526xHR

Transformer Tester

User Manual

V1.00

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First of all, thank you for choosing MICROTEST products. MICROTEST is committed to providing customers with a variety of instrument information and services. You can check the latest instrument information on the MICROTEST website: **https://www.microtest.com.tw/**

Important notes, please read thoroughly:

1. Before using the transformer tester, please read the user manual thoroughly.
2. For more detailed information, please refer to the user manual of the transformer tester.
3. While we have made every effort to ensure the accuracy of the content at the time of writing this manual, if you find any unclear or incorrect information, please contact the sales and marketing department of MICROTEST. We are always ready to assist you.
4. The specifications and content of this manual are subject to change without prior notice.
5. The content of this manual is protected by copyright. Unauthorized copying, reproduction, or modification of the content is prohibited.

Safety description

For professional use only: This product is designed for use by personnel with professional knowledge and technical training.

Safety classification: This instrument is classified as an IEC Class A instrument (Equipped with a protective earth terminal).

General safety precautions: At all stages of operation, you must follow these general safety instructions. Failure to operate the instrument in the manner explicitly described in this manual may compromise its protective functions. The customer shall be fully responsible for any consequences resulting from improper use or failure to comply with these instructions.

Important Information storage: This manual is an integral part of the product and contains essential safety and operating information. Keep this manual in a secure location near the instrument for quick reference. Ensure the manual is well-preserved and accessible before operating the instrument.

Symbols used in this instrument

	Power On
	Power Off
	Status On
	Status Off
	Warns of actions or conditions that may cause serious or fatal injury to the user and provides preventive measures that can be taken.
	Grounding point of the AC mains system.
	Grounding point of the AC mains system.
	Environmentally Friendly Use Period (EFUP): 10 years.
	Do not dispose of electronic equipment as unsorted municipal waste. Please use designated collection facilities or contact the supplier from whom the instrument was purchased.
	CE (Conformity European). Indicates that the product complies with the regulations specified by European Union directives.
	UKCA（UK Conformity Assessed）. Indicates that the product complies with the regulatory requirements of the United Kingdom.

Safety guidelines

1. To prevent electric shock or fire, always use the dedicated power cord. The main power plug must be connected to an outlet with a protective earth (ground), and the supply voltage must match the instrument's rated voltage.

2. Do not operate the instrument in environments where flammable gases or vapors are present.

3. Do not place heavy objects on the instrument, and strictly avoid electrostatic discharge (ESD) to the unit.

4. Please use original accessories for testing. If any accessory has exposed wires or is damaged, do not use it to avoid abnormal test

results or safety risks.

5. In the event of a malfunction, return the instrument to the manufacturer for servicing by qualified personnel.
6. Before connecting to a BNC terminal, ensure that there is no residual voltage present on the device under test (DUT).

Environmental Conditions:

1. **Location:** Indoors, with no direct sunlight, dust-free, minimal conductive pollution, at an altitude below 2000 m, Pollution Degree 2.
2. **Operating Temperature and Humidity Range:** 10 °C to 40°C (50°F to 104°F), 10 to 90%rh (non-condensing)
3. **Storage Temperature and Humidity Range:** -25 °C to +60 °C (-13 °F to 140 °F), Below 90%rh (non-condensing)

Cleaning the Instrument:

- Disconnect the power cord before cleaning.
- It is recommended to use a soft cloth, microfiber cloth, or soft brush for cleaning. Wipe with a slightly damp cloth using a mild detergent mixed with water. Do not spray any liquid directly onto the instrument.
- Do not use organic solvents or chemicals containing strong chemical components, such as acetone, methanol, or acetic acid.

Additional Notes:

- In this manual, the series of products listed on the cover are collectively referred to as 526xHR.
- The display screen examples shown in this manual may differ from the actual display content. The illustrations are for reference only.

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Chapter 1 Product Overview

The 526xHR Series transformer testers feature high accuracy, multifunction capability, and high-speed testing. They support a comprehensive range of tests, including inductance, capacitance, impedance, leakage inductance, insulation resistance, and turns ratio, over a wide frequency range from 10 Hz to 1 MHz with 0.1% high accuracy.

A single test can be completed in 20ms, significantly improving production efficiency. With 128 built-in test setups, open/short compensation, and multiple interfaces (RS-232, LAN, and USB), the instruments are suitable not only for R&D verification but also for seamless integration into automated production lines.

