

Contents

1. Symbols 2. Introduction / Features / Contents
3. Safety 4. Control elements and connections
5. Preparation and safety measures
6. Voltage test
7. Single-pole phase test
8. Continuity test
9. Rotary field indication
10. Measurement point illumination
11. Maintenance
12. Cleaning
13. Battery replacement
14. Technical index

1. International Electrical Symbols marked on instrument or in instruction manual:

⚠ Warning of a potential danger, comply with instruction manual

▲ Reference manual, attention required

⚡ Caution! Dangerous voltage

◻ Double or reinforced insulation

CE Conforms to standards of European Union: EN61010-1/EN61010-031/EN61326.

⚠ This instruction manual contains information and references necessary for safe operation and maintenance of the instrument. Before using the instrument refer to the instruction manual and comply with all sections.

⚠ Failure to read the instruction manual or comply with warnings and references within can result in serious bodily injury or damage to instrument.

2. Introduction / Features / Contents

The 72-9395 is a voltage and continuity tester and indicator for universal applications. This voltage tester is constructed in accordance with the newest safety precautions and guarantees safe and reliable measurement and testing. Voltage testers are a valuable tool for all testing and measurement in industrial applications as well as for household uses.

2-1 The 72-9395 voltage tester features:

- 2-1-1 IP65 and CAT IV 600V compliance and conforms to standards of European Union: EN61010-1/EN61010-031/EN61326.
- 2-1-2 Test probe covers (reduces risk of injury)
- 2-1-3 LED display

- 2-1-4 AC/DC measurement up to 690V
- 2-1-5 Single-pole phase test
- 2-1-6 Continuity test with LED display and buzzer
- 2-1-7 Double-pole rotary direction indicator

2-2 Note: After unpacking please inspect tester for damage and confirm all parts are present. The package contains the following:

- 2-2-1 72-9395 voltage tester
- 2-2-2 (2) AAA batteries
- 2-2-3 Instruction manual

3. Safety measures

⚠ In order to avoid electrical shock, please follow safety procedures and regulations regarding excessive voltage contact and pay close attention when working with voltages exceeding 75VDC or 50VAC.

⚠ Before use please ensure that the test leads and the test instrument are in working order.

⚠ When using this instrument only the handles of the probes can be touched.

⚠ This instrument should be used within the ranges specified (see specific technical data) and within voltage systems up to 690V.

⚠ Prior to usage ensure instrument function by testing on known voltage source.

⚠ Discontinue use if one or more functions fail or if no function is indicated.

⚠ Do not measure under damp conditions.

⚠ High accuracy is only obtained within a temperature range of -10~50°C, and relative humidity <85%.

⚠ If the operator's safety can't be guaranteed due to potential faults of the product or voltage system, discontinue use immediately. See below.

3-1 Safety can no longer be insured if the instrument:

- 3-1-1 Shows obvious damage
 - 3-1-2 Does not carry out the desired measurement.
 - 3-1-3 Has been stored too long under unfavorable conditions.
 - 3-1-4 Has been subjected to mechanical stress during transport.
- When using this instrument all safety guidelines must be adhered to.

3-2 Appropriate usage

This instrument may only be used under the conditions and for purposes for which it was intended. For this reason the safety references and technical data

(including environmental conditions and dry environment usage) must be followed.

⚠ Operational safety is no longer ensured if any modifications or changes are made to the instrument.

⚠ This instrument should only be opened by an authorized service technician.

4. Control elements and connections

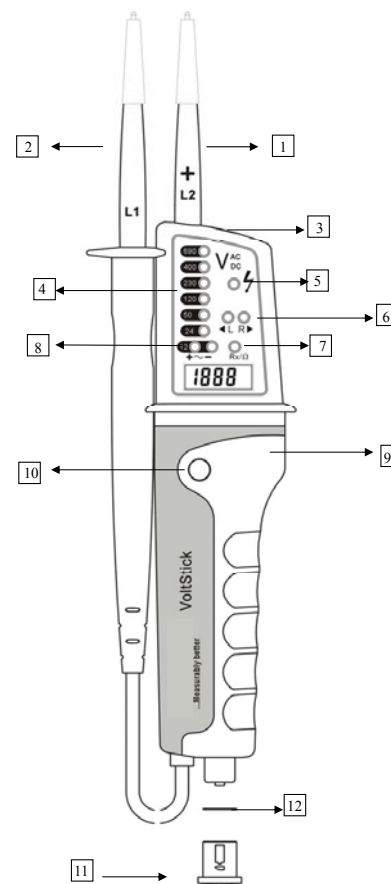


Figure 3

- 4-1 Instrument probe + (L2)
- 4-2 Handle test probe - (L1)
- 4-3 Measurement point illumination
- 4-4 LED for voltage display
- 4-5 LED for single-pole phase test
- 4-6 LED for left/right rotary field
- 4-7 LED for continuity
- 4-8 Polarity indication
- 4-9 Button on rear side for measurement point lighting
- 4-10 Contact electrode for double-pole determination of phase rotation and single-pole phase test
- 4-11 Battery cover
- 4-12 Insulated bar

Note: You should remove the insulated bar from battery box to ensure the instrument powers on correctly. Please refer to section 13 for battery replacement.

5. Preparation and safety measures

⚠ Refer to and follow manual point 3 for safety measures. Perform functional tests prior to using instrument.

Function/self test:

- 5-1 Test the voltage tester on a known source.
- 5-2 Connect test probes. Alert tone should be audible and the LED Rx/Ω (7) should be illuminated.

▲ Voltage display of the instrument is also functional when no battery is present.

6. Voltage test

⚠ Refer to and follow manual section 3 for safety measures.

