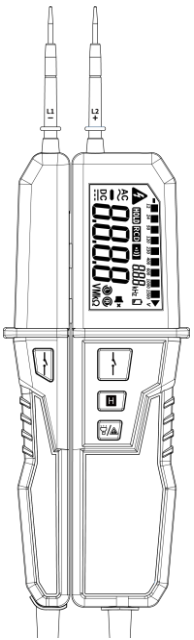
M80

Voltage Tester Duspol 1500V DC



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1. Security Information

⚠ WARNING

Take special attention to this instrument, as improper use may cause electric shock or damage to the instrument. During use, it is necessary to follow the usual safety regulations and fully comply with the security measures specified in the user manual.

To fully utilize the functions of the instrument and ensure safe operation, please carefully read and follow the instructions in this manual.

The instrument complies with the security requirements of IEC 61010-1, IEC 61243-3:2014, EN 60529, and EN 61326-1 for electronic testing instruments, and belongs to Class II pollution. The overvoltage standards are CAT IV 600V and CAT III 1000V.

Please follow the security guidelines to ensure safe use of the instrument.

1.1 Security Instructions

1.1.1 When using this instrument, the operator must comply with all standard security regulations regarding the following two points:

- Security regulations for preventing electric shock.
- Security regulations for preventing incorrect use of instruments.

⚠ **To ensure your physical security, check and ensure that the instrument is in good condition before using it.**

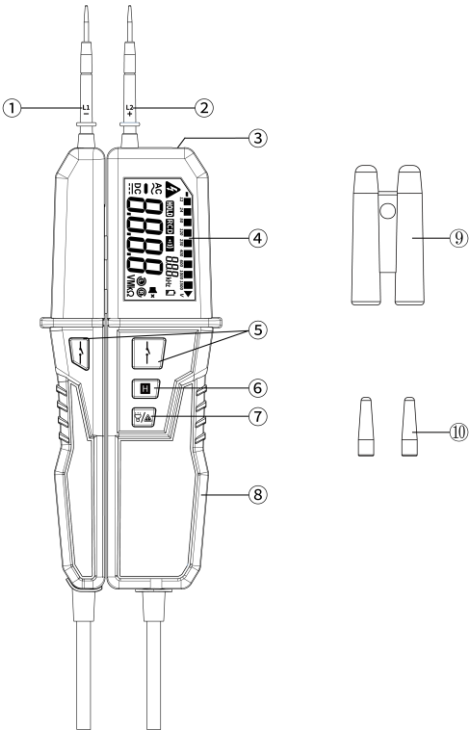
1.2 Security symbols

Symbols used in the instrument body and user manual:

⚠	Warning. An important security symbol. Refer to the user manual before using the device. Incorrect use may cause damage to the device or its components.
~	AC(Alternating Current)
⎓	DC(Direct Current)
	Working in power-on status is allowed
⏚	Grounding
⧈	Double insulation protection
CE	Compliant with European Union instruction
	High voltage warning
1000V CAT III	1000V CAT III overvoltage protection
600V CAT IV	600V CAT IV overvoltage protection

2. Descriptions

2.1 Names of Components



①Probes L1

②Probes L2

③Light

④LCD monitor

⑥HOLD key

⑦Lights key

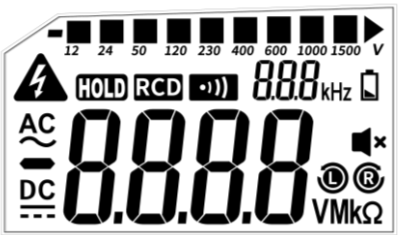
⑧Battery cover

⑨Probe protective case (out)

2.2 Descriptions of Keys

1. RCD Key: 2. HOLD Key: 3. Lighting Key:

2.3 LCD Monitor



Form1 Display symbols

	High voltage hazard indication
	Battery undervoltage indication
	Mute mode indicationt
	Negative data
DC	DC
AC	AC
	Continuity
Hz,kHz	Frequency Hz, Frequency KHz
Ω,kΩ,MΩ	Resistance value units: Ω、KΩ、MΩ
	Positive phase sequence
	Negative phase sequence
HOLD	Data holding
V	Voltage unit: volts

3. Operation Instructions and the Use Scope of the Tester

Voltage and resistance tester, including test of AC/DC voltage (including three-phase AC), phase sequence indication of three-phase AC, frequency test, RCD test, Continuity test, simple voltage detection without battery power supply, mute selection, overvoltage indication and low voltage indication, etc. The attached flashlight provides convenience for using the tester in dark environments. This tester comes with a probe protection case, which can protect the probe and, more importantly, protect the operator. After using this tester, put on a protective cover and it is best to place it in the toolbox to prevent the tester's probe from causing physical harm. Be sure not to put the tester into the pocket. This tester can be used in various situations, including homes, factories, power departments, etc.

