

# Impulse Winding Tester

## 7750

Safety Tester

### Features

- Lowest Inductance  $\geq 0.1\mu\text{H}$
- Voltage Compensation Function
- 200MHz/ 9bits High Impulse Test Sampling Rate
- Built-in storage 128 sets testing waveform
- Programmable Impulse voltage
- Breakdown Voltage Analysis
- Total Area Comparison
- Differential Area Comparison
- LAPLACIAN Comparison
- CORONA Comparison
- LAPLACIAN Comparison
- FLAT Comparison
- Support USB Host/Device, RS-232, SIGNAL I/O

### Accessories / Fixtures

#### Standard

- Power Cord
- 2 terminal HV test cable
- SIGNAL I/O

#### Optional

- RS-232 cable
- Remote control cable

### Applications

Low inductance coil, High power inductance, Relay, Transformer, Motor stator, Motor rotor, Winding component

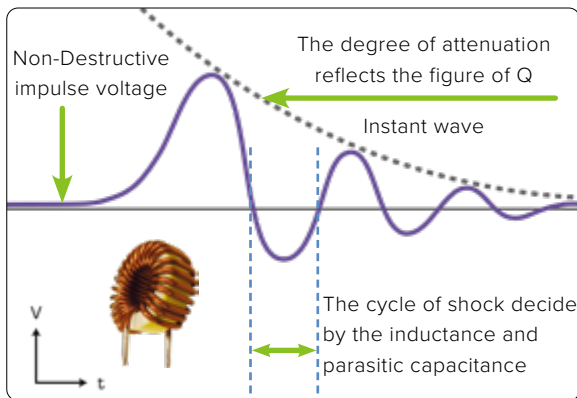


7759

CE RS-232 | SIGNAL I/O | USB Host/ Device

### Key feature

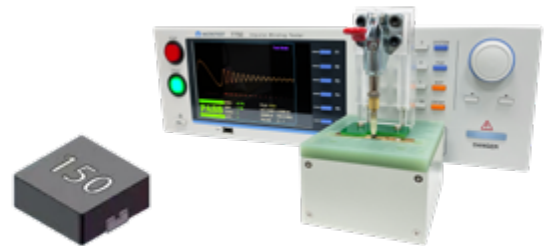
#### A Technology of Detect Layer Short



"Impulse voltage and waveform comparison" is the way we detect layer short

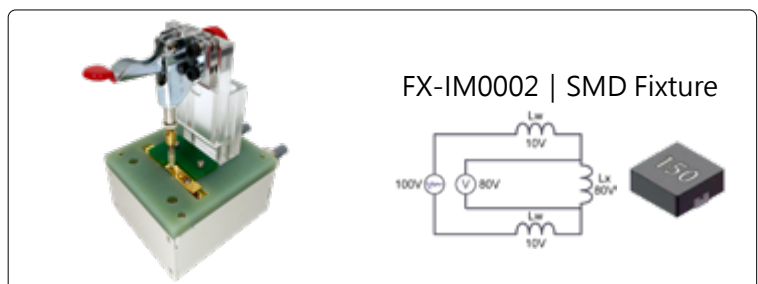
The impulse voltage is non-destructive/instant voltage that apply on both side of winding and detect the DUT without damage it.

By compare the wave with the golden sample, we can judge the DUT.

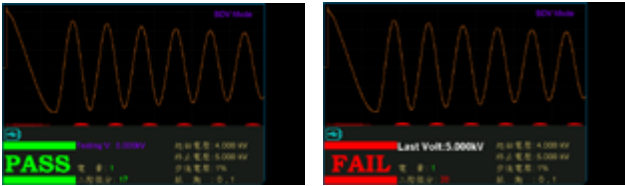


#### B 7750 Function

Impulse Winding Tester 7750-1F



### Breakdown Voltage Analysis



**Step voltage: adjustable to 1% of the initial voltage**

The MICROTTEST 7750 supports breakdown voltage analysis function, which allows setting:

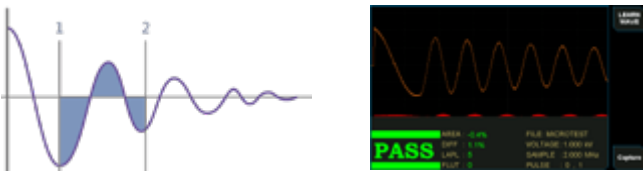
1. Start voltage
2. End voltage
3. Minimum percentage of voltage rise from the start voltage

In the second-order derivative and corona discharge ratio comparison mode, it determines whether the measured values exceed the set standard value, validating the withstand voltage strength of the tested winding component.