6-1 Before testing, first connect both probes with unit under test (UUT). Voltage tester won't operate when testing voltages are lower than 12V.

6-2 The voltage is indicated by LED (4). For AC voltage the "+" and "-" LEDs are illuminated and additional signal sound is audible.

6-3 For positive voltage, the "+" LED in LED (4) is illuminated and sound is audible.

6-4 The instrument is equipped with a LED row, comprising of 12V, 24V, 50V, 120V, 230V, 400V and 690V.

6-5 For DC voltage, the polarities of the voltage displayed refer to the instrument test probe (L2).

7 Single-pole phase test

7-1 When carrying out single-pole phase test, touch the contact electrode (10) and connect instrument test probe L2 to unknown contact.

7-2 Single-pole phase test starts at AC voltage of approximately 100V. (pole > 100VAC).

7-3 When using single-pole phase test to determine external conductors the display function may be impaired under certain conditions (for example insulating body protective equipment)

7-4 The single-pole test is not appropriate to determine whether a line is live or not.

For this purpose the double-pole voltage test is always required.

▲ A signal sound indicates the phase.

▲ The LED (5) is illuminated in the display.

8 Continuity test

⚠ Make sure that UUT (unit under test) is not live.

8-1 Check that UUT is not live by carrying out a double-pole voltage test.

8-2 Connect both test probes with UUT. A signal sound is audible and the LED for continuity Rx/Ω (7) is illuminated.

9 Rotary field indication

This voltage tester is equipped with a double-pole rotary field indicator.

⚠ Refer to and follow manual point 3 for safety measures.

The rotary phase indication is always active. The symbols R ► or ◀ L are always displayed, however the rotary direction can only be determined within a three-phase system. Here the instrument indicates the voltage between two external conductors.

9-1 Connect the instrument test probe with the phase L2 and the handle test probe with the phase L1. Touch contact electrode (10).

9-2 The voltage and the rotary field direction are displayed.

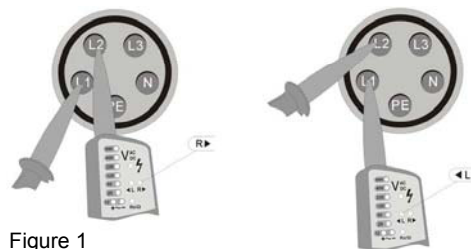


Figure 1

(The illustration above is for three phase electrical system)

R ► Signifies that the supposed phase L1 is the actual phase L1 and the supposed phase L2 is the actual phase L2. =====>Right rotary field

L ◀ Signifies that the supposed phase L1 is the actual phase L2 and the supposed phase L2 is the actual phase L1. =====>Left rotary field

▲ When re-testing with exchanged test probes the opposite symbol to be illuminated.

10 Measurement point illumination

This voltage tester is equipped with a illuminated measurement point feature which makes working under low lighting conditions easier.

To activate lighting press button (9) on back of instrument.

11 Maintenance

When using the 72-9395 tester in compliance with the instruction manual, no particular maintenance is required. If functional errors occur during normal operation stop using and contact your nearest authorized service center.

12 Cleaning

Prior to cleaning remove voltage tester from all measurement circuits. When instrument needs cleaned, do so by using a damp cloth and a mild household detergent. Never use harsh detergents or dissolvents. After cleaning do not use the unit for a period of approximately 5 hours to allow unit to completely dry

13 Battery replacement

If signal sound is no longer audible, LEDs are no longer illuminated, or measurement point lighting isn't working proceed with the battery test and replacement. Be certain that you are using a good battery before every use.

13-1 Completely disconnect tester the measurement circuit.

13-2 Turn the battery cover in direction of the arrow, then open and remove.

13-3 Remove discharged batteries.

13-4 Replace with new batteries, (2) AAA lining up the correct polarity.

13-5 Insert the battery cover and close it tightly.

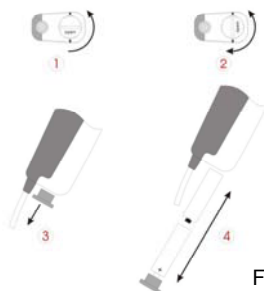


Figure 2

Please consider your environment when disposing of used batteries.

⚠ Please comply with local regulation regarding the disposal of used batteries.

14 Technical index

14-1	LED voltage range	Up to 690V
14-2	LED resolution	±12, 24, 120, 230, 400, 690V
14-3	Voltage detection	Automatic
14-4	Acoustic signal	Yes
14-5	Polarity detection	Full range
14-6	Range detection	Automatic
14-7	Response time	<0.1S
14-8	Frequency range	0~400Hz
14-9	Internal basic load	Approx. 2.5W at 690V
14-10	Peak current	Is<0.3A / Is (after 5s) <3.5mA
14-11	Operation time	30 S
14-12	Recovery time	10 min
14-13	Auto-power on	≥12V AC/DC
14-14	Single-pole test	Voltage range 100~690V
	Frequency range	50~400Hz
14-15	Overvoltage protection	690VAC
14-16	Continuity test	Resistance range. 0~400kΩ
		Accuracy Rn + 50%
14-17	Rotary field indication	Voltage range 100~690V
		Frequency 45~65Hz
		Double-pole and contact
14-18	Power supply	(2) AAA batteries
14-19	Power consumption	Max. 30mA/ Approx. 450mW
14-20	Temperature range	-10℃~~50℃
14-21	Overvoltage class	CAT IV 600V
14-22	Degree of contamination	2
14-23	Safety complying with	IP65
		EN61010-1/EN61010-031/EN61326
14-24	Weight	5 lb. (including batteries)
14-25	Dimensions (H x W X D)	11" x 2" x 1 1/4"

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Manufacturer:
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Springboro, OH 45066