The compact design and 7-inch color display provide intuitive operation and a professional, fast, and reliable solution for testing transformers and various passive components.

The models are divided into three types based on the test frequency.

Model	5265HR----**1**	5266HR----**2**	5267HR----**3**
Test Frequency	10Hz-200kHz	10Hz-500kHz	10Hz-1MHz
Test Voltage	AC/DC 10mV~2V.		

Frequency Range and Test Frequency Points:

Frequency Range	**Test Frequency Points**	**Resolution**
10Hz ≤ Freq ≤ 999.95Hz	10.00Hz, 10.05Hz… 999.95Hz	0.05Hz
1kHz ≤ Freq ≤ 9.9999kHz	1.0000kHz, 1.0001Hz… 9.9999kHz	0.1Hz
10kHz ≤ Freq ≤ 99.999kHz	10.000kHz, 10.001Hz… 99.999kHz	1Hz
100kHz ≤ Freq ≤ 200kHz	100.00kHz, 100.01kHz… 200.00kHz	10Hz **1**
100kHz ≤ Freq ≤ 500kHz	100.00kHz, 100.01kHz… 500.00kHz	10Hz **2**
100kHz ≤ Freq ≤ 1MHz	100.00kHz, 100.01kHz… 1MHz	10Hz **3**

Test Voltage and Resolution:

Test Voltage	**Resolution**
10mV ≤ Volt ≤ 999mV	1mV
1.00V ≤Volt ≤ 2.00V	10mV

Communication Functions:

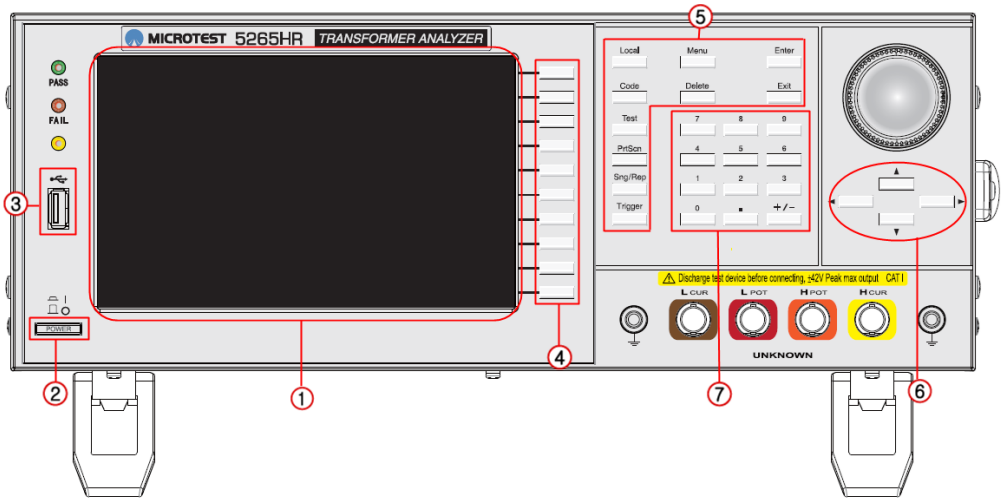
- RS-232 serial communication port
- LAN (TCP/IP)
- Handler (Remote Control) Interface

Accessories

Standard	Optional
526xHR transformer tester	PC software
Power cord	RS-232 connector
Test report	Handler (Remote Control) box
F423501(5265HR)	
F423901(5266HR or 5267HR)	
F5620HR test fixture	
Foot Switch	

