IR800
INSULATION CONTINUITY METER
289A910
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CONTENTS

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Safety Precautions

Specific warning and caution statements, where they apply, will be found throughout the manual.

A Warning identifies conditions and actions that pose hazard(s) to the user.

Use of the instrument in a manner not specified, may impair safety.

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

Symbols used on the Meter and in this manual are explained in the next table.

ϟ	Risk of electric shock
⚠	See explanation in manual

⚠ WARNING

To avoid electric shock or fire, do the following:

- **Inspect the test leads for damage.**
- **Damaged leads must be replaced.**
- **Do not use the Meter if it looks damaged.**
- **When using the probes, keep your fingers away from probe contacts.**
- **Place test leads in proper input terminals.**
- **Disconnect the Live test lead before disconnecting the Neutral test lead.**
- **Do not use the Meter with any parts or cover removed.**
- **Do not use the Meter around explosive gas, vapour or dust.**

Using the Meter

Auto shut-off

The Meter will automatically shut off after 10 minutes, or 30 minutes under locked conditions. The Meter will automatically "wake-up" when you press a button, turn the rotary switch, or when a voltage of 30V AC or DC or greater is sensed at the inputs.

Measuring Insulation Resistance

⚠ WARNING

Measuring the insulation resistance requires the application of potentially dangerous voltages to the circuit. This may include exposed bonded metalwork.

1. Select the test voltage.
2. Connect the probes to the circuit to be measured. If a voltage is present on the probes, the voltage is displayed. A repetitive beep and the flashing high voltage symbol ϟ warns the user if the voltage is more than 30V AC or DC.
3. Press and hold the TEST button. The upper left display shows the actual test voltage applied to the circuit under test. The main display shows the resistance. The Meter beeps when the reading is stable.
4. Release the TEST button but keep the probes on the test points. The circuit now discharges through the Meter, while the main reading shows the decreasing voltage. Keep the probes on the test points until the circuit is completely discharged (main display shows - - - -).

Measuring Low Resistance

1. Zero out the test lead resistance. Connect the probes tips together. Press and hold the zero until the meter beeps. The main display will indicate 0.00. and the zero icon will be displayed.
2. Connect the probes to the circuit to be measured. If a voltage is present on the probes, the voltage is displayed. A repetitive beep and the flashing high voltage symbol ϟ warns the user if the voltage is more than 30V AC or DC. In that case remove the voltage from the circuit under test before proceeding with the next step.
3. Press and hold the TEST button. A single beep indicates a stable reading. The main display shows the resistance. If the resistance is higher than 20Ω, **>20Ω** is displayed.
4. After releasing the TEST button, exchange the Red (+) and the Black (-) probes to reverse the polarity of the test current and repeat steps 3 and 4. The reading should be the same as the previous. This test is useful to detect corroded connections, which can cause different readings for both polarities.

Measuring Resistance

1. Connect the probes to the circuit to be measured. If a voltage is present on the probes, the voltage is displayed. A repetitive beep and the flashing high voltage symbol ϟ warns the user if the voltage is more than 30V AC or DC. In that case remove the voltage from the circuit under test before proceeding with the next step.

2. Read the resistance from the main reading. If the resistance is approximately 30Ω or less, the Meter beeps. To turn off the beeper, press the beeper button. If the resistance is higher than 2000Ω, **>2000Ω** is displayed.

Measuring Voltage

1. Connect the probes to the circuit to be measured.

2. Read the voltage from the main reading. If the voltage is higher than 1000 V, **>1000 V** is displayed.

⚠ WARNING

The Meter will indicate either AC or DC voltage. If the voltage being measured has both an AC and DC component, the Meter will display only the largest component of the measured signal.

LOCK Function

The LOCK function is used to hold the test voltage on for Insulation tests. For low resistance the LOCK function continuously supplies the test current. Use LOCK to make longer duration measurements without having to push and

hold the TEST button.

1. Press the TEST button, then press the LOCK button, then release both simultaneously.

⚠ WARNING

For the Insulation test, LOCK mode causes a potentially dangerous voltage to be continuously applied to the probes. In this mode, if the probes are disconnected from the circuit, the Meter cannot discharge any potentially dangerous capacitive voltages left on the circuit.
In this mode the Meter cannot indicate if the circuit is live. Ensure that the circuit is de-energized before connecting the test probes in this mode or the fuse may blow.

