



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 $\pm 2\%$, and a resistance measurement range of 1–9999 M Ω — with enhanced accuracy of $\pm(2\%+2 \text{ Counts})$ for measurements in the 1–1000 M Ω range at voltages $\geq 500\text{V DC}$. 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



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: $\pm 2\%$ — ensuring traceable, standard-compliant test voltage delivery
- Full resistance measurement range: 1–9999 M Ω for broad material and component coverage
- Enhanced high-voltage accuracy: $\pm(2\%+2 \text{ Counts})$ for 1–1000 M Ω measurements at $\geq 500\text{V DC}$
- 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 $\pm 15\%$ — 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.

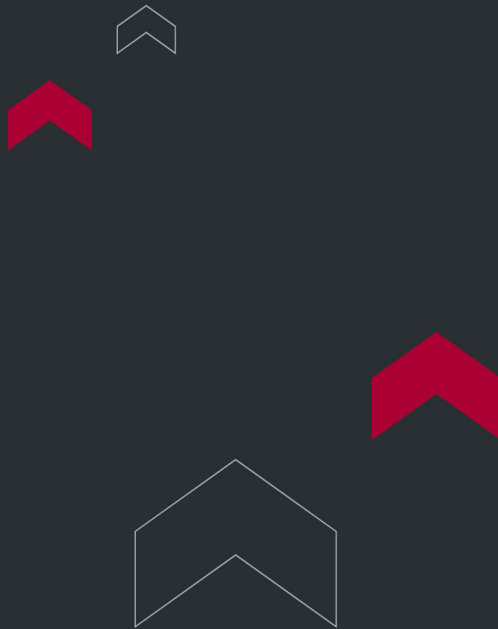
The ToronFT™ IRT applies the specified test voltage (100–1000V DC, selectable) across the DUT and measures the resulting resistance with high accuracy using precision internal circuitry. The instrument's single-phase input (47–63 Hz, 115/230 Vac $\pm 15\%$, with optional 3A fuse protection) makes it 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	$\pm 2\%$
Resistance Measurement Range	1 – 9999 M Ω
Enhanced Accuracy (1-1000 M Ω , $\geq 500\text{V DC}$)	$\pm (2\% + 2 \text{ Counts})$
Sorting Output	Qualified / Unqualified / Unqualified-sound (selectable on/off)
Input Power	Single-phase, 47-63 Hz, 115/230 Vac $\pm 15\%$
Fuse Protection	3A (optional)



Torontech Inc.

251 Consumers Road, Suite 1200
Toronto, Ontario, M2J 4R3, Canada 

Phone: +1 416 368 2721 | Fax: +1 416 981 7652
Email: info@torontech.com

Torontech, LLC

601 Brickell Key Drive, Suite 700
Miami, FL 33131, USA 

Toll-Free: 1-866-383-7919
Email: sales@torontech.com

Torontech ME FZE

Meydan Grandstand, 6th Floor,
Meydan Road, Nad Al Sheba,
Dubai-261440, UAE 

Phone: +971 488 19252
Email: me@torontech.com

