USER MANUAL v.1.1

Jefferson Voltage Tester JEFVOLTST02

JEFFERSON VOLTAGE TESTER



WARNING!

Read carefully and understand all ASSEMBLY AND OPERATION INSTRUCTIONS before operating.

Failure to follow the safety rules and other basic safety precautions may result in serious personal injury





Introduction

This unit is a portable AC voltage and magnetic field detector. It can be used to check whether a cable or socket is live or distinguish between a live wire and a neutral wire, or used to detect AC/DC magnetic field. It has illumination function and two sensitivity degrees (high and low sensitivity degrees) for you to select from in AC voltage detection function.

Features:

- This detector can be used to check whether a cable or wire has AC voltage, locate breakpoint in a wire, or distinguish between a live wire and a neutral wire.
- This detector can be used to detect AC/DC magnetic field.
- The AC voltage detection function has two sensitivity degrees (high and low sensitivity degrees) for you to select from and to meet requirements of different applications.
- The LCD display indicates the present intensity of the detected ac voltage signal through the analog bar graph.
- Safe non-contact AC voltage detection
- Auto power off: After about 5 minutes of inactivity
- Ilumination function

Specifications

Operation Environment:	Temperature: 0°C ~ 40°C Relative Humidity: < 85% Altitude: 2000 meters The detector is designed to be used indoors.
Storage Environment:	Temperature: -10°C ~ 50°C Relative Humidity: < 85%
AC Voltage Detection Range:	AC 48 ~ 1000V (for low sensitivity detection mode) AC 12 ~ 1000V (for high sensitivity detection mode) Frequency Range: 50Hz/60Hz
Magnetic Field Detection Range:	DC Magnetic Field: 0.3mT AC Magnetic Field: 0.2mT @ 50 ~ 60Hz, frequency 0 - 400Hz (The higher the frequency of the AC magnetic field, the higher the required magnetic field intensity for the detector to detect this AC magnetic field.)
Measurement Category:	CAT III 1000V
Battery:	1.5V battery, AAA or equivalent, 2 pieces
Size:	155mm X 31.5mm X 23.5mm
Weight:	About 62g (including batteries)

Structure

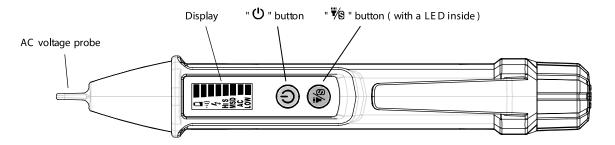


Figure 1. Top View

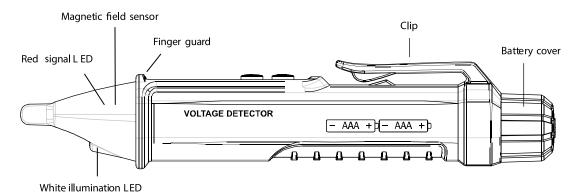


Figure 2. Side View



This button can be used to:

- Turn on or off the detector.
- Simultaneously enable or disable the built-in buzzer and the red signal LED.

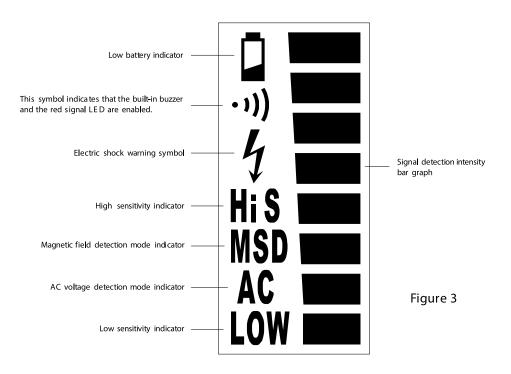


This button can be used to:

Switch among low-sensitivity AC voltage detection mode, high-sensitivity AC voltage detection mode, and magnetic field detection mode. Turn on or off the white illumination LED.



Understanding the display



Operation instruction

How to Turn on or off the Detector

To turn on the detector, press and hold down the Power button for about 1 sec. The red signal LED flashes once, the built-in buzzer sounds a beep, and the green backlight turns on. The display shows the symbol '')) indicating that the built-in buzzer and the red signal LED are enabled. The detector stays in the detection mode last selected, and the display shows the lowest bar of the signal detection intensity bar graph.

To turn off the detector, press and hold down the Power button for about 2 secs. The display and backlight turn off, the red signal LED flashes twice, and the buzzer sounds two beeps.

How to Enable or Disable the Built-in Buzzer and the Red Signal LED When the detector turns on, the built-in buzzer and the red signal LED are enabled and the display shows the symbol as an indicator.

How to Switch among the Detection Modes

When the detector is on, you can briefly press the button to switch among the low-sensitivity AC voltage detection mode, the high-sensitivity AC voltage detection mode, and the magnetic field detection mode; the display will show the corresponding symbol(s) to indicate the present detection mode.