### C Provides the waveform comparison

#### 1 AREA Comparison

When layer short happened, the loss of power on coil increase, the resonance damping coefficient increase, resonance amplitude decrease, the total area decrease. These are the basic parameters we check layer short.



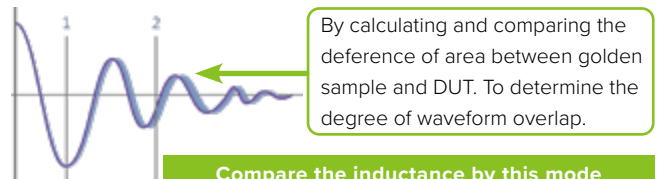
Analysis the power loss by this data

Show by percentage

#### 2 DIFF Comparison

Add up the difference between normal wave and DUT wave call "Area differential" When layer short happened, the inductance reduce(similar the transformer).

The wave phase change and the area differential also change. This will show "fail" on the instrument. However, the parameter might cause deviation because of the deviation of inductance, resonance phase shift.(Silicon steel product such as motor and traditional transformer is not suitable)

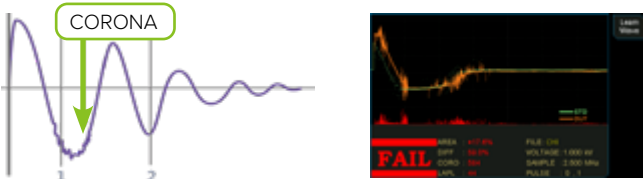


By calculating and comparing the difference of area between golden sample and DUT. To determine the degree of waveform overlap.

Compare the inductance by this mode

#### 3 CORONA Comparison

In impulse test, the insulation defect will cause discharge and create corona. This function is able to count the times that corona happened base on the degree of deviation.

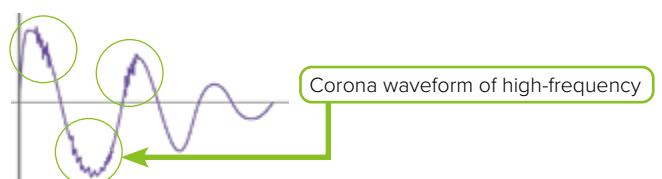


Detect the discharge phenomenon on the coil

#### 4 LAPLACIAN Comparison

Use the second derivative to calculate the Laplacian value.

By the corona waveform of high-frequency to know more about the insulating property of products.



Electrical discharge or poor electrode welding

#### 5 COMP Comparison

By setting an allowable waveform range for the standard wave, this feature can simultaneously determine the amplitude and phase of the resonant wave. It enhances the detection capability of inter-turn short circuits.



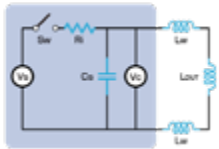
#### 6 FLUT Comparison

When there is inter-turn discharge in the winding coil, the waveform will exhibit tremors or fluctuations. Therefore, the instrument quantifies the degree of waveform tremors into numerical values for comparison.



### D Voltage Compensation Function

7750 features the Voltage Compensation Function. In order to reduce the possibility of misjudgment.



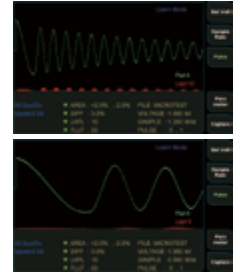
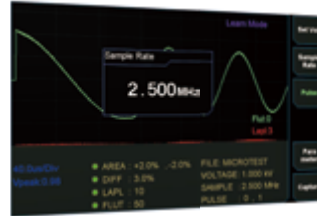
Support checking output voltage



$$V_{DUT} \approx V_C \times \frac{L_{DUT}}{L_{DUT} + 2L_W}$$

### E 200MHz/9bit High Impulse Test Sampling Rate

The 7750 Impulse Winding Tester is a top choice for testing the quality of inductors, coils, and motors.



