FLUKE

110/113/114/115/116/117

True-rms Multimeter

Safety Information



3-Year Limited Warranty.
See the Users Manual for the full warranty.

Go to Fluke's website at www.fluke.com to read the User Manual and find more information about your Product. To register your product, visit http://register.fluke.com.

To view, print, or download the latest manual or manual supplement, visit http://us.fluke.com/usen/support/manuals.

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

⚠⚠ Warnings

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.**
- **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 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.**
- **Do not touch voltages >30 V ac rms, 42 V ac peak, or 60 V dc.**
- **Use the correct terminals, function, and range for measurements.**
- **Do not use the Product around explosive gas, vapor, or in damp or wet environments.**
- **Do not use the Product if it operates incorrectly.**
- **Do not operate the Product with covers removed or the case open. Hazardous voltage exposure is possible.**
- **Examine the case before you use the Product. Look for cracks or missing plastic. Carefully look at the insulation around the terminals.**

- **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.**
- **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.**
- **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 the input signals before you clean the Product.**
- **Use only specified replacement parts.**
- **Use only specified replacement fuses.**
- **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 use the HOLD function to measure unknown potentials. When HOLD is turned on, the display does not change when a different potential is measured.**
- **Do not make connections on hazardous live conductors in damp or wet environments.**
- **Do not use the Auto Volts or Ⓥ *CHEK* function to measure voltages in circuits that could be damaged by this function's low input impedance (≈3 kΩ).**
- **Have an approved technician repair the Product.**
- **Replace a blown fuse with exact replacement only for continued protection against arc flash.**
- **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 put battery cells and battery packs near heat or fire. Do not put in sunlight.**

Symbols

Symbol	Description	Symbol	Description
	WARNING. RISK OF DANGER.		WARNING. HAZARDOUS VOLTAGE. Risk of electric shock.
	Consult user documentation.		Fuse
	Hazardous Voltage		Earth
	AC (Alternating Current)		DC (Direct Current)
	AC and DC		Double Insulated
	Battery (Low battery when shown on the display.)		Conforms to relevant South Korean EMC Standards.
	Certified by CSA Group to North American safety standards.		Conforms to relevant Australian Safety and EMC standards.
CE	Conforms to European Union directives.		
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.		

Symbol	Description	Symbol	Description
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.		

General Specifications

Accuracy is specified for 1 year after calibration, at operating temperatures of 18 °C to 28 °C, with relative humidity at 0 % to 90 %. Complete specifications are at www.fluke.com.

Maximum voltage between any terminal and earth ground ..... 600 V

⚠ Fuse for A input (115, 117) ..... 11 A, 1000 V, IR 17 kA Fuse

Display

Digital ..... 6000 counts, updates 4/s

Bar Graph..... 33 segments, updates 32/s

Temperature	
Operating	-10 °C to + 50 °C
Storage	-40 °C to + 60 °C
Temperature Coefficient	0.1 x (specified accuracy)/°C (<18 °C or >28 °C)
Altitude	
Operating	2000 m
Storage	10 000 m
Relative Humidity	95 % to 30 °C, 75 % to 40 °C, 45 % to 50°C
Battery	IEC 6LR61
Battery Life	
113	Alkaline: 300 hours typical, without backlight
110, 114, 115, 116, 117	Alkaline: 400 hours typical, without backlight
Safety	IEC 61010-1: Pollution Degree 2 IEC 61010-2-033
113	Measurement CAT IV 600 V
110, 114, 116	Measurement CAT III 600 V
115, 117	Measurement CAT III 600 V, 10 A
Ingress Protection	IEC 60529: IP42 (non-operating)
Electromagnetic Compatibility (EMC)	
International	IEC 61326-1: Portable Electromagnetic Environment; IEC 61326-2-2 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.