1.1 Panel

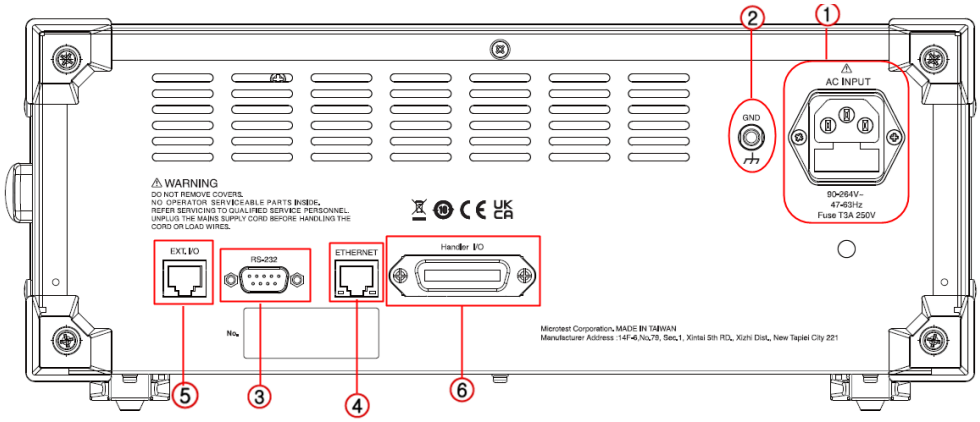
Front (5265HR)



Number	Name	Descriptions
1	LCD Display	Resolution: 800 × 480
2	Power	Power switch.
3	USB	Used for accessing configuration files and storing test data. Configuration file storage path: \TF_5265HR\SetFile\ Test data storage path: \TF_5265HR\TestData\ Screenshot image storage path: \TF_5265HR\Screen\ USB supports FAT32 format with capacity less than 64 GB.
4	Function Keys	Corresponding keys for the options on the right side of the screen.
5	Another Keys	**Menu:** Switch to the main menu.
		Local: When the instrument is in remote control mode, press this key to release the key lock status. During remote control mode, RMT will be displayed at the top of the screen.
		Test: Enter Transformer Test (TRANS) page.
		Sng/Rep: The measurement mode in METER

		mode can be switched between Single Trigger mode and Repeat Trigger mode. When the measurement mode is set to Single Trigger, MAN will be displayed at the top of the screen.
		Trigger: Measurement trigger key. **METER mode:** If the measurement mode is set to Single Trigger mode, this key functions as the measurement trigger key. If the measurement mode is set to Repeat Trigger mode, this key functions as the "Pause / Resume" key. When the measurement is paused, HOLD will be displayed at the top of the screen. **TRANS mode:** Press key to start the test.
		PrtScn: The screen image can be saved to a USB drive. The image format is BMP. Storage path: \TF_5265HR\Screen\
		Delete: In edit mode, incorrect input numbers can be cleared.
		Enter: Confirm the edited values or selections.
		Exit: Return to the previous page or action.
		Code: Reserved
6	Arrow Keys	Select each function through the keys.
7	Numeric Keys	Allows input of decimal points, numbers, and +/- signs.

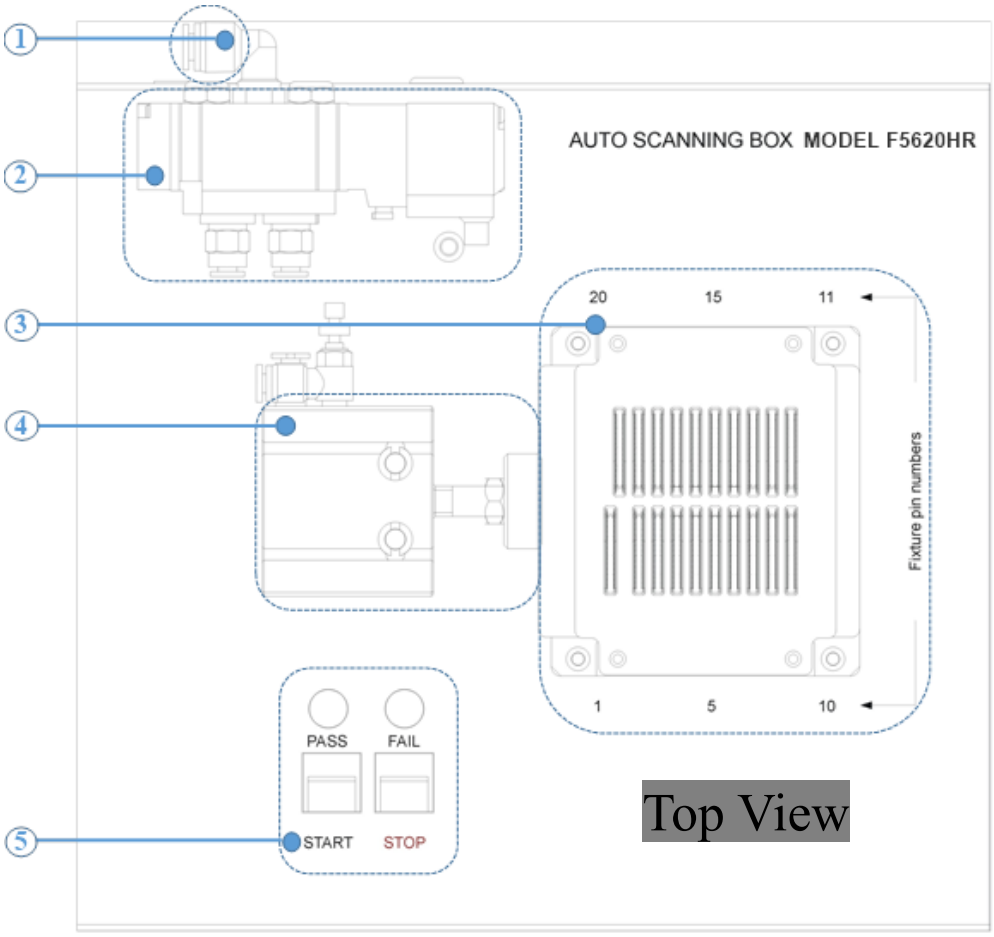
Rear (5265HR)

