

**175/177/179**

# True-rms Multimeters

## Safety Information



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

Go to [www.fluke.com](http://www.fluke.com) to register your Product, read the Users Manual and to find more information.

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

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.**
- **Carefully read all instructions.**
- **Use the Product only as specified, or the protection supplied by the Product can be compromised.**
- **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.**
- **Disable the Product if it is damaged.**
- **Do not use the Product if it is damaged.**
- **Do not use the Product if it operates incorrectly.**
- **Do not use the Product around explosive gas, vapor, or in damp or wet environments.**
- **Do not work alone.**
- **Comply with local and national safety codes. Use personal protective equipment (approved rubber**

PN 4271766 March 2019

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


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gloves, face protection, and flame-resistant clothes) to prevent shock and arc blast injury where hazardous live conductors are exposed.

- 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.
- Only use probes, test leads, and accessories that have the same measurement category, voltage, and amperage ratings as the Product.
- Use only cables with correct voltage ratings.
- Do not exceed the Measurement Category (CAT) rating of the lowest rated individual component of a Product, probe, or accessory.
- 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 touch voltages >30 V ac rms, 42 V ac peak, or 60 V dc.
- Keep fingers behind the finger guards on the probes.
- Use only current probes, test leads, and adapters supplied with the Product.
- Connect the common test lead before the live test lead and remove the live test lead before the common test lead.
- Do not apply more than the rated voltage, between the terminals or between each terminal and earth ground.
- 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 the probes to a voltage source when the test leads are connected to the current terminals.
- 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 can damage the Product.
- The battery door must be closed and locked before you operate the Product.
- Remove all probes, test leads, and accessories before the battery door is opened.
- Replace the batteries when the low battery indicator shows to prevent incorrect measurements.

## Symbols

Symbol	Description
	Consult user documentation.
	WARNING. RISK OF DANGER.
	WARNING. HAZARDOUS VOLTAGE. Risk of electric shock.
<b>OFF</b>	Turns off the Product.
	Earth
	AC (Alternating Current)
	DC (Direct Current)
	Both direct and alternating current.
	Capacitance
	Fuse
	Double Insulated
<b>IR</b>	Minimum fuse interrupt rating.
	Continuity test or continuity beeper tone.
	Low battery. Replace battery.
<b>CE</b>	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.
<b>CAT II</b>	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.
<b>CAT III</b>	Measurement Category III is applicable to test and measuring circuits connected to the distribution part of the building's low-voltage MAINS installation.
<b>CAT IV</b>	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.

## 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 %. Accuracy specifications take the form of: ([% of Reading] + [Counts])

**Maximum voltage between any terminal and earth ground**..... 1000 V

**⚠ Fuse Protection for mA inputs**..... 0.44 A, 1000 V, IR 10 kA

**⚠ Fuse Protection for A inputs**..... 11 A, 1000 V, IR 17 kA

**Display** ..... Digital: 6000 counts, updates 4/sec

Bar Graph..... 33 segments, Updates 40x/sec

Frequency ..... 10 000 counts

Capacitance ..... 1000 counts

### Altitude

Operating..... 2000 m

Storage..... 12 000 m

### 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)

**Relative Humidity**..... (Maximum non-condensing) 90 % to 35 °C, 75 % to 40 °C, 45 % to 50 °C

**Battery Life** ..... Alkaline: 400 hrs typical

**Size (H x W x L)** ..... 4.3 cm x 9 cm x 18.5 cm

**Weight** ..... 420 g

### Safety

General..... IEC 61010-1: Pollution Degree 2

Measurement ..... IEC 61010-2-033: CAT IV 600 V / CAT III 1000 V

### Electromagnetic Compatibility (EMC)

International..... IEC 61326-1: Portable Electromagnetic Environment CISPR 11: Group 1, Class A, IEC 61326-2-2

*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.*

*Emissions that exceed the levels required by CISPR 11 can occur when the equipment is connected to a test object. The equipment may not meet the immunity requirements of this standard when test leads and/or test probes are connected.*

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.