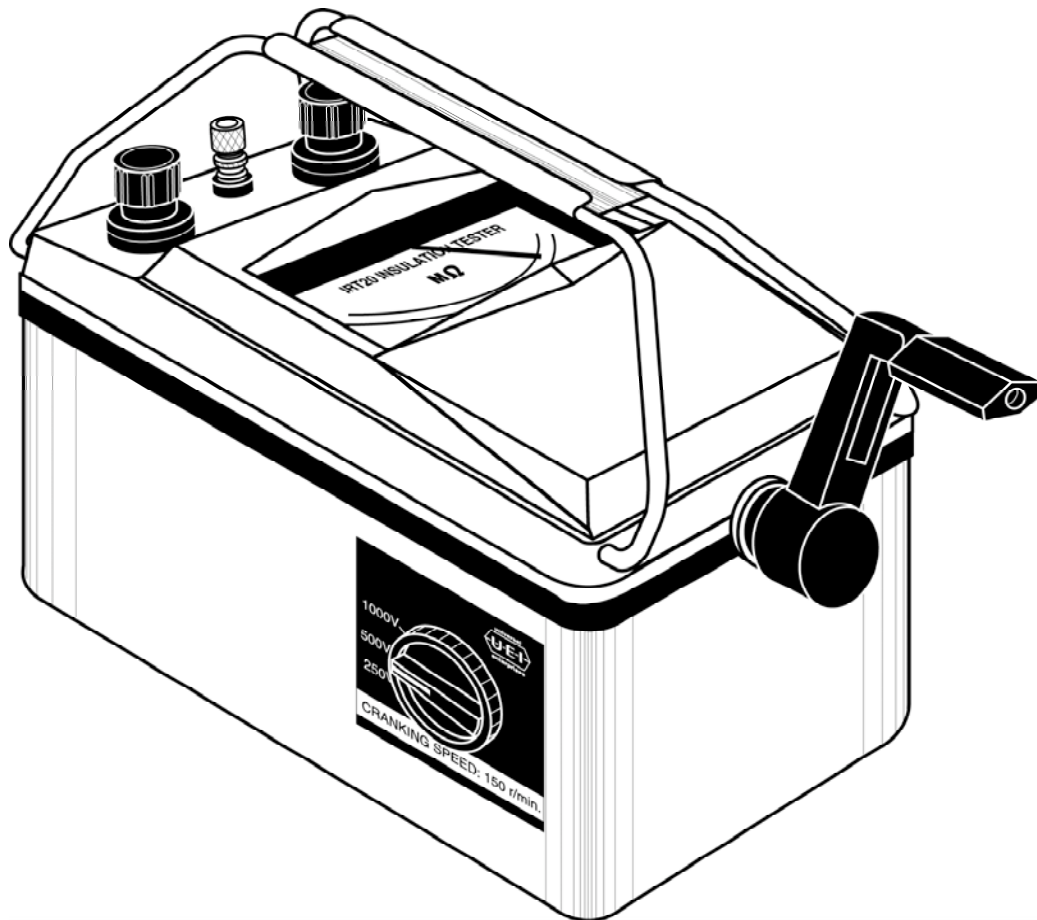




**INSTRUCTION MANUAL**

**IRT20**

# Insulation Resistance Tester



**1-800-547-5740 • Fax: (503) 643-6322**  
**www.ueitest.com • email: info@ueitest.com**

## Introduction

The IRT20 is an affordable, rugged, hand-cranked Megohmmeter that is ready to go when you are. Check motor and generator windings, power transformers, and electrical lines. It's heavy-duty construction and multiple output ranges make it suitable for a wide variety of applications, even in harsh environments.

### Features include

- 1000, 500 and 250 volt output ranges
- Sealed, water-resistant rugged metal housing
- Damping time exceeds 4 seconds
- Hand-crank power-supply
- Accurate to within one division

## Safety Notes

Before using this instrument, read all safety information carefully. In this manual the word "**WARNING**" is used to indicate conditions or actions that may pose physical hazards to the user. The word "**CAUTION**" is used to indicate conditions or actions that may damage this instrument.