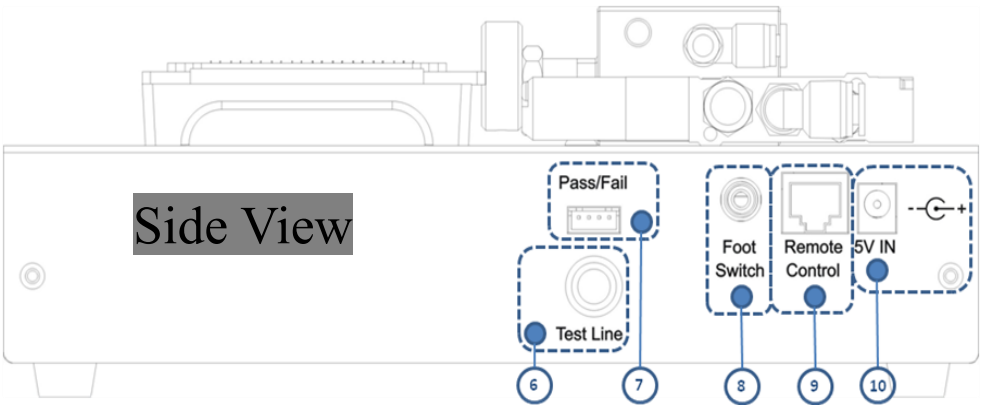


Number	Name	Descriptions
1	AC INPUT	Power Input Connector. Before connecting the power plug, ensure that the input power voltage range is 90V~264V.
2	GND	Ground Terminal
3	RS-232	Serial Communication Port Interface
4	ETHERNET	LAN Network Communication Interface
5	EXT. I/O	F5620 fixture control cable connection port. Connect the supplied RJ-45 cable from this port to remote control port of the fixture.
6	Handler I/O	Remote Control Interface

1.2 Overview of the Dedicated Transformer Test Fixture Box

F5620HR: Transformer test fixture (Pneumatic)





Number	Name	Descriptions
1	Pneumatic Fixture Air Inlet	Connect the high-pressure air supply to this inlet using an air tube.
2	Solenoid Valve	Used to control the push rod of the DUT (Device Under Test).

3	Transformer Test Socket	The placement location for the DUT. The fixture pin definition follows the Fixture Pin Numbers marking. The pins are numbered sequentially from Pin 1 to Pin 10 from the lower-left corner to the lower-right corner, and from Pin 11 to Pin 20 from the upper-right corner to the upper-left corner.
4	Air Cylinder	During testing, the push rod moves forward to secure the DUT.
5	PASS / FAIL Indicators &	Test status indicators for good and defective products.
	START / STOP Buttons	Buttons for starting and stopping the test.
6	Test Line	Connection point for the four-wire measurement fixture head of the F5620 fixture. Connect this connector to the four-wire measurement interface of the 526xN series.
7	Pass/Fail	Reserved.
8	Foot Switch	A dedicated foot switch provided by MICROTEST must be purchased for use.
9	Remote Control	F5620 fixture control cable connection port. Connect the supplied RJ-45 cable from this port to the EXT. I/O port on the rear panel of the 526xN series.
10	5V IN	Reserved.

