TORONTECH

INSULATION RESISTANCE TESTER

Insulation Resistance Tester — ToronFT™ IRT

ToronFT™ IRT Insulation Resistance Tester is a precision electronic testing instrument designed for the measurement of insulation resistance in electronic components, complete machines, dielectric materials, and a broad range of electrical assemblies. Combining fast testing speed, high stability, and reliable measurement accuracy in an easy-to-operate platform, the ToronFT™ IRT is equally suited to factory production-line testing, quality inspection department workflows, and laboratory research environments.

The insulation resistance tester features a test voltage range of 100–1000V, voltage accuracy of ±2%, and a resistance measurement range of 1–9999 MΩ — with enhanced accuracy of ±(2%+2 Counts) for measurements in the 1–1000 MΩ range at voltages ≥ 500V DC. An audible pass/fail sorting function (selectable on/off) enables rapid screening of components on production lines without requiring operators to read individual display values.

APPLICATIONS

Insulation Resistance Tester — ToronFT™ IRT Applications

- Electronic component manufacturers: insulation resistance screening and qualification for capacitors, transformers, relays, and switches
- Electrical machinery and equipment manufacturers: complete machine insulation verification before shipment
- Quality inspection departments: incoming material and production-lot insulation resistance sampling
- Dielectric material research laboratories: insulation property characterization of polymers, films, coatings, and composite materials
- Cable and wire manufacturers: insulation resistance verification in conjunction with constant temperature water and oil tank conditioning

- Fire protection equipment manufacturers: electrical insulation qualification of fire suppression control components

RESET
TEST
POWER
ON
OFF
I-Set M3 0.6s
1.00KVDC 1MΩ
SET
EXIT
AC & DC WITHSTAND VOLTAGE/INSULATION TESTER
TORONTECH
ToronFT™ IRT
Insulation Resistance Tester
H. V.
RETURN

Standards

The ToronFT™ IRT supports insulation resistance testing in compliance with internationally recognized electrical testing standards, including:

- IEC 60060-1: High-voltage test techniques — General definitions and test requirements
- IEC 61010-1: Safety requirements for electrical equipment for measurement, control, and laboratory use
- UL 61010-1: Safety requirements for electrical equipment for measurement, control, and laboratory use (North American edition)
- ASTM D257: Standard test methods for DC resistance or conductance of insulating materials
- IEC 60227 / IEC 60245: Wire and cable insulation resistance requirements (used in conjunction with thermal conditioning)

FEATURES

Insulation Resistance Tester — ToronFT™ IRT Key Features

- Wide test voltage range: 100–1000V DC — covering standard and high-voltage insulation resistance test requirements
- Voltage accuracy: ±2% — ensuring traceable, standard-compliant test voltage delivery
- Full resistance measurement range: 1–9999 MΩ for broad material and component coverage
- Enhanced high-voltage accuracy: ±(2%+2 Counts) for 1–1000 MΩ measurements at ≥500V DC
- Audible pass/fail sorting output: qualified, unqualified, and unqualified-sound categories — all selectable on/off for production-line screening
- Universal single-phase input: 47–63 Hz, 115/230 Vac ±15% — compatible with both 115V and 230V laboratory power supplies
- Optional 3A fuse protection for enhanced instrument and operator safety

- Fast testing speed, high stability, and reliable accuracy — optimized for high-throughput factory and inspection applications

THEORY & METHOD

Theory and Method

Insulation resistance testing applies a defined DC voltage across the insulation barrier of a device under test (DUT) and measures the resulting leakage current, from which the insulation resistance is calculated using Ohm's law (R = V/I). High insulation resistance indicates a high-integrity insulation barrier with minimal leakage current, while low or declining insulation resistance indicates degradation, contamination, or moisture ingress.

The ToronFT™ IRT applies the specified test voltage (100–1000V DC, selectable) across the DUT and measures the resulting resistance with high accuracy using precision internal circuitry. The instrument's single-phase input (47–63 Hz, 115/230 Vac ±15%, with optional 3A fuse protection) makes it compatible with both North American and international laboratory power supplies. The audible sorting function alerts operators to non-conforming components with an audible signal, enabling high-speed production-line screening without manual result interpretation.

TECHNICAL SPECIFICATIONS

Insulation Resistance Tester — ToronFT™ IRT Technical Specifications

Parameter	Specification
Model	ToronFT™ IRT
Test Voltage Range	100 – 1000V

Parameter	Specification
Voltage Accuracy	± 2%
Resistance Measurement Range	1 – 9999 MΩ
Enhanced Accuracy (1–1000 MΩ, ≥500V DC)	± (2% + 2 Counts)
Sorting Output	Qualified / Unqualified / Unqualified-sound (selectable on/off)
Input Power	Single-phase, 47–63 Hz, 115/230 Vac ± 15%
Fuse Protection	3A (optional)

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