This tester has the following characteristics:

1. The attached probe protective case can ensure physical security.
2. LCD voltage and frequency display.
3. The maximum test of AC/DC voltage can reach 1200V AC/1500V DC.
4. The resistance test range can reach 1M Ω.
5. Continuity test.
6. Indicate the phase sequence of three-phase AC voltage.
7. Buzzer mode and mute mode.
8. Testing voltage without battery.
9. Lighting function.
10. Low battery indication and indication of voltage exceeding range.
11. RCD testing.
12. Automatic shutdown.
13. Wake-up function.

4. Security Issues During Use

- Before testing, please confirm that the test probe and testing instrument are in good condition.
- When using this device, hands can only touch the handle part.
- The equipment should be used within the specified range (based on technical specifications) and with a voltage not exceeding 1200V AC/1500V DC, and please ensure that the equipment is in good condition before using it.
- To ensure the normal operation of the tester, please first test a known voltage value object.
- When one or several functions fail or there is no functional indication, the tester cannot be used any more.
- Do not use it in damp conditions.
- The display is only good when the temperature range is -5 ℃~+40 ℃ and the relative temperature is<85%
- If the instrument is not used for a long time, the battery should be removed to prevent damage to the instrument.
- Use a damp cloth and mild detergent to clean the instrument, do not use abrasives or solvents
- To avoid electric shock caused by incorrect readings, the battery should be replaced immediately when the instrument displays the "  " symbol.
- Before opening the bottom case or battery cover, the probe should be removed from the tested circuit.
- If the operator's safety cannot be guaranteed, the instrument must be sent for repair.
- If the following situations occur, security is no longer guaranteed:
    1. There is obvious damage.
    2. The function of the tester is inconsistent with its normal function.

3. It has been stored for a long time under unsuitable condition.
4. Mechanical compression during transportation.

5. Voltage Testing

Following the security testing specifications mentioned in Point 4 of the manual, the operation of this tester is as follows.

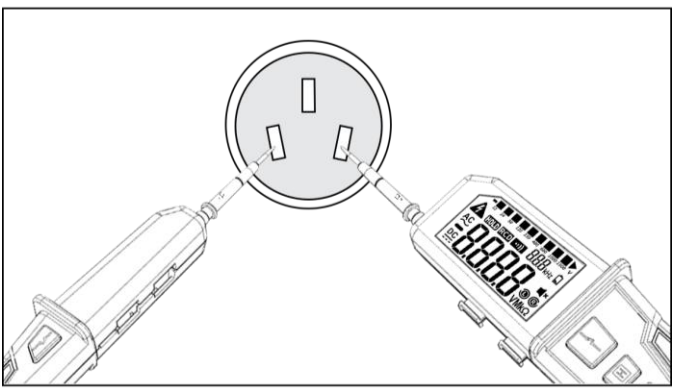


Fig.3

1.Before the formal testing, select a known voltage object, and then connect the two probes to it, such as a 220V socket, to ensure the accuracy of the tester (see Figure 3). This tester cannot test AC or DC voltages below 5V. When testing a voltage of<5Vac/dc, the LCD will display "---".

2.When testing DC voltage, if the probe L2 is connected to the positive pole of the tested object and L1 is connected to the negative pole of the tested object, the LCD will display the corresponding voltage. Otherwise, the LCD will display "-". To determine the positive and negative poles of the object being

tested, connect either probe to the object being tested. If the "-" symbol on the LCD of the tester is not lit, it indicates that the end connected to L2 is the positive pole, and the other end connected to L1 is the negative pole.

3. When testing AC voltage, the two probes can be connected to either end of the object being tested. The LCD displays "AC" and the corresponding voltage value as well as the frequency of the tested AC voltage.

Note:

When testing AC voltage, the screen may display L and R , and the phase sequence indication at this time is an uncertain state. The L symbol or R symbol may be displayed, and even be displayed alternately. Only when testing three-phase power systems can the symbol L/R be displaye correctly and stably.

⚠ **WARNING**

This instrument cannot test voltage for a long time. If it is necessary to test for a long time, it is necessary to follow the requirement of disconnecting the test for more than 240 seconds after testing for more than 30 seconds.

6.Testing Without Battery

A simple voltage test can be performed when the battery of the tester is depleted or there is no battery. Connect the two probes to the tested object. If the voltage of the tested object is greater than or equal to 50V, the LED at the bottom of the “ ” key will light up, indicating that the tested object carries dangerous voltage. As the tested voltage increases, the LED will gradually become brighter.