1.3 Calibration

To ensure that the measuring instrument provides accurate results within the specified accuracy range, it is recommended to perform calibration once a year.

1.4 Repair

When the instrument requires servicing, please contact MICROTEST for repair. Do not disassemble or replace parts by yourself to avoid potential danger.

To ensure the safety of the instrument during transportation, please be sure to follow the precautions below:

Before transportation, please remove all accessories and optional parts from the instrument to prevent damage.

Use the original packaging materials provided at delivery and be sure to perform secondary packaging to ensure additional protection. Please note that we can't be held responsible for damages incurred during transportation.

If you need to send the instrument for repair, clearly describe the fault when submitting it, as this will help us provide better support. Properly maintain your

instrument to ensure its safety during transportation and repair.

1.5 Warm-up

The unit can operate immediately after power-on; however, to achieve the specified accuracy, please allow a warm-up time of at least 30 minutes.

1.6 Warranty

MICROTEST provides a one-year warranty for this product starting from the date of shipment. However, certain specific components may have different warranty periods based on their individual specifications and are not subject to this limitation.
Within the warranty period, MICROTEST will repair or replace any product proven to be defective (with the determination of product condition made by MICROTEST).
MICROTEST warrants that any software and hardware designated by the company for use with the instrument will execute its programmed instructions properly when correctly installed on the instrument. However, MICROTEST does not guarantee that the operation of the instrument, software, or hardware will be uninterrupted or error-free.

Warranty Limitations:
The above warranty does not apply in cases where the product has been subjected to improper or inappropriate use by the customer. This includes, but is not limited to, unauthorized modification, repair, or replacement of components, misuse of the product, or installation and servicing outside of the specified environmental conditions. In such cases, no warranty coverage will be provided.

Chapter 2 Measurement/Start Up Overview

The 526xHR Transformer Tester supports measurement parameters categorized into series mode and parallel mode, including:

- Series Inductance (Ls) and Parallel Inductance (Lp)
- Series Capacitance (Cs) and Parallel Capacitance (Cp)
- Series Resistance (Rs) and Parallel Resistance (Rp)

In addition, the system measures paired electrical parameters such as:

- Reactance (X) and its reciprocal Susceptance (B = 1/X)
- Impedance (Z) and Admittance (Y = 1/Z)

- Dissipation Factor (D) and Quality Factor (Q = 1/D)

Other critical parameters include:

- Phase Angle (θ)
- Conductance (G)
- DC Resistance (Rdc)

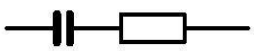
These parameters play a crucial role in the analysis and testing of inductive components, particularly for transformer characterization and performance evaluation.

2.1 Introduction to Basic Measurement Principles

When measuring AC resistance, capacitance, inductance, reactance, and admittance, series or parallel equivalent circuit models can be used.

Capacitance(C)

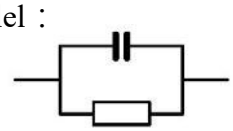
Series：



$$C_s = C_p\left(1 + D^2\right)$$

D = dissipation factor

Parallel：

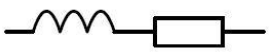


$$C_p = \frac{C_s}{(1 + D^2)}$$

D = dissipation factor

Inductance(L)

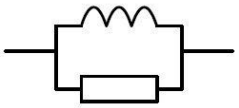
Series：



$$L_s = \frac{L_p}{\left(1 + \frac{1}{Q^2}\right)}$$

Q = Quality Factor

Parallel：

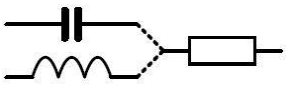


$$L_p = L_s\left(1 + \frac{1}{Q^2}\right)$$

Q = Quality Factor

Reactance(X)

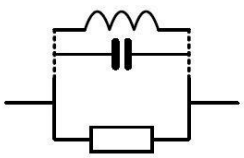
Series：



$$R_s = \left(\frac{R_p}{1 + Q^2}\right)$$

Q = Quality Factor

Parallel：



$$R_p = R_s\left(1 + Q^2\right)$$

Q = Quality Factor

Resistance and Conductance

Resistance is a physical quantity that represents the opposition to the flow of electric charge within a material, commonly referred to as the resistance value. Its unit is the ohm (Ω).