Impulse Number: 32

### Specifications

| Model                    | 7750-1S                  | 7750-1F                                       | 7750-5E                   | 7750-5H              | 7750-5S      | 7759                      | 7750-10S                  |
|--------------------------|--------------------------|---|---------------------------|----------------------|--------------|---------------------------|---------------------------|
| Channel                  | 1                        |   |                           |                      |              | 9                         | 1                         |
| Impulse Voltage          | 10V~1200V                |   | 100V~5200V                |                      |              | 100V~5200V                | 200V~10000V               |
| Voltage Resolution       | 0.1V                     | 0.1V  | 1V                        |                      |              | 1v                        | 5V                        |
| Test Inductance Range    | ≥0.1μH                   | ≥0.1μH  | ≥16μH                     | ≥4μH                 | ≥1μH         | ≥1μH                      | ≥20μH                     |
| Impulse Voltage Accuracy | ± ( 1% of setting + 5V ) | ±[2% of setting x (1+1μH / Lx) + 2% of Range] | ± ( 1% of setting + 10V ) |                      |              | ± ( 1% of setting + 10V ) | ± ( 1% of setting + 20V ) |
| Impulse Number           | Max 32                   |   |                           |                      |              |                           |                           |
| Sampling Rate            | 200MHz/9 bit             |   | 50MHz/9 bit               | 100MHz/9 bit         | 200MHz/9 bit |                           |                           |
| Test Time                | 10 times/ Sec            |   |                           |                      |              |                           |                           |
| Input Impedance          | 20MΩ                     |   |                           |                      |              |                           |                           |
| Waveform Comparison      | AREA Comparison          |   |                           |                      |              |                           |                           |
|                          | DIFF Comparison          |   |                           |                      |              |                           |                           |
|                          | CORONA Comparison        |   |                           |                      |              |                           |                           |
|                          | WAVEFORM Comparison      |   |                           |                      |              |                           |                           |
|                          | FLAT Comparison          |   |                           |                      |              |                           |                           |
|                          | LAPLACIAN Comparison     |   | -                         | LAPLACIAN Comparison |              |                           |                           |
| Breakdown Voltage        | ●                        | ●   | -                         | -                    | ●            | ●                         | ●                         |
| Measurement Statistics   | ●                        |   |                           |                      |              |                           |                           |

### General

|                    |   |
|--------------------|---|
| SIGNAL I/O Control | START/ STOP   |
| SIGNAL I/O Output  | PASS/ FAIL/ TEST/ READ/ HV ON   |
| Safety Switch      | When testing, you need to short-circuit the INTER LOCK on the rear of the instrument to output the test voltage |
| Built-in Storage   | 128   |
| Interface          | RS-232, SIGNAL I/O, USB Host/ Device, (GPIB Option)   |
| Power Supply       | Voltage: 100Vac-240Vac  |
|                    | Frequency: 47-63Hz  |
| Power consumption  | 70VA  |
| Display            | 7" TFT (800*480)  |
| Environment        | Temperature: 0°C~40°C, Humidity: 20~80%RH   |
| Dimension(W*H*D)   | 430×132×370 mm(W*H*D)/ 430 x 176 x 370 mm(W*H*D)(7759)  |
| Weight             | 7Kg/ 11Kg (7759)  |



## Selection of Impulse Testing for Wound Components

Testing the Insulation Quality of High-Voltage Ignition Coils/ Inverter Transformer Windings

**Model. 7750-10S**

- Invertr Transformer
- High-voltage ignition coil

Detect the insulation quality of low inductance molded inductors for Electric Vehicles (EVs).

**Model. 7750-1S**

- EV-OBC
- EV-DC/DC
- AC/DC Charging Pile

Detect the insulation quality of the stator coils in AC/DC fans.

**Model. 7750-5S/7750-5H/7750-5E**

- Refrigerator
- Dryer
- Dehumidifier/Air Purifier

### Order Information

#### 7750 Impulse Winding Tester series

- 7750-1S (Impulse Voltage 10V~1200V)
- 7750-1F (Impulse Voltage 10V~1200V)
- 7750-5E (Impulse Voltage 100V~5200V)
- 7750-5H (Impulse Voltage 100V~5200V)
- 7750-5S (Impulse Voltage 100V~5200V)
- 7750-10S (Impulse Voltage 200V~10000V)
- 7759 (Impulse Voltage 200V~10000V)

#### 7750 Standard Accessories/ Fixture

- Power Cord
- 2 terminal HV test cable
- SIGNAL I/O

#### 7750 Optional Items

- RS-232 cable
- Remote control cable
- GPIB
- FX-IM0001 SMD Component Test Fixture (Four wire)
- PC Link software