7.Resistance and Continuity Testing

Before testing, it is necessary to ensure that the object being tested is not charged; Determine if the conductor is charged by testing the voltage at both ends of the

conductor with the two probes.

Connect two probes at both ends of the tested object. If the resistance is within the range of 0~10k Ω, the continuity symbol " " will not be displayed, and the buzzer will sound continuously; If the resistance is between 10k Ω and 1000k Ω, the LCD will display the tested resistance value and the buzzer will not sound.

8. Phase Sequence Testing (Three-phase AC Phase Sequence Indication)

This test must follow the security testing rules mentioned in Point 3 of the manual.

- When testing phase sequence under strong electric field interference or strong radiation, the test results may be unstable.
- The rotation test is indicated by symbol and symbole R, and it is only applicable to three-phase AC systems.

1. Range of three-phase voltage test: 57V-400V (50Hz 60Hz).
2. When testing, hold the main end of the tester with the hand (fingers on the handle part), as shown in the figure below, and connect the probe L2 to any one of the three phases of the electric circuit, and connect the probe L1 to any other phase.
3. One of R or L will be displayed, and if one of the probes is moved to another phase, the other (L or R) will be displayed.
4. If the positions of two probes are exchanged, L or R will also be displayed.
5. At the same time, the LCD displays the corresponding voltage value, indicating or displaying the relative voltage , not the three-phase voltage.

Diagram of three-phase power system testing (Fig.4)

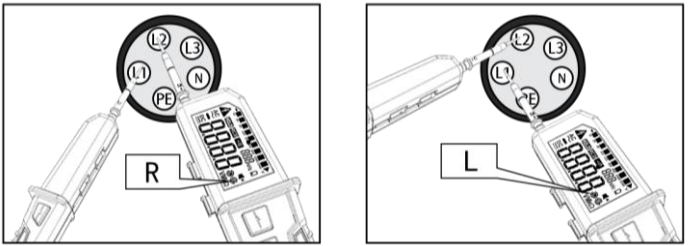


Fig.4

9. RCD Testing

In the process of voltage testing, the purpose of reducing interference voltage can be achieved by connecting a circuit with a lower impedance than the tester in normal test mode between the two probes, which is the RCD circuit system. When conducting RCD trip test, in the normal voltage test mode, the two probes are connected to the L and PE terminals of the 230V AC system. At the same time, press the RCD key“ ”on both probes. If the circuit generates an AC current greater than 30mA at this time, the RCD system will trip.

It should be noted that RCD cannot be tested for a long time. At 230V, the testing time should be less than 10s and continuous test is not allowed. After one test is completed, wait for 60s before proceeding to the next one.

⚠ **WARNING**

It is prohibited to press two RCD keys during non RCD testing. Otherwise, it will cause the danger of burning the instrument and even harm the physical security of the operator.

10. Mute Mode Selection

The tester can enter mute mode when in standby or in use. Press and hold the

flashlight key for about 2 seconds, and there will be a "beep" sound. If the mute symbol“ ” appears on the LCD, it indicates that the tester has entered mute mode. In this mode, except for the buzzer not sounding, all functions are the same as normal mode. If you want to return to normal mode (buzzer mode), press and hold the flashlight key again for about 2 seconds, and there will be a "beep" sound. The mute symbol “ ”on the LCD will disappear.

11. Lighting Function

When using the tester in night or dark environments, the lighting function can be used; Gently touch the flashlight key on the panel of the tester with the fingers, and the lighting at the top of the tester will turn on, making it convenient for your work. After use, simply touch the key again to turn off the lighting.

12.Data Holding Function

During the use of the tester, the testing data (voltage value and frequency value) can be held by lightly touching the HOLD key on the tester, making it easy to read and record; Tap the HOLD key again to release the data holding and return to normal testing status.

13.Battery Replacement

During the use of the tester, when the instrument displays the symbol“ ”, the battery should be replaced immediately.

Please follow the steps below to replace the battery (as shown in Figure 5):

1. End the testing status of the tester and disconnect the two probes from the tested object.
2. Unscrew the screw that fixes the battery cover with a screwdriver.
3. Remove the battery cover.
4. Remove the battery to be replaced.

5. Install a new battery according to the battery symbol and direction on the panel.
6. Insert the battery cover and fasten it with screws.

Note: Batteries belong to garbage containing harmful substances, and in most cases, batteries can be collected at fixed recycling points. Please follow the effective recycling rules in various regions, and then dispose of replaced batteries according to the disposal rules for old and wasted batteries.