Conductance is a measure of how well an object or circuit can transmit electric current from one point to another. Its unit is the siemens (S), which is the reciprocal of resistance, expressed as G=1/R.

- Resistance (R)

  Measurement Type**:** Series → Rs / Parallel → Rp / DC Resistance → Rdc

  Relevant Formulas**:**

$$R = \frac{V}{I} = \frac{1}{G} = Z_s - jX = Z_s - j\omega L = Z_s + \frac{j}{\omega C}$$

$$|Z_s| = \sqrt{\left(R^2 + X^2\right)}$$

$$|Z_p| = \frac{RX}{\sqrt{\left(R^2 + X^2\right)}}$$

$$R_s = |Z|\cos\theta$$

- Conductance (G)

  Measurement Type**:** Parallel → Gp

  (Conductance applies only to parallel equivalent circuit models)

  Relevant Formulas**:**

$$G_p = \frac{I}{V} = \frac{1}{R} = Y_p - jB = Y_p - j\omega C = Y_p + \frac{j}{\omega L}$$

$$|Y_s| = \frac{GB}{\sqrt{\left(G^2 + B^2\right)}}$$

$$|Y_p| = \sqrt{\left(G^2 + B^2\right)}$$

$$G_p = |Y|\cos\theta$$

Capacitance (C)

Capacitance refers to the amount of electric charge stored at a given electric potential difference. It is commonly represented by the letter C, and its SI unit is the farad (F).

Measurement Type**:** Series → Cs / Parallel → Cp

Relevant Formulas**:**

$$Z_s = R + jX = R + j\omega L = R - \frac{j}{\omega C}$$

$$Y_p = G + jB = G + j\omega C = G - \frac{j}{\omega L}$$

$$Q = \frac{\omega L_s}{R_s} = \frac{1}{\omega C_s R_s} \qquad (\text{series R , L , C values})$$

$$Q = \frac{R_p}{\omega L_p} = \omega C_p R_p \qquad (\text{parallel R , L , C values})$$

$$D = \frac{R_s}{\omega L_s} = \omega C_s R_s \qquad (\text{series R , L , C values})$$

$$D = \frac{G_p}{\omega C_p} = \omega L_p G_p \qquad (\text{parallel G , L , C values})$$

Inductance (L)

Inductance is one of the properties of electronic circuits or devices. It refers to the electromotive force (EMF) generated by electromagnetic induction that opposes changes in current when the current varies. The unit of inductance is the henry (H).

Measurement Type**:** Series → Ls / Parallel → Lp

Relevant Formulas**:**

$$Z_s = R + jX = R + j\omega L = R - \frac{j}{\omega C}$$

$$Y_p = G + jB = G + j\omega C = G - \frac{j}{\omega L}$$

$$Q = \frac{\omega L_s}{R_s} = \frac{1}{\omega C_s R_s} \qquad (\text{series R , L , C values})$$

$$Q = \frac{R_p}{\omega L_p} = \omega C_p R_p \qquad (\text{parallel R , L , C values})$$

$$D = \frac{R_s}{\omega L_s} = \omega C_s R_s \qquad (\text{series R , L , C values})$$

$$D = \frac{G_p}{\omega C_p} = \omega L_p G_p \qquad (\text{parallel G , L , C values})$$

Reactance and Susceptance

Reactance, denoted by X in AC circuit analysis, is the imaginary part of complex impedance. It represents the opposition that inductors and capacitors present to the flow of current, similar to how resistance opposes current in DC circuits. In AC circuits (such as series RLC circuits), capacitors and inductors impede current flow, and this effect is called reactance. Its unit is the ohm (Ω).

Susceptance is defined in power electronics as the reciprocal of reactance and is the imaginary part of admittance. It can be classified into capacitive susceptance

and inductive susceptance based on its nature. Susceptance is the reciprocal of reactance (B=1/X) and its unit is the siemens (S).

