



USER MANUAL

Non-Contact Voltage Detector + Flashlight VP54



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1 Advisories

1.1 Copyright

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1.2 Quality Assurance

The Quality Management System under which these products are developed and manufactured has been certified in accordance with the ISO 9001 standard. FLIR Systems, Inc. is committed to a policy of continuous development; therefore, we reserve the right to make changes and improvements on any of the products without prior notice.

1.3 Documentation

To access the latest manuals and notifications, go to the Download tab at: <https://support.flir.com>. It only takes a few minutes to register online. In the download area you will also find the latest releases of manuals for our other products, as well as manuals for our historical and obsolete products.

1.4 Disposal of Electronic Waste



As with most electronic products, this equipment must be disposed of in an environmentally friendly way, and in accordance with existing regulations for electronic waste. Please contact your FLIR representative for more details.

2 Introduction

The VP54 detects the presence of AC voltage at electrical outlets, junction strips, electrical circuits, and other devices without having to contact the device physically.

The VP54 has three, selectable, sensitivity ranges of detection: 24 V AC, 90 V AC, and 190 V AC. All ranges operate in the frequency range of 45 to 65 Hz and will detect voltage up to 1000 V AC. Tactile vibration, audible beeper, and visual cues alert the user when AC voltage is detected.

2.1 Features

- Tactile vibration, audible beeper, and visual alarms
- Selectable sensitivity ranges
- Multicoloured LED indicators
- Bright flashlight
- Dual LED illuminator at probe tip
- ON/OFF button with auto power OFF (APO)
- CAT IV 1000 V safety rating
- Low battery indication
- Device fault indication
- Durable pocket clip
- 3 m (9.8 ft.) drop-tested
- Limited three-year warranty

3 Safety

NOTE

- This device will not detect DC voltage.
- Before and after each use, verify proper operation by testing on a known 'live' circuit (within the stated range of this device).
- Not a comprehensive diagnostic instrument but a basic device to detect nearly all common wiring errors. Refer all indicated problems to a qualified electrician.
- Static electricity can randomly trigger this device, this is normal.
- In bright light conditions, the indicators will be less visible.



WARNING




- Please read, understand and follow all warnings, cautions, safety information and instructions before operating this device. Failure to do so can result in death or serious injury.
- Keep hands and fingers on the body of the probe when measuring, do not touch live circuits.
- Risk of electric shock and burn. Contact with live circuits could result in death or serious injury.
- This device may not detect voltage if the user is not holding the tester, the device is at too long a distance from the voltage source, or if the tested frequency exceeds the specified range.
- Do not attempt to detect voltages that exceed the specified range.



CAUTION

- Use caution with voltages > 30 V AC.
- If the device indicates that voltage is not present, voltage may still be present, use caution and double check test results.
- Never assume neutral or ground wires are de-energized. Neutrals in multi-wire branch circuits may be energized when disconnected and must be retested before handling.
- Voltage detection performance is affected by varying electrical socket designs and insulation thickness/type; use caution.
- Do not use this device if it is wet, does not power up properly, appears damaged, or does not function properly.
- Always wear protective clothing and eye protection.
- Do not use this device for purposes that have not been outlined in the user documentation.
- Do not attempt to repair this device; there are no user-serviceable parts.
- Do not expose this device to extremes in temperature or humidity.

3.1 Safety Symbols

| | |
|---|---|
|  | Read, understand, and follow all safety information, warnings, and cautions before attempting to operate this device. Failure to do so can result in death or serious injury. |
|  | Risk of electrical shock exists under normal use. |
|  | Double insulation. |

4 Descriptions

4.1 Product Description

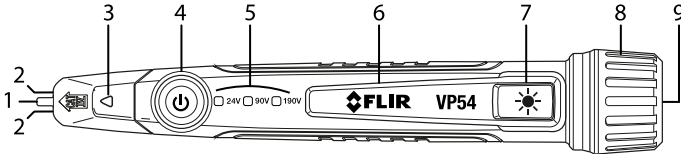





Figure 4.1 Product Description


1. AC voltage sensor tip
2. Tip lighting
3. Alarm indicator (amber)
4. Power button (short press ON, long press OFF) and range select button (short press)
5. Selected range indicators (green)
6. Pocket clip
7. Flashlight ON/OFF button (short press ON, long press OFF)
8. Battery compartment screw cap
9. Flashlight


4.2 Button, Indicator, and Beeper Descriptions


| | |
|---|---|
|  | Power/range select button. Short press to switch the meter ON; Long Press to switch OFF. When the meter is powered, short press to select the detection range. |
|  | Flashlight button. Short press to switch the flashlight ON; Long press to switch flashlight OFF (detector does not operate when the flashlight is ON). |
|  | Alarm indicator. When voltage is detected, the alarm indicator flashes amber, the beeper sounds, and the device vibrates. |

| | |
|---|--|
| <p> <input checked="" type="checkbox"/> 24V <input type="checkbox"/> 90V <input type="checkbox"/> 190V </p> | <p>Sensitivity range selection indicators. Change the range by short pressing the power/range button. The indicator for the selected range glows green.</p> <p>If the selected green range indicator flashes, the batteries are weak and require replacement.</p> <p>If the device fails and requires service, all green range selection indicators will flash.</p> <p>The meter powers up in the last selected range.</p> |
| <p>Beeper</p> | <p>The beeper sounds when voltage is detected and when a button is pressed. The beeper alert rate quickens as the sensor is moved closer to the voltage source.</p> |

5 Operation

| |
|--|
|  WARNING |
| Do not use this instrument before testing on a known live circuit. |

| |
|--|
|  WARNING |
| Keep hands and fingers on the probe body, away from the probe tip. |

| |
|---|
|  CAUTION |
| Static electricity and other stray sources of energy can randomly trigger the sensor, this is normal. Random triggering is more likely in high sensitivity mode (24 V) but can also occur in the other modes. |

5.1 Sensitivity Ranges

The VP54 has three sensitivity ranges: 24 V AC (high sensitivity), 90 to 1000 V AC, and 190 to 1000 V AC. The excitation voltage required to activate the meter alarm is much lower in the 24 V AC high sensitivity mode. Short press the power/range button to change the range. The indicator for the selected range glows green when selected.

