for the self-test. Press and hold button ⏻. All display segments light up on the display, the backlight changes between red and white and the 2 LEDs lights up and an acoustic signal occurs. Release button ⏻ „TEST“ is indicated on the display.

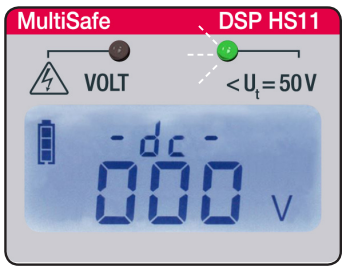
Step 2 – Check test circuit and protective resistors
Hold the test electrodes together for about 5 seconds until „Rdy“ appears and the green LED lights up, then the MultiSafe HS 11 is ready for operation.to the

Note!
In case the function test has not been successful, check the following:
Test electrodes short-circuited? Test electrode screwed tightly? Battery empty?
Repeat the function test

Attention!
If one of the displays fails during the self-test – even if only partial failure occurs – or if the instrument does not indicate a function standby, the voltage tester may not be placed into operation!

4. Measuring and testing
4.1 Testing voltage
Attention!
The function test (see 3.3) has to be performed successfully. Connect both test electrodes securely with the test points.The following indication appears:

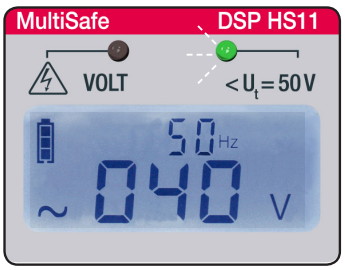
No operating voltage
No voltage:



*Display illumination white, **off** after 5 s*

Green LED lights up
Display illumination white or off
Display 000V

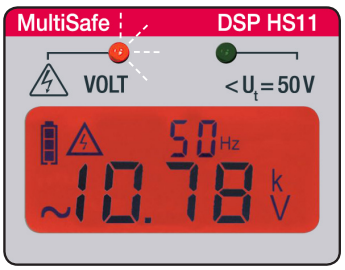
Interference voltage <Ut:



*Display illumination **white***

Green LED lights up
Display illumination white
Display voltage value

Operating voltage
Voltage >Ut:



*Display illumination **red***

Red LED lights up
Display illumination red
Indication value for voltage level,
frequency and ⚠ symbol appears
on the display, acoustic signal appears

Attention!
With voltage of more than 11 kV AC / 16 kV DC „OL“ without numerical value appears and an acoustic signal accurs. In this case the test must be canceled immediately!

Note: The voltage-tester is equipped with an steady function monitoring. If, during voltage tests „ - U - Err“ is displayed, the tester is faulty and may not be placed into operation!

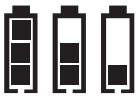
Voltage test phase to phase
When voltages between two phases (eg L1 - L2) are tested, deviations (approx. ± 4%) can occur due to capacitive influences. For exact results, first check the voltage L1 - L2 and then turn the tester to L2 - L1. Average the two results.

Frequency indication
Simultaneously to voltage indication, the upper display line indicates the mains frequency in Hz.
With direct voltage „dc" is indicated.

AC/DC Polarity
Type of voltage is indicated by symbole „~" for AC and no sign or „–" for DC. „-" appears when minus is applied with dirct voltage to the test electrode with display part. When plus is applied to the test electrode with display part, no sign appears.

Application in moist environments
The HS 11 is approved for indoor and outdoor applications. In case of precipitation, the device has to be wiped dry before usage. Workings in case of dense fog and impaired visibility are not approved.

5. Energy source
5.1 Check battery condition
The latest battery status is symbolised by a three-stage battery indicator on the display.

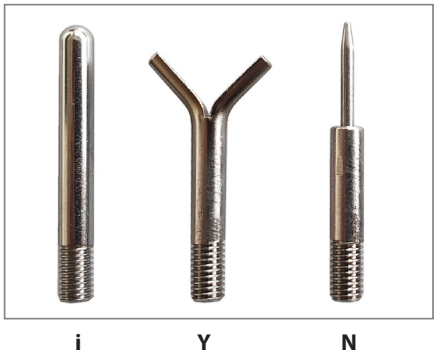

indication of battery status


replace the battery soon – few measurements possible
(Battery symbol flashing: no further measurements admissible!)

Attention!
When the empty battery symbol flashes, then no more measurements can be performed and the battery has to be replaced immediately.
The device requires a 9 V block battery IEC 6LR61 / 6LF22 / 6LP3146 (alkali-manganese).

5.2 Replacing the battery
Loosen the screw at the back of the instrument which secures the battery compartment lid, remove the lid. Let the battery drop out of the battery compartment with its CAT IV protection cover and exchange it. Therefore, snap the battery contacts onto the 9 V block battery and insert the battery together with the CAT IV protection cover into the battery compartment. Put the lid back on the battery compartment and screw it tight.
Regularly make sure that the battery of your device does not leak. In case it does, you have to replace the electrolyte completely and to insert a new battery.
In case of a long storage period, remove the battery from the device.
Note:
Included in the scope of delivery is one battery. These battery is not to be re-charged. Attempting to recharge it may cause risk to personal safety and damage to the equipment. The battery may not to be opened. Depleted batteries must not be disposed with the domestic waste. Please, return batteries at a local retailer or municipal recycling depot. Return is free of charge and required by law.