- **Reactance (X)**

  Measurement Type**:** Series → Xs

  (Reactance is only applicable to series equivalent circuit models)

  Relevant Formulas**:**

$$X = \frac{1}{B} = |Z| \sin\theta$$

$$|Z_s| = \sqrt{(R^2 + X^2)}$$

$$|Z_p| = \frac{RX}{\sqrt{(R^2 + X^2)}}$$

$$X_s = |Z| \sin\theta$$

- **Susceptance (B)**

  Measurement Type**:** Parallel → Bp

  (Susceptance is only applicable to parallel equivalent circuit models)

  Relevant Formulas**:**

$$B = \frac{1}{X} = |Y| \sin\theta$$

$$|Y_s| = \frac{GB}{\sqrt{(G^2 + B^2)}}$$

$$|Y_p| = \sqrt{(G^2 + B^2)}$$

$$B_p = |Y| \sin\theta$$

Impedance and Admittance

Impedance is a general term that refers to the opposition to AC current flow caused by resistance, inductance, and capacitance in a circuit. Its unit is the ohm (Ω).

Admittance is a general term that includes both conductance and susceptance. In power electronics, admittance is defined as the reciprocal of impedance. Its unit is the siemens (S).

- **Impedance (Z)**

  Relevant Formulas:

  $$Z = \frac{E}{I} = \frac{1}{Y}$$

  $$Z_s = R + jX = R + j\omega L = R - \frac{j}{\omega C}$$

  $$|Z_s| = \sqrt{(R^2 + X^2)}$$

  $$|Z_p| = \frac{RX}{\sqrt{(R^2 + X^2)}}$$

  $$R_s = |Z|\cos\theta$$

  $$X_s = |Z|\sin\theta$$

- **Admittance (Y)**

  Relevant Formulas:

  $$Y = \frac{I}{E} = \frac{1}{Z}$$

  $$Y_p = G + jB = G + j\omega C = G - \frac{j}{\omega L}$$

  $$|Y_s| = \frac{GB}{\sqrt{(G^2 + B^2)}}$$

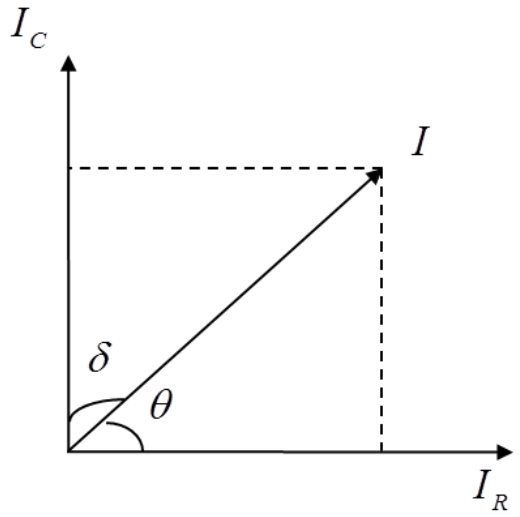
  $$|Y_p| = \sqrt{(G^2 + B^2)}$$

  $$G_p = |Y|\cos\theta$$

  $$B_p = |Y|\sin\theta$$

Quality factor and Dissipation factor

Quality Factor (Q) is used to measure the energy consumed relative to frequency. In general, the higher the quality factor of a circuit, the better its selectivity. The dissipation factor is the reciprocal of the quality factor. It refers to the angular loss of signal in a capacitor (or inductor) at a given operating frequency and constant temperature. The phase shift caused by the time delay between the applied voltage and the resulting current leads to loss current and energy dissipation. At this point, the current consists of two components: one is the charging current (Ic), which is 90 degrees out of phase with the voltage; the other is the loss current (IR), which is in phase with the voltage. The total current (I) is the sum of these two components. The angle δ between the total current and the charging current is called the loss angle. The tangent of this angle, tan δ, is known as the dissipation factor (D). The diagram below shows the actual phase relationship of a real capacitor.



- **Quality Factor (Q)**

  Relevant Formulas**:**

$$Q = \frac{R_p}{\omega L_p} = \omega C_p R_P \qquad (\text{series R , L , C values})$$

$$Q = \frac{\omega L_s}{R_s} = \frac{1}{\omega C_s R_s} \qquad (\text{series R , L , C values})$$

$$Q = \frac{1}{\tan(90-\theta)^\circ} = \frac{1}{D}$$

- **Dissipation factor (D)**

  Relevant Formulas**:**

$$D = \frac{R_s}{\omega L_s} = \omega C_s R_s$