BESANTEK

BST-IT11

INSULATION CONTINUITY METER

INSTRUCTION MANUAL

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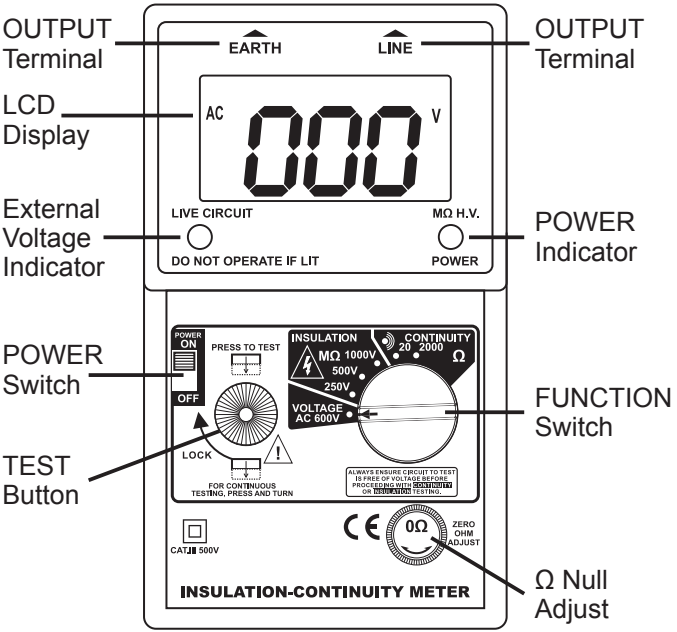
Instrument Layout



1. Introduction

This meter has been designed and tested in accordance with the CE safety requirements for electronic measuring apparatus, EN61010-1, EN61326-1, and other safety standards. Follow all warnings to ensure safe operation.

2. Safety Notes

- Read the following safety information carefully before attempting to operate or service the meter.

- Use the meter only as specified in this manual; otherwise the protection provided by the meter may be impaired.

- Rated enviromental conditions:
  (1) Indoor use.
  (2) Installation Category III.
  (3) Pollution Degree 2.
  (4) Altitude up to 2000 Meter.
  (5) Relative Humidity 80% Max.
  (6) Ambient Temperature 0~40℃.

- Observe the International Electrical Symbols listed below.

   Meter is protected throughout by double insulation or reinforced insulation.

   Warning! Risk of electric shock.

   Caution! Refer to this manual before using the meter.

   Alternating current.

3. Feature

- 3½ digital LCD (2000 counts).
- 68 × 34mm (2.677" × 1.338") large LCD display.
- Three insulation test voltage: 250V, 500V, 1000V DC.
- External voltage warning indication.
- Automatic circuit discharge.
- Test insulation at rated voltage into a 1 mA load.
- 210mA continuity short circuit test current.
- AC voltage measurement.
- Fuse protection.
- Safety protected:
  IEC/EN 61010-1 CAT III 500V
  EN 61326-1
- Bs16th edition.

4. Measuring Methods

OPERATION CAUTION

Observe all safety precautions when the FUNCTION switch is set to either the 200MΩ(250,500V) or the 2000MΩ(1000V) position. Connect the meter test leads to the circuit under test before operating the TEST switch. Do not touch the clip ends of the test leads when the TEST switch is pressed.
Some electrical equipment, especially cables, may retain an electrical charge when disconnected from the line. It is good practice to discharge such equipment with grounding straps, or other suitable devices, before touching or making connections. The meter automatically discharge the test circuits when the spring loaded TEST switch is released.

IMPORTANT

Remove all power to the circuit under test when making resistance measurements. If any voltage is present in the test circuit the LED on the meter scale will light. Immediately disconnect test leads and turn off power to test circuit.

- FUNCTION switch:
  The FUNCTION switch is used to select the range, or function desired.

- TEST switch:
  The TEST switch is normally OFF, spring loaded, momentary action switch which "turns on" the meter. The momentary action is a safety feature. The test voltage generated by the meter is automatically discharged when the TEST switch is released.

Always check the following before testing: The "Battery Low" indicator is not showing. There is no visual damage to the instrument or test leads.

