

# 1535/1537 Insulation Tester

1-year limited warranty for the Fluke 1535.

3-year limited warranty for the Fluke 1537.

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 find more information.

## Contact Fluke

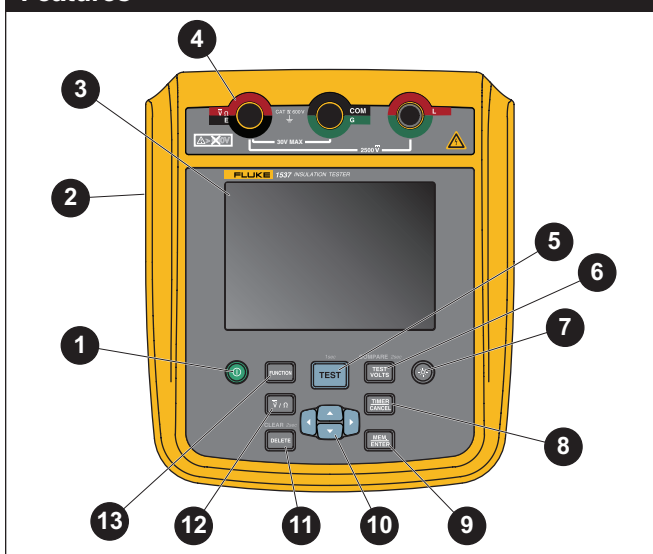
To contact Fluke, call Technical Support China at +86-400-810-3435.

Fluke Corporation operates worldwide. For local contact information, go to our website: [www.fluke.com.cn](http://www.fluke.com.cn).

To register your product, view, print, or download the latest manual or manual supplement, go to our website.

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## Features



PN 5304200  
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Item	Description	Model	
		1535	1537
1	Power On / Power Off	•	•
2	USB Port		•
3	LCD	•	•
4	Input Terminals	•	•
5	Test Start/Stop: Push and hold for 1 s to start a test. Push again to stop a test.	•	•
6	Voltage Setting: 250 V / 500 V / 1000 V / 2500 V	•	•
	Resistance Setting: value comparison		•
7	Backlight On/Off	•	•
8	Test Time Set/Cancel		•
9	Record/Enter		•
10	scrolls through the test results stored in memory for all records.		•
	scrolls through available test parameters for selected function.		
11	Delete Data		•
12	V ac / V dc / Resistance Selection		•
13	DAR / PI / DAR + PI Selection	•	•
	DAR / PI / DAR + PI / DD / Ramp Selection		

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

### Warning

To prevent possible electrical shock, fire, or personal injury:

- Carefully read all instructions.
- 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.
- Do not use the Product around explosive gas, vapor, or in damp or wet environments.
- Do not use the Product if it is altered or damaged.
- Disable the Product if it is damaged.
- Do not use the Product if it operates incorrectly.
- Use Product-approved measurement category (CAT), voltage, and amperage rated accessories (probes, test leads, and adapters) for all measurements.
- 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.

- 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.
- 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 voltages >30 V ac rms, 42 V ac peak, or 60 V dc.
- 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.
- Limit operation to the specified measurement category, voltage, or amperage ratings.
- The battery door must be closed and locked before you operate the Product.
- Connect the common test lead before the live test lead and remove the live test lead before the common test lead.
- 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.
- Keep fingers behind the finger guards on the probes.
- Replace the batteries when the low battery indicator shows to prevent incorrect measurements.
- Use the correct terminals, function, and range for measurements.
- Place test leads in proper input terminals.
- Use the correct terminals, function, and range for measurements.
- Do not work alone.
- Do not use in distribution systems with voltages higher than 660 V.
- Use only recommended test leads.
- Remove all power from the circuit under test and discharge circuit capacitance before testing resistance or capacitor with the tester.
- Results of measurement can be adversely affected by the impedances of additional operating circuits connected in parallel or by transient currents.
- Before and after testing, confirm that the Tester does not indicate the presence of a hazardous voltage. If a hazardous voltage is shown on the display, remove power from the circuit under test or allow the installation capacitance to fully discharge.
- Do not disconnect the test leads before a test has been completed and the test voltage at the terminals has returned to zero. This ensures that any charged capacitance is fully discharged.
- Use the guard terminal only as specified in this manual. Do not allow other foreign objects to come into contact with the guard terminals as safety may be compromised.
- Remove the input signals before you clean the Product.
- Use only specified replacement parts.
- Repair the Product before use if the battery leaks.
- Be sure that the battery polarity is correct to prevent battery leakage.
- Do not operate the Product with covers removed or the case open. Hazardous voltage exposure is possible.
- Have an approved technician repair the Product.

## Specifications

Display .....73.5 mm x 104 mm

Battery .....8 x AA alkaline IEC LR6

Dimensions (H x W x L) .....184 mm x 211 mm x 93 mm

Weight .....1.3 kg

### Temperature

Operating.....-10 °C to +50 °C

Storage.....-20 °C to +60 °C

Operating Humidity ..... Non condensing (<10 °C)  
 ≤80 % RH (at 10 °C to 30 °C)  
 ≤50 % RH (at 30 °C to 50 °C)

### Altitude

Operating.....2000 m

Storage.....12 000 m

Overvoltage Category .....CAT IV 600 V

### Safety

General.....IEC 61010-1, Pollution Degree 2  
 IEC 61557-1

Measurement .....IEC 61010-2-030: CAT IV 600  
 IEC 61010-2-034: 2500 V dc

Insulation Resistance Measurements.....IEC 61557-1, IEC 61557-2

Effectiveness of the Protective Measures.....IEC 61557-16

Ingress Protection (IP) Rating .....IEC 60529: IP40

### 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.*

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 subpart B. This product is considered an exempt device per clause 15.103.