When the detector is in the low-sensitivity AC voltage detection mode, the display shows the symbols "LOW" and "AC" as an indication. When the detector is in the high-sensitivity AC voltage detection mode, the display shows the symbols "Hi S" and "AC" and the LED in the "button lights. When the detector is in the magnetic field detection mode, the display shows the symbol "MSD" as an indication. Whenever the detector enters a detection mode, the red signal LED will flash once and the buzzer will sound a beep if the red signal LED and the buzzer are enabled.

How to Use the Illumination Function

When the detector is on, press and hold down the button for about 2 secs to turn on or off the white illumination LED; the red signal LED will flash once and the buzzer will sound a beep if the buzzer and the red signal LED are enabled.

Detecting AC Voltage

- 1. Make sure that the detector is on. According to your detection requirement, use the 8 Button to select the low-sensitivity AC voltage detection mode ("LOW" and "AC" are displayed) or the high-sensitivity AC voltage detection mode ("Hi S" and "AC " are displayed).
- 2. To check the detector:

Move the detector's ac voltage probe close to a known ac voltage source (such as a standard power socket). The displayed signal detection intensity bar graph should increase, and, if the red signal LED and the buzzer are enabled, the buzzer should sound beeps and the red signal LED should flash.

If the detector behaves as described above, the detector's ac voltage detection function is good and can be used to detect ac voltage.

3. To detect AC voltage:

Move the detector's ac voltage probe close to the cable or socket to be checked. When the detector detects ac voltage, the displayed signal detection intensity bar graph will increase. Moreover, if the red signal LED and the buzzer are enabled, the buzzer will sound beeps and the red signal LED will flash when the detector detects ac voltage. The closer the ac voltage probe is to the cable or socket, the stronger the detected ac voltage signal, and the bigger the displayed signal detection intensity bar graph. Moreover, if the red signal LED and the buzzer are enabled, the frequency of the buzzer beeping and the frequency of the red signal LED flashing will also increase as the detector's ac voltage probe moves closer to the cable or socket.

When the intensity of the detected ac voltage signal is high enough, the colour of the display backlight will change from green to red and the display will show to remind you to use caution for safety.

- 4. Usually, the colour of the display backlight is red when the detector detects a live wire, and is green when the ac voltage probe approaches a neutral wire or a ground wire. Because of variety of ac voltages and power sockets, sometimes the colour of the display backlight can not be used to distinguish between a live wire and a neutral wire. That is to say, sometimes red backlight does not indicate a live wire and green backlight does not indicate a neutral wire or ground wire. As a resort, you can distinguish between a live wire and a neutral wire through the intensities of the signals of the live wire and neutral wire.
- 5. Before you use the detector to test and distinguish between a live wire and a neutral wire, you should space the wires far enough apart. If they can not be spaced far enough apart, distinguish between them through the intensities of the signals of them.
- 6. When you finish using the detector, press and hold down the "()" button for about 2 secs to turn off the detector.

Detecting Magnetic Field

- 1. Make sure that the detector is on. Briefly press the button until the symbol "MSD" appears on the display. Now the detector is in the magnetic field detection mode.
- 2. To check the detector:

Move the detector's magnetic field sensor (see Figure 2) close to an object (such as a magnet or a coil with ac current) which is producing magnetic field. Change the direction of the magnetic field sensor until the detector gives alarm as described below:

When the detector detects a DC magnetic field (such as the magnetic field generated by a magnet), the entire signal detection intensity bar graph should be steadily shown on the display. Moreover, if the red signal LED and the buzzer are enabled, the red signal LED should light continuously and the buzzer should sound continuously when the detector detects an DC magnetic field.



Detecting Magnetic Field Cont.

When the detector detects an AC magnetic field (such as the magnetic field generated by a coil with ac current), the entire signal detection intensity bar graph should flash on the display. Moreover, if the red signal LED and the buzzer are enabled, the red signal LED should flash and the buzzer should sound discontinuously when the detector detects an AC magnetic field.

If the detector behaves as described above, the detector's magnetic field detection function is good and can be used to detect magnetic field .

Note: When the magnetic lines of force of the magnetic field are perpendicular to the detector panel where the buttons are located, the signal detected by the detector is relatively strong, and when the magnetic lines of force of the magnetic field are parallel to the detector panel, the signal detected by the detector is very weak and the detector will probably not give any signal indication or alarm.

3. To detect magnetic field:

Move the detector's magnetic field sensor (see Figure 2) close to the object to be tested or to the desired position. If the detector does not give signal indication (alarm), vary the direction of the magnetic field sensor in various ways for possible signal indication.

When the detector detects a DC magnetic field, the entire signal detection intensity bar graph will be steadily shown on the display. Moreover, if the red signal LED and the buzzer are enabled, the red signal LED will light continuously and the buzzer will sound continuously when the detector detects a DC magnetic field. When the detector detects an AC magnetic field, the entire signal detection intensity bar graph will flash on the display. Moreover, if the red signal LED and the buzzer are enabled, the red signal LED will flash and the buzzer will sound discontinuously when the detector detects an AC magnetic field.