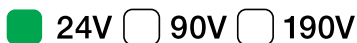



Figure 5.1 The indicator next to the 24 V range is glowing, indicating that the 24 V range is selected.

5.2 Basic Operation

| |
|---|
|  WARNING |
| Test on a known live circuit before testing on an uncertain circuit. Varying electrical socket designs and insulation thickness/types can affect voltage detection performance. |

1. Short press the power button to switch the meter ON. The meter vibrates briefly, beeps twice, and the tip lights switch ON.
2. When ON, the alarm indicator should be OFF, indicating proper operation and no voltage detected.
3. Once powered, short press the power/range button to select the desired range. The range indicator, for the selected range, will glow green. The beeper will sound when the range is changed.
4. Hold the AC voltage sensor tip very close to the voltage source.

- If voltage is present, the meter vibrates, beeps, and the alarm indicator flashes amber in colour. The alarm flashing and beeper rate quicken as the sensor is moved closer to the voltage source.



Figure 5.2 Alarm indicator flashes amber when voltage is detected.

- To switch OFF, long press the power button.

5.3 Flashlight

Short press the flashlight button to switch the flashlight ON; Long press the button to switch it OFF. Note that the VP54 does not operate while the flashlight is ON.

5.4 Low Battery Indication

The selected range indicator flashes green when the batteries need replacing. After 1 minute of flashing, the meter automatically switches OFF. See the *Maintenance* section for battery replacement instructions.



Figure 5.3 The selected range flashes when the batteries need replacing.

5.5 Faulty Operation Indication

If the device fails, all the green range selection indicators will flash simultaneously. If this occurs, return the device for service or replacement. Do not attempt to use the device in this state.



Figure 5.4 If the device is faulty, all the range indicators will flash simultaneously.

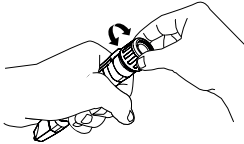
5.6 Auto Power OFF (APO)

The meter switches OFF after 3 minutes of inactivity. The flashlight switches OFF after 30 minutes, regardless of activity.

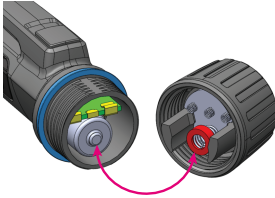
6 Maintenance

6.1 Battery Replacement

1. Switch the meter OFF before replacing the batteries.
2. Unscrew the cap, as shown.



3. Replace the 2 x 'AAA' batteries, observing correct polarity (positive poles face up).
4. Secure the cap, ensuring that the plastic ring in the battery cap aligns with the battery, as shown.



5. Check that the device powers up correctly before attempting to make measurements.



Never dispose of used batteries or rechargeable batteries in household waste. As consumers, users are legally required to take used batteries to appropriate collection sites, the retail store where the batteries were purchased, or wherever batteries are sold. **Disposal:** Do not dispose of this instrument in household waste. The user is obligated to take end-of-life devices to a designated collection point for the disposal of electrical and electronic equipment.

6.2 Cleaning and Storage


With the meter OFF, clean with a damp cloth and mild detergent, do not use harsh detergents, abrasives or solvents.

Use compressed air to clear dust from the flashlight lens. Clean the lens with a commercial lens cleaner if necessary.

Ensure that the device is dry before performing tests.

When storing for long periods, remove the batteries and store separately.

7 Specifications

| | |
|---------------------------|---|
| Voltage detection ranges | 90 to 1000 V AC |
| | 190 to 1000 V AC |
| | 24 to 1000 V AC (high sensitivity mode) |
| Category safety rating | CAT IV 1000 V |
| Frequency range | 45 to 65 Hz |
| Operating temperature | -10 to 50°C (14°F to 122°F) |
| Storage temperature | -20 to 60°C (-4°F to 140°F) |
| Dimensions | 163 x 29.2 x 26.5 mm (6.4 x 1.2 x 1.0 in.) |
| Weight | 59 g (2.1 oz.) including batteries |
| Power | 2 x 1.5 'AAA' (LR03) batteries |
| Battery life | 5 hours continuous operation with flashlight OFF |
| Low battery indication | Selected green range indicator flashes |
| Automatic Power OFF (APO) | Device powers OFF after 3 minutes of inactivity |
| | For flashlight: After 30 minutes (regardless of activity) |
| Faulty device indication | All green range indicators flash simultaneously when device requires servicing |
| Drop-proof | 3 m (9.8 ft.) |
| IP Rating | IP54 |
| Compliance | Conforms to UL STD. 1436; Certified to CSA STD. C22.2 No. 160 |
| Safety | CE, ETL, RCM |
| |  |

8 Customer Support

Repair, Calibration, and Technical Support: <https://support.flir.com>.

9 Three-Year Warranty

This product is protected by FLIR's 3-Year Limited Warranty. Visit <https://support.flir.com/prodreg> to read the 3-Year Limited Warranty document.



Website

<http://www.flir.com>

Customer support

<http://support.flir.com>

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