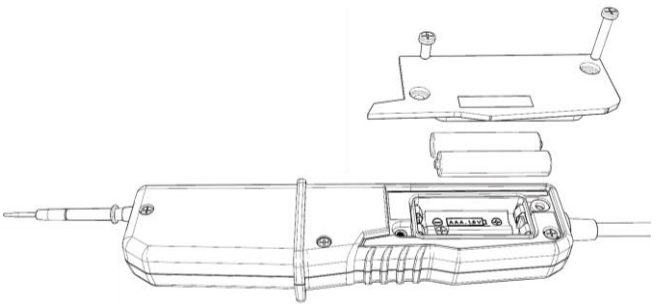


Fig.5

14. Equipment Cleaning

Before cleaning, disconnect the tester from the circuit being tested. If the instrument gets dirty during daily use, wipe it with a damp cloth or a small amount of mild household cleaning agent. Do not use acidic cleaning agents or solvents for cleaning. Do not use this tester for approximately five hours after cleaning.

15.Technical Indicators

Function	Range	Resolution	Accuracy	Remarks
DC voltage	200V	0.1V	±(2% reading+3 digits)	-
	1500V	1V	±(2% reading+3 digits)	
AC voltage	200V	0.1V	±(2% reading+3 digits)	Frequency 50~500Hz
	1200V	1V	±(2% reading+3 digits)	
	200V	0.1V	±(3% reading+8 digits)	Frequency 500~1000Hz
	1200V	1V	±(3% reading+8 digits)	
Resistance	1MΩ	1kΩ	±(5%reading+5 digits)	< 10kΩ buzzing

Input impedance: ELV-AC 50V/50Hz 320 kΩ.

Current peak: ≤ 3.5mA 1000V Power off state; < 350mA 1000V Power on state.

Working time ton/toff: ≤ 230V without limitation; > 230V ton 30 seconds/toff 240 seconds.

16. Function Description

Automatic recognition of test type: Display "---" when the AC/DC voltage is less than 5V or in no testing status.

Frequency range: 40Hz~1kHz, resolution 1Hz, error ± (3%+5d).

Buzzer: Supports two modes(buzzer and mute).

Voltage polarity indication: automatic.

Range selection: automatic.

RCD test: voltage 230V (40-500Hz); Current: 30mA~40mA, testing time<10s, recovery time: 60s;

Continuity test:<10k Ω buzzer.

Phase sequence test: three-phase AC voltage range: 57V~400V, frequency 50Hz~60Hz.

Power supply: 1.5V x 2 AAA battery.

Battery undervoltage indication: about less than 2.5V.

Working temperature: -5 ℃~+40 ℃

Storage temperature: -20 ℃~+60 ℃

Working humidity: ≤ 85% RH

Overvoltage protection level: CAT IV 600V, CAT III 1000V

Pollution level: Level 2.

Waterproof and dustproof level: IP65.

Wake up: Press the key to wake up or wake up when testing an AC/DC voltage greater than 12V.

Automatic shutdown: Shut down automatically for about 30 seconds in no testing status.

Assistance

WARRANTY CONDITIONS

This instrument is warranted against defects in materials and workmanship, in accordance with the general terms and conditions. During the warranty period, defective parts can be replaced, but the manufacturer reserves the right to repair or replace the product. If the instrument is to be returned to the after - sales service or to a dealer transportation is borne by the customer. The shipment must, however, be agreed. Attached to dispatch an explanatory note about the reasons of the instrument must always be inserted. For shipping only use the original packaging. Any damage caused by the use of non-original packing shall be charged to the customer. The manufacturer accepts no responsibility for damage caused to people or objects.

The warranty does not apply in the following cases:

- Repair and / or replacement of accessories and battery (not covered by warranty).
- Repairs made necessary because of a misuse of the instrument or of its use with no compatible devices.
- Repairs made necessary due to improper packaging.
- Repairs made necessary due to work carried out by unauthorized personnel.
- Modification of the instrument without the explicit permission of the manufacturer.
- Use not provided for in the specifications of the instrument or in the instruction manual.

ASSISTANCE

If the instrument does not operate properly, before contacting the Customer Service, check the status of the battery and wear of the cables and replace them if necessary. If the instrument continues to manifest malfunctions check if the procedure of use of the same is in accordance with what is indicated in this manual. If the instrument is to be returned to the after - sales service or to a dealer transportation is borne by the customer. The shipment must, however, be agreed. Attached to dispatch an explanatory note about the reasons of the instrument must always be inserted. For shipping only use the original packaging; any damage caused by the use of non-original packing shall be charged to the customer.

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