- Test lead continuity
  Select the CONTINUITY function and 20Ω range.
  Short the test leads together.
  An over-range ("1") indication will mean that the leads are faulty or instrument fuse is blown. (See "Fuse Replacement" section)

- **Insulation resistance test:**

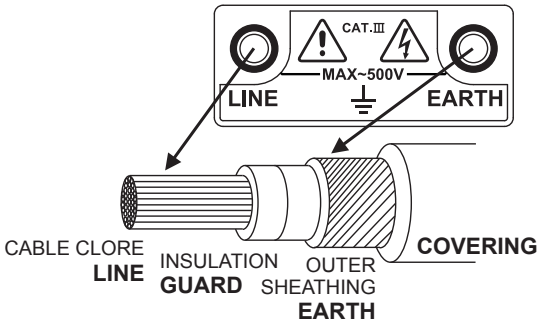
⚠ Warning

Insulation tests should be conducted on circuits that are de-energised. Ensure circuits are not live before commencing testing.

1. Select the required test voltage (250V, 500V or 1000V) by rotating the FUNCTION switch.
2. Connect the test leads to the instrument and to the circuit to be tested.(See connect diagram)

If the "LIVE CIRCUIT" is light, do not press the TEST button and disconnect the instrument from the circuit. The circuit is LIVE and should be de-energised before further testing.

3. Press the TEST switch. The value of insulation resistance in megohms will be displayed.



Connect Diagram

⚠ Caution

Never turn the function dial whilst the button is depressed. This may damage the instrument. Never touch the circuit under test during insulation testing.

When testing is complete ensure that the TEST switch is released before the test leads are disconnected. This is because the system may be charged up and it must be allowed to discharge through the instrument's internal discharge resistor.

- **Continuity discharge (Resistance test)**

⚠ Warning

Ensure circuit is not live before commencing testing.

1. Select the 20Ω range by rotating the FUNCTION switch and connect the test leads to the instrument. Short the tips of the test leads. Press and hold down the TEST switch by twisting it clockwise. The display will show the resistance of the test leads. Adjust the Ω Null control to set the reading to zero.
2. Connect the test leads to the circuit under test. Ensure the circuit is not live by checking that the live circuit indicator does not lit. Read the value of resistance from the LCD.

- **AC voltage test:**

Set the FUNCTION switch to ACV. Connect test leads to circuit being measured. Press TEST switch and read the value of voltage from the LCD.

5. Specifications

Insulation Resistance

Test range (DC V)	250V	500V	1000V
Measuring Ranges	0-200MΩ		0-2000MΩ
Resolution	1 count/100KΩ		1 count/1MΩ
Output Voltage on Open Circuit	Rated test Voltage + 10%		
Output Current	1mA DC		
Power Consumption	Max. consumption current Approx. 250mA		
Accuracy	±1.5%rdg±5dgt		±(3%rdg+3dgt) (under 1GΩ/2000MΩ) ±(5%rdg+3dgt) (under 2GΩ/2000MΩ)

Continuity

Measuring Ranges	0-20Ω	0-2kΩ
Resolution	0.01Ω	1Ω
Accuracy	±(1.5%rdg +5dgt)	±(1.5%rdg +3dgt)
Buzzer Sound Below	Under 10Ω	
Open Circuit Terminal Voltage	4V DC min	
Short Circuit Terminal Current	210mA DC min.	
Power Consumption	Max. consumption current approx. 160mA	

Buzzer sounds under 10Ω (on 20Ω range)

AC Voltage

AC Voltage Range	0-500V
Resolution	1V
Line Frequency Range	40-120Hz
Accuracy	±(1.5%rdg+3dgt)

General

Dimension	170(L)×165(W)×92(D)mm (with housing front cover)
Weight	1040g (batteries included)
Power Source	1.5V (AA) × 8
Accesories	Test leads Instruction manual Shoulder belt Batteries

6. Maintenance

⚠ Caution

Always disconnect the test leads from instrument before batteries or fuse replacement.

- **Batteries Replacement:**
  Please replace batteries when the "Battery Low" indicator was shown on the LCD.
  Disconnect the test leads from the instrument, remove the battery compartment lid and the batteries.
  Replace with eight 1.5V AA (R6) batteries, taking care to observe correct polarity. Alkaline batteries are recommended.
  Replace the battery compartment lid.

- **Fuse replacement**
  Open the battery compartment lid. Remove the fuse cover and the bad fuse, and replace with the new one.
  Replace the fuse cover and screw the battery compartment lid before using the meter.
  ※ Fuse (0.5A / 500V) 5×20mm

- **Cleaning and Storage**
  Periodically wipe the case with a damp cloth and detergent; do not use abrasives or solvents.
  If the meter is not to be used for periods of longer than 60 days, remove the batteries and store them separately.

⚠ WARNING

To avoid electrical shock or damage to the meter, do not get water inside the case.