

87V MAX Digital Multimeter

Safety Information



Lifetime Limited Warranty. See the Users Manual for the full warranty.

Go to www.fluke.com to register your Product, read the Users Manual, and find more information.

A **Warning** identifies conditions and procedures that are dangerous to the user.

Warning

To prevent possible electrical shock, fire, or personal injury, follow these guidelines:

- Read all safety information before you use the Product.
- Carefully read all instructions.
- Do not alter the Product and use only as specified, or the protection supplied by the Product can be compromised.
- Remove the batteries if the Product is not used for an extended period of time, or if stored in temperatures above 50 °C. If the batteries are not removed, battery leakage may result.

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Specifications are subject to change without notification.

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- The battery door must be closed and locked before you operate the Product.
- Comply with local and national safety codes. Use personal protective equipment (approved rubber gloves, face protection, and flame-resistant clothes) to prevent shock and arc blast injury where hazardous live conductors are exposed.
- Do not apply more than the rated voltage, between the terminals or between each terminal and earth ground.
- Do not work alone.
- Limit operation to the specified measurement category, voltage, or amperage ratings.
- Use Product-approved measurement category (CAT), voltage, and amperage rated accessories (probes, test leads, and adapters) for all measurements.
- Measure a known voltage first to make sure that the Product operates correctly.
- Use the correct terminals, function, and range for measurements.
- Do not touch voltages >30 V ac rms, 42 V ac peak, or 60 V dc.
- Do not use the Product around explosive gas, vapor, or in damp or wet environments.
- Do not use the Product if it operates incorrectly.
- Examine the case before you use the Product. Look for cracks or missing plastic. Carefully look at the insulation around the terminals.
- Do not use test leads if they are damaged. Examine the test leads for damaged insulation, exposed metal, or if the wear indicator shows. Check test lead continuity.
- Do not touch the probes to a voltage source when the test leads are connected to the current terminals.
- Connect the common test lead before the live test lead and remove the live test lead before the common test lead.
- Keep fingers behind the finger guards on the probes.
- Remove all probes, test leads, and accessories before the battery door is opened.
- Remove all probes, test leads, and accessories that are not necessary for the measurement.
- Do not exceed the Measurement Category (CAT) rating of the lowest rated individual component of a Product, probe, or accessory.
- Do not use a current measurement as an indication that a circuit is safe to touch. A voltage measurement is necessary to know if a circuit is hazardous.

- Do not use in CAT III or CAT IV environments without the protective cap installed on test probe. The protective cap decreases the exposed probe metal to <4 mm. This decreases the possibility of arc flash from short circuits.
- Do not make connections on hazardous live conductors in damp or wet environments.
- Batteries contain hazardous chemicals that can cause burns or explode. If exposure to chemicals occurs, clean with water and get medical aid.
- Repair the Product before use if the battery leaks. Battery leakage may create a shock hazard or damage the Product.
- Do not put battery cells and battery packs near heat or fire. Do not put in sunlight.
- Replace a blown fuse with exact replacement only for continued protection against arc flash.
- Do not operate the Product with covers removed or the case open. Hazardous voltage exposure is possible.
- Remove the input signals before you clean the Product.
- Use only specified replacement parts.
- Use only specified replacement fuses.
- Have an approved technician repair the Product.
- Disconnect power and discharge all high-voltage capacitors before you measure resistance, continuity, capacitance, or a diode junction.
- Remove circuit power before you connect the Product in the circuit when you measure current. Connect the Product in series with the circuit.
- Do not use the HOLD function to measure unknown potentials. When HOLD is turned on, the display does not change when a different potential is measured.

The following three warnings apply to MSHA use:

- MSHA approved for use with three Energizer P/N E91 or three Duracell P/N MN1500 1.5 volt, "AA" alkaline batteries only. All cells are to be replaced at the same time with identical part number cells in fresh air locations only.
- This multimeter is not to be used to check electrical blasting circuits.
- This multimeter is not to be connected to an electrically energized circuit in an area where permissibility is required.

Symbols

Symbol	Description
	WARNING. HAZARDOUS VOLTAGE. Risk of electric shock.
	WARNING. RISK OF DANGER.
	Consult user documentation.
	Battery
	AC (Alternating Current)
	DC (Direct Current)
	Capacitance
	Earth
	Continuity test or continuity beeper tone.
	Diode
	Double Insulated
	Fuse
	Low Pass Filter
	Ingress Protection
	Temperature Measurement
	Conforms to European Union directives.
	Certified by CSA Group to North American safety standards.
	Conforms to relevant Australian Safety and EMC standards.
	Conforms to relevant South Korean EMC Standards.
	United States Department of Labor, Mine Safety and Health Administration.

Symbol	Description
CAT II	Measurement Category II is applicable to test and measuring circuits connected directly to utilization points (socket outlets and similar points) of the low-voltage MAINS installation.
CAT III	Measurement Category III is applicable to test and measuring circuits connected to the distribution part of the building's low-voltage MAINS installation.
CAT IV	Measurement Category IV is applicable to test and measuring circuits connected at the source of the building's low-voltage MAINS installation.
	This product complies with the WEEE Directive marking requirements. The affixed label indicates that you must not discard this electrical/electronic product in domestic household waste. Product Category: With reference to the equipment types in the WEEE Directive Annex I, this product is classed as category 9 "Monitoring and Control Instrumentation" product. Do not dispose of this product as unsorted municipal waste.

Safety Specifications

Maximum Voltage between any Terminal and Earth Ground 1000 V rms

Temperature

Operating..... -15 °C to 55 °C, to -40 °C for 20 minutes when taken from 20 °C

Storage

with battery -55 °C to 60 °C

without battery -55 °C to 85 °C

Operating Humidity Non condensing (<10 °C)
90 % RH (at 10 °C to 30 °C)
≤75 % RH (at 30 °C to 40 °C)
≤45 % RH (at 40 °C to 50 °C)

Operating Altitude 2000 meters

Storage Altitude..... 10 000 meters

Battery Type..... 3 AA Alkaline batteries, IEC LR6

Safety..... IEC 61010-1, Pollution Degree 2
IEC 61010-2-033: CAT III 1000V /
CAT IV 600V

Intrusion Protection

(IP) Rating IEC 60529: IP67

Electromagnetic Compatibility (EMC)

International..... IEC 61326-1: Portable, Electromagnetic Environment

CISPR 11: Group 1, Class A,

Group 1: Equipment has intentionally generated and/or uses conductively-coupled radio frequency energy that is necessary for the internal function of the equipment itself.

Class A: Equipment is suitable for use in all establishments other than domestic and those directly connected to a low-voltage power supply network that supplies buildings used for domestic purposes. There may be potential difficulties in ensuring electromagnetic compatibility in other environments due to conducted and radiated disturbances.

Caution: This equipment is not intended for use in residential environments and may not provide adequate protection to radio reception in such environments.

Emissions that exceed the levels required by CISPR 11 can occur when the equipment is connected to a test object.

Korea (KCC)..... Class A Equipment (Industrial Broadcasting & Communication Equipment)

Class A: Equipment meets requirements for industrial electromagnetic wave equipment and the seller or user should take notice of it. This equipment is intended for use in business environments and not to be used in homes.

USA (FCC) 47 CFR 15 subpart B. This product is considered an exempt device per clause 15.103.

For complete product specifications, go to www.fluke.com to see the Users Manual.