4. When you finish using the detector, press and hold down the " utton for about 2 secs to turn off the detector.

Auto Power Off

If no signal is detected and no button is pressed for about 5 minutes, the detector will turn off automatically to save battery charge. When the batteries are too low, the detector will also turn off automatically. When the detector turns off automatically, the red signal LED will flash twice and the buzzer will sound two beeps.

NOTE

The detector can only be used to detect ac voltage and magnetic field. Do not use the detector to detect any voltage or magnetic field which is out of the detector's detecting range.

Don't use the detector if it is damaged or operates abnormally. Do not use the detector when its display is blank. When you use the detector to detect ac voltage, the object under test may be electrically live even if the detector display does not indicate presence of ac voltage and the buzzer does not beep and the red signal LED does not light. During detection, what the detector indicates is effective voltage which is generating an intense enough electric field. If the electric field generated by an ac voltage is not intense enough, the detector can not indicate presence of this ac voltage. The intensity of the electric field is affected by shield of wire (or conductor) under test, the thickness and type of the insulation of the wire (or conductor), the distance between the detector ac voltage probe and the wire (or conductor), the structure of the socket under test, and etc.

Because of the direction of the detector, the insulation of the object under test, and the limit of detecting distance of the detector, when you use the detector to detect magnetic field, magnetic field may be present even if the detector does not give any signal indication or alarm. When using the detector, keep your fingers behind the finger guard on the detector.

To avoid electric shock, do not touch any conductor with hand or skin. And do not ground yourself while using the detector. Before and after each use of the detector, verify the detector's operations by detecting a known ac voltage and magnetic field. Use caution when working with voltage above 30V ac rms or 42V ac peak. Such voltages pose a shock hazard.

Do not operate the detector where explosive gas, vapor or dust is present.

If there is interference electric field or interference magnetic field in the environment, the detector may indicate presence of an ac voltage or magnetic field even if the wire (or conductor) under test does not have ac voltage or generate magnetic field. To avoid interference and wrong indication of the detector, do no use the detector where there is strong interference of environmental electric field or magnetic field.

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Replacing the Batteries

When the low battery indicator " • a ppears on the display, the batteries are not high enough. If the charge level of the batteries continues to decrease, the detector will turn off automatically to protect the batteries.

When the indicator " " appears on the display or the detector can not work normally, you must replace the batteries immediately. Before battery replacement, make sure that the detector has turned off. Remove the battery cover by counterclockwise turning the battery cover. Replace the old batteries with new ones of the same type, make sure that the polarity connections are correct (see the battery polarity/ orientation marks on the case of the detector). Reinstall the battery cover and turn it clockwise to secure it in place.

Warning: To avoid electric shock, do not use the detector if the battery cover is not installed and firmly secured in place.

Tip: When the batteries are just connected to the positive and negative battery connectors, the red signal LED will flash twice and the buzzer will sound two beeps.

Cleaning

Periodically wipe the detector case with a damp cloth and a little mild detergent. Never use abrasives and solvents. Do not use the detector until it is totally dry.

Note: Do not let any liquid enter the detector case.

Symbols

- ▲ Caution, risk of danger, refer to the Instruction Sheet before use
- A Caution, risk of electric shock
- CE Conforms to European Union directives
- Only to be used in dry indoor areas.
- The equipment is protected throughout by double insulation or reinforced insulation.

Declaration

- 1. This Instruction Sheet is subject to change without notice.
- 2. Our company will not take the other responsibilities for any loss.
- 3. The contents of this Instruction Sheet can not be used as the reason to use the detector for any special application

DISPOSAL OF THIS ARTICLE

Dear Customer,

If you at some point intend to dispose of this article, then please keep in mind that many of its components consist of valuable materials, which can be recycled.

Please do not discharge it in the garbage bin, but check with your local council for recycling facilities in your area.





EC DECLARATION OF CONFORMITY

We, Jefferson Professional Tools & Equipment, as the authorised European representative of the manufacturer, declare that this equipment conforms to the requirements of the following:



Safety standard EN 61010-1: 2010+ A1:2019 EN 61010-2-030:2010 EMC directive 2014/30/EU Low Voltage Directive 2014/35/EU

Notified Testing Body:

Intertek Testing Services Shanghai Building No.86, 1198 Qinzhou Road (North), Shanghai 200233, China

DECLARATION OF CONFORMITY

We, Jefferson Professional Tools & Equipment, as the authorised UK representative of the manufacturer, declare that this equipment conforms to the requirements of the following:



Electrical Equipment (Safety) Regulations 2016 BS EN 61010-1: 2010+ A1:2019, BS EN 61010-2-030:2010

Notified Testing Body:

Intertek Testing Services Shanghai Building No.86, 1198 Qinzhou Road (North), Shanghai 200233, China

Description:

Jefferson Voltage Meter JEFVOLTST02

Signed:

Stephen McIntyre

Operations Manager

Smilte

Date:

12 November 2023

Name and address of manufacturer or authorised representative:

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