Note: To reduce the beep rate to once every 30 seconds, press the beeper button.

2. To disengage the lock function press LOCK or TEST.

Checking the Battery

This function tests the battery under simulated load. Disconnect all test leads from any circuit. If a voltage is present on the probes, the voltage is displayed and the Battery Check function is disabled.

Replacing the Batteries

⚠ Warning

To avoid electric shock, disconnect the test leads from the inputs before opening the Meter for battery replacement.

To avoid false readings, which could lead to possible electric shock or personal injury, replace the batteries as soon as the battery empty indicator appears.

This Meter contains Alkaline batteries. Do not dispose of these batteries with other solid waste. Used batteries should be disposed of by a qualified recycler or hazardous materials handler.

1. Turn the rotary switch to the OFF position and disconnect the test leads.
2. Loosen the two screws with a flat-blade screwdriver and remove the lid.
3. Replace the AA cells. Observe the battery polarity shown in the battery compartment.
4. Secure the battery access lid back in position with the two screws.

Replacing the Fuse

⚠ Warning

To avoid electric shock, personal injury or damage to the Meter, use specified fuse ONLY, and in accordance with the following procedure.

1. Follow Steps 1 and 2 as described under "To replace the Batteries".
2. Unscrew the bottom cover and replace the fuse.
3. Refit the bottom cover, batteries and access lid

Replacement Parts and Optional Accessories

REPLACEMENT PART	PART #
Test Lead set	44B090
Fuse	27B098

Specifications

SAFETY SPECIFICATIONS	
Electrical Safety	Meets all requirements of EN61010-1, 1995 and EN61557, 1997
Maximum Operating Voltage	1000V AC or DC between any terminal and earth ground
Protection Levels	CAT III, 600V, and CAT II, 1000V Pollution Degree 2 per EN61010-1
ELECTROMAGNETIC COMPATIBILITY (EMC)	
Immunity	EN 61326-1
Emissions	EN 61326-1

ELECTRICAL SPECIFICATIONS	
Battery	AA Size 1.5V Alkaline, IEC-LR14 (6 pieces)
Fuse	6 mm x 32 mm (0.25 x 1.25 inch), 0.5 A 1000V, Fast Acting, 30 kA Minimum Interrupt rating
VOLTAGE MEASUREMENT	
Range	1000V AC/DC to 400 Hz
Resolution	1V
Accuracy	2% + 2 counts
Analog Bar Graph	0 to 1000V
Bar Graph Accuracy	10%
Visible Warning	≥ 30V AC / DC at Inputs
INSULATION RESISTANCE MEASUREMENT	
Auto Ranges	2.000 MΩ, 20.00 MΩ, 200.0 MΩ, 2000 MΩ
Resolution	0.001 MΩ on 2.000 MΩ range, maximum
Accuracy	2% + 2 digits, 2MΩ, 20MΩ, 200MΩ Ranges 6% + 2 digits on 2000 MΩ Range
Analog Bar Graph	0 to 1GΩ and infinity
Bar Graph accuracy	10%
Test Voltages	250V, 500V, 1000V
Accuracy	+20%, -0%
Nominal Current	1 mA
Number of Measurements per EN615577-2	2,500
Input Protection	1000V
Circuitry Protection	test inhibited if ≥ 30V AC or DC at Inputs

LO Ω	
Range	20.00Ω
Accuracy	2% + 2 digits
Resolution	0.01Ω
Analog Bar Graph	0 to 100Ω and infinity
Open Circuit Voltage	4V dc nominal
Short Circuit Current	>200 mA 0-2Ω
Test Leads Zero	Zero up to 10Ω
Number of Measurements per EN61557-4	2,500
Input Protection	1000V
Circuitry Protection	test inhibited if ≥ 30V AC or DC at inputs
RESISTANCE MEASUREMENT	
Range	2000Ω
Accuracy	5% + 2 digits
Resolution	1Ω
Analog Bar Graph	0 to 10 kΩ and infinity
Bar Graph Accuracy	10%
Beeper	On at ≈30Ω or less
Test Current	25μA nominal

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