27 II/28 II

Digital Multimeters

Safety Information

Limited lifetime warranty. See the Users Manual for the full warranty.

Go to www.fluke.com to register your product 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:

- **Read all safety information before you use the Product.**
- **Do not alter the Product and use only as specified, or the protection supplied by the Product can be compromised.**
- **Carefully read all instructions.**
- **Do not use the Product if it operates incorrectly.**
- **Do not touch voltages >30 V ac rms, 42 V ac peak, or 60 V dc.**
- **Do not work alone.**
- **Limit operation to the specified measurement category, voltage, or amperage ratings.**
- **Do not exceed the Measurement Category (CAT) rating of the lowest-rated individual component of a Product, probe, or accessory.**
- **Use Product-approved Measurement Category (CAT), voltage, and amperage-rated accessories (probes, test leads, and adapters) for all measurements.**

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Product Specifications are subject to change without notification.
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- **Do not make connections on hazardous live conductors in damp or wet environments.**
- **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 operate the Product with covers removed or the case open. Hazardous voltage exposure is possible.**
- **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 touch exposed metal on banana plugs, they can have voltages that could cause death.**
- **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.**
- **Remove circuit power before you connect the Product in the circuit when you measure current. Connect the Product in series with the circuit.**
- **Measure a known voltage first to make sure that the Product operates correctly.**
- **Use the correct terminals, function, and range for measurements.**
- **Do not use the Product around explosive gas, vapor, or in damp or wet environments.**
- **Use only specified replacement parts.**
- **Use only specified replacement fuses.**
- **Have an approved technician repair the Product.**
- **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.**
- **Disable the Product if it is damaged.**
- **Examine the case before you use the Product. Look for cracks or missing plastic. Carefully look at the insulation around the terminals.**
- **Replace a blown fuse with exact replacement only for continued protection against arc flash.**
- **Disconnect power and discharge all high-voltage capacitors before you measure resistance, continuity, capacitance, or a diode junction.**
- **Do not apply more than the rated voltage, between the terminals or between each terminal and earth ground.**
- **Measure for hazardous voltage without the Low-Pass Filter.**
- **Do not use exposed metal BNC or banana plug connectors.**
- **Keep fingers behind the finger guards on the probes.**

- **Remove all probes, test leads, and accessories that are not necessary for the measurement.**
- **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.**
- **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.**
- **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.**
- **The battery door must be closed and locked before you operate the Product.**
- **Do not disassemble or crush battery cells and battery packs.**
- **Do not put battery cells and battery packs near heat or fire. Do not put in sunlight.**
- **Use replacement cells that have closely-matched capacities, are of the same design, chemistry, age, and are from the same manufacturer. Mismatched batteries can lead to gas formation and subsequent cell rupture.**

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. RISK OF DANGER.
	WARNING. HAZARDOUS VOLTAGE. Risk of electric shock.
	Consult user documentation.
	Earth ground
	Double Insulation
	Fuse

Symbol	Description
CE	Conforms to European Union directives
IP67	No ingress of dust, 1 m of water for 30 minutes.
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 and its marking requirements. The affixed label indicates that you must not discard this electrical/electronic product in domestic household waste. Do not dispose of this product as unsorted municipal waste. For information about take-back and recycling programs available in your country, see the Fluke website.

Safety Specifications

Maximum voltage between any terminal and earth ground ..... 1000 V rms
Fuse for mA or µA inputs ..... 0.44 A, 1000 V, IR 10 kA
Fuse for A inputs ..... 11 A, 1000 V, IR 17 kA
General ..... IEC 61010-1: Pollution Degree 2
Measurement ..... IEC 61010-2-033: CAT IV 600V / CAT III 1000V

Altitude

Operating ..... 2000 m

Storage ..... 10 000 m

Temperature

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

Storage ..... -55 °C to +85 °C (without battery)
-55 °C to +60 °C (with battery)

Relative Humidity ..... 0 % to 95 % (0 °C to 35 °C)
0 % to 70 % (35 °C to 55 °C)

Battery Type ..... 3 AA Alkaline batteries, NEDA 15A IEC LR6, MSHA approved for use with three Energizer P/N E91 or three Duracell P/N MN1500 1.5 V, AA alkaline batteries only

Ingress Protection ..... IEC 60529: IP67 "No ingress of dust and 1m of water for 30 minutes."

Electromagnetic Compatibility ..... In an RF field of 3 V/m, accuracy = specified accuracy +20 counts, except 600 µA dc range total accuracy = specified accuracy +60 counts. Temperature not specified

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.

MSHA Approval 18-A100015-0