Insulation Resistance Measurement		
Test Voltage	Range	Accuracy
250 V	<200 kΩ	unspecified
	200 kΩ to 5.00 GΩ	5 %
	5.0 GΩ to 50.0 GΩ	20 %
	>50 GΩ	unspecified
500 V	<200 kΩ	unspecified
	200 kΩ to 10.0 GΩ	5 %
	10.0GΩ to 100 GΩ	20 %
	>100 GΩ	unspecified

Insulation Resistance Measurement		
Test Voltage	Range	Accuracy
1000 V	<200 kΩ	unspecified
	200 kΩ to 20.0 GΩ	5 %
	20.0 GΩ to 200 GΩ	20 %
	>200 GΩ	unspecified
2500 V	<200 kΩ	unspecified
	200 kΩ to 50.0 GΩ	5 %
	50GΩ to 500 GΩ	20 %
	>500 GΩ	unspecified

V ac / V dc / Resistance Measurement (1537 Only)			
Function	Range	Resolution	Accuracy ±(% reading + Digits)
V ac	0 V to 600.0 V	0.1 V	±(2 % +10) (45 Hz to 500 Hz)
V dc	0 V to 600.0 V	0.1 V	±(2 % +10)
		0 Ω to 600.0 Ω	
Resistance	600 Ω to 6000 Ω	1 Ω	±(2 % +10)
	6.00 kΩ to 60.00 kΩ	10 Ω	

## Symbols

Symbol	Definition
⚠	WARNING. HAZARDOUS VOLTAGE. Risk of electric shock.
⚠	WARNING. RISK OF DANGER.
📖	Consult user documentation.
CE	Conforms to European Union directives.
+	Battery
)	Continuity test or continuity beeper tone. (1537 only)
□	Double Insulated
⚠ >660V	WARNING. Do not apply greater than 660 Volts.
⚡	Interference is present. Displayed value might be outside of specified accuracy.
RAMP	Ramp mode indicator
⚡	Electrical breakdown [not sure whether this is correct symbol--this version in selection tool and Word but different in PDF markup]
~	Both direct and alternating current
⊥	Earth
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 a category 9 "Monitoring and Control Instrumentation" product. Do not dispose of this product as unsorted municipal waste.

### Insulation Test Connection

Diagram illustrating the connection for an insulation test. The motor is connected to the E (Earth) and L (Line) terminals of the meter. A battery pack is shown being inserted into the top of the meter.

### USB

PC software installation: See Users Manual.

### Insulation Test

1. Press the **TEST VOLTS** button.
2. Press the **TEST VOLTS** button.
3. Select test voltage:
  - 1x = 250 V
  - 2x = 500 V
  - 3x = 1000 V
  - 4x = 2500 V
4. Press the **TEST** button to start the test.

### Polarization Index (PI)

1. Press the **FUNCTION** button. 2x = PI
2. The display shows the PI value and a 10 min. timer.

$$PI = \frac{R_{10 \text{ min}}}{R_{1 \text{ min}}}$$

### Dielectric Absorption Ratio (DAR)

1. Press the **FUNCTION** button. 1x = DAR
2. The display shows the DAR value and a 1 min. timer.

$$DAR = \frac{R_{1 \text{ min}}}{R_{30 \text{ sec}}}$$

### Program Test Voltage (1537 only)

1. Press the **TEST VOLTS** button.
2. Press the **TEST VOLTS** button.
3. Select test voltage:
  - 1x = 250 V
  - 2x = 500 V
  - 3x = 1000 V
  - 4x = 2500 V
4. Press the **TEST VOLTS** button.

### Ramp Test or Steady-State (1537 only)

1. Press the **TEST VOLTS** button.
2. Press the **FUNCTION** button. 5x
3. Select test mode: RAMP
4. Press the **TEST** button.

### Set a Timed Test (1537 only)

1. Press the **TEST VOLTS** button and **TIMER CANCEL** button.
2. Press the **TEST VOLTS** button.
3. Press the **MEM. ENTER** button.
4. Press the **TEST** button. 1 min.

### Dielectric Discharge (DD) (1537 only)

1. Press the **FUNCTION** button. 4x = DD
2. The display shows the DD value and a 1 min. discharge timer.

$$DD = \frac{I}{V \times C}$$

I = current after 1-min. discharge  
V = voltage before discharge  
C = measured object capacitor

### V ac / V dc / Resistance (1537 only)

1. Press the **TEST VOLTS** button.
2. Press the **V/Ω** button.
  - 1x = V ac
  - 2x = V dc
  - 3x = KΩ
3. Connect the test leads to the appropriate terminals.
4. Press the **TEST VOLTS** button.
5. The display shows the V ac, V dc, and KΩ values.

### Store Test Results (1537 only)

1. Press the **MEM. ENTER** button.
2. Press the **MEM. ENTER** button.

Change Character (0-9, A-Z, a-z) Move Cursor

### View Test Results Stored in Memory (1537 only)

1. Press the **MEM. ENTER** button.
2. Press the **Record** button.
3. Press the **Stored Label** button.
4. Press the **Record Details** button.

### Delete a Test Result (1537 only)

1. Press the **TEST VOLTS** button and **MEM. ENTER** button.
2. Press the **Record** button.
3. Press the **DELETE** button. = DELETE?
4. Press the **Delete** button or **Cancel** button.

### Delete all Test Results (1537 only)

1. Press the **View Stored Records** button.
2. Press the **Stored Records** button. = DELETE ALL? 2 sec.
3. Press the **Delete All Records** button or **Cancel** button.