6. Change test electrodes
The MultiSafe DSP HS 11 can be equipped with different test electrodes.
To do this, loosen the stainless steel electrode and screw in the new electrode and tighten it hand-tight.
After this, perform the function test (see 3.3)!



Design of electrodes
The following test electrodes are available for the MultiSafe HS 11:

i = semicircular electrode (standard)
N = peaked electrode
Y = bifurcated electrode

7. Maintenance

7.1 General information

In order to preserve the water-repellent properties of the white epoxy-tubes, the surface should be rubbed once a year with a silicone grease.

We recommend a solid casing for transportation. Always keep the voltage tester dry and clean. The housing can be cleaned with a cloth dampened with isopropyl (alcohol) or soapy water.

7.2 Repeated inspection

According to EN 61243-2 it is necessary to carry out repeated examinations.
It should not exceed the time-limit of 6 years.
Depending on operation conditions and frequency, a previous inspection may be recommendable. The serial number with the date of manufacturing (WWYYNN=**W**eek **Y**ear **N**umber) is imprinted on the backside of the device. Repeated inspections are offered by the manufacturer and indicated by the inspection plate.

8. Repair

Repair is only allowed by the manufacturer or explicitly authorised repair shops.
In case of damages on the device or failure of the function test according to section 3.2 or for detailed inspection/calibration, please contact: ***service@tietzsch.de*** or send the device and a description of failure back to the manufacturer (address see page 1).

9. Limited warranty and limitation of liability

By continuous quality checks and production controls, most modern electronics and high quality materials we guarantee that the tester will be free from defects in material and workmanship for two years.
This warranty does not cover batteries, improper handling, not intended purpose, opening the housing, improper storage or damages from accidents.

No other warranties such as fitness for a particular purpose will be given.
We are not liable for any indirect, incidental or consequential damages or losses arising from any cause or theory.

10. Accessories

Art.-no. 84330
Solid box with aluminium frame 124 x 27 x 12 cm

Art.-no. 84331
Bag with shoulder belt and ring bolt 111 x 28 cm

Test electrode

i **Y** **N**

Art.-no. 89312 ***i*** *semicircular electrode (standard)*
Art.-no. 89316 ***Y*** *bifurcated electrode*
Art.-no. 89321 ***N*** *peaked electrode*

11. Technical Data MultiSafe HS 11

Nominal voltage range:	50 ... 11000 V AC / 16000 V DC
Frequency range:	DC / 15 ... 500 Hz
Input resistance:	30 MΩ
Measurement current:	0.53 mA at 16000 V DC
Surge voltage strength :	> 300 kV (test report available)
Indicator group:	I and III
Display:	red LED for voltage > U_t = 50 V green LED for standby / absent of voltage two-line LCD with backlight white / red for indication of voltage, frequency, type of voltage, and battery condition acoustic signal at > Ut = 50 V
Measurement range / limit deviation:	50 … 1000 V DC ± 2.5% + 5 digits 50 … 1000 V AC ± 5% + 10 digits 1.01 … 16,00 kV DC ± 2.5% + 5 digits 1.01 … 11,00 kV AC ± 5% + 10 digits
On-time:	15 min auto-off when absent of voltage
Construction:	for indoor and outdoor installations
Operating temperature:	–15° C … + 55° C
Self-test:	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 test probes made of epoxy with moulded resistor decades, approx. 15 MΩ each probe impact resistant, dust proof plastic casing with unbreakable display cover, protection category IP 65 twin insulated PUR hose 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:	1.0 kg / approx. 1150 x 200 x 60 mm

Tietzsch
Measurement + testing devices
Quality creates safety.

CE

EC-Declaration of Conformity

Hereby we explain that those corresponds to below designated products in its conception and design as well as in circulation the execution the fundamental safety and health requirements of the Community brought by us. In the case of a change of the product not co-ordinated with us this explanation loses its validity.
This statement does not include a warranty of properties.

Description of the electrical equipment:

- type/model: **MultiSafe HS 11 / HS 11UK / HS 11MA**
- function: two-pole high voltage detector
- year of construction: from 2015 on

The agreement with further valid guidelines/regulations following for the product is explained:

- EMC-Directive (2014/30/EU) of 26. February 2014
- ROHS-Directive (2011/65/EU) of 8. June 2011 and
  amending Annex II (2015/863/EU) of 31. March 2015 and
  Directive (2017/2102/EU) for amending Directive 2011/65/EU of 15. November 2017
  Implemented by EN IEC 63000:2019-05
- WEEE-Directive (2012/19/EU) of 4. July 2012

Reference to the harmonized standards:

- Live working – Voltage detectors -
  Part 2: Resistive type to be used for voltages of 1 kV to 36 kV a.c.
  EN 61243-2:1997 + A2:2002
  (For details see preliminary hazard analysis in accordance with EN 14121-1
  from 05.07.2012)

Year of the CE characteristic assignment: 2021

Personal data of the signer:
Michael Tietzsch (CEO)

Ennepetal the 08. Okt. 2021 .....