- Do not attempt to measure any voltage that exceeds the category-based rating of this instrument
- Do not attempt to use this instrument if either the instrument or the test leads have been damaged. Turn it in for repair at a qualified repair facility
- Ensure instrument leads are fully seated prior to making voltage measurements
- Keep your fingers away from the test lead's metal probe contacts when making measurements. Always grip the leads behind the finger guards molded into the probes

## Operating Instructions

### Measuring Insulation Resistance

1. Check for voltage to make sure equipment has been taken out of service and no static charge is present.
2. Connect the red test lead to the "L" terminal and the black test lead to the "E" terminal.
3. For a circuit or phase to ground test, connect the red test lead to the circuit or phase to be tested and black lead to ground.
4. For a circuit to circuit or phase to phase test, connect the red test lead to one circuit or phase. In both instances it is important that the circuit or phases are isolated from ground and each other.
5. Crank the generator at a constant speed.

**NOTE:** It is not necessary to crank at an excessively fast speed.

After appropriate time lapse, depending on the type to test, read the insulation resistance on the megohm scale at the completion of the test. It is a good safety practice to ground the circuit with a jumper wire before disconnecting the test leads.

### Guard Circuit

The IRT20 is equipped with a Guard Terminal and Guard Circuit that allows by-passing unwanted leakage current around the metering circuit. Unwanted leakage current may be due to surface leakage or floating metallic circuits, such as found in a multi-winding transformer or multi-conductor cables, that provide a leakage path due to static charges.

This allows measuring insulation resistance of two particular circuits without the influence of other resistive paths.

The Guard Terminal can be connected to the electrodes that are in contact with the surface of the insulation. However, these electrodes should not be connected to any circuits under test, and must be in contact with the insulation only in order to intercept leakage current over the surface.

The Guard Terminal can also be connected to floating circuits such as transformer windings not being tested, or circuits in a multi-conductor cable not being tested. All windings or circuits should also be isolated from each other and from windings or circuit under test.

## Maintenance

### Periodic Service



#### **WARNING!**

*Repair and service of this instrument is to be performed by qualified personnel only. Improper repair or service could result in physical degradation of the meter. This could alter the protection from electrical shock and personal injury this meter provides to the operator. Perform only those maintenance tasks that you are qualified to do.*

These guidelines will help you attain long and reliable service from your meter:

- When in use, the tester should be kept as far away as possible from magnetic fields and in a level, stable position.
- When measuring, first rotate handle clockwise until speed increases gradually up to approx. 150 RPM at which time the governor begins to slip and steady readings may be taken
- The instrument should never be used in the vicinity of high tension installations or during thunder and lightning storms
- Avoid continuous vibration of instrument to avoid damage
- Keep your instrument dry. If it gets wet, wipe dry immediately. Liquids can degrade electronic circuits
- Whenever practical, keep the instrument away from dust and dirt that can cause premature wear
- Although your instrument is built to withstand the rigors of daily use, it can be damaged by severe impacts. Use reasonable caution when using and storing the meter

### Cleaning

Periodically clean your meter's case using a damp cloth. **DO NOT** use abrasive, flammable liquids, cleaning solvents, or strong detergents as they may damage the finish, impair safety, or affect the reliability of the structural components.

## Specifications

Voltage	Range	Scale Dive
250 V	.01 - 250 M $\Omega$	.05 M
500 V	.01 - 500 M $\Omega$	.1 M
1000 V	.01 - 1000 M $\Omega$	.2 M
Accuracy at 77°F (20°C)	$\pm 1\%$ of full scale	
Insulation Resistance at 77°F (20°C)	Not less than 20 M	
Damping Time	Better than 4 seconds	
Dimensions	215 mm x 120 mm x 150 mm	

## Standard and Optional Accessories

### Standard

Test Leads .....ATL91



## **Insulation Resistance Tester**

### **Limited Warranty**

The IRT20 is warranted to be free from defects in materials and workmanship for a period of one year from the date of purchase. If within the warranty period your instrument should become inoperative from such defects, the unit will be repaired or replaced at UEi's option. This warranty covers normal use and does not cover damage which occurs in shipment or failure which results from alteration, tampering, accident, misuse, abuse, neglect or improper maintenance. Batteries and consequential damage resulting from failed batteries are not covered by warranty.

Any implied warranties, including but not limited to implied warranties of merchantability and fitness for a particular purpose, are limited to the express warranty. UEi shall not be liable for loss of use of the instrument or other incidental or consequential damages, expenses, or economic loss, or for any claim or claims for such damage, expenses or economic loss. A purchase receipt or other proof of original purchase date will be required before warranty repairs will be rendered. Instruments out of warranty will be repaired (when repairable) for a service charge. Return the unit postage paid and insured to:

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This warranty gives you specific legal rights. You may also have other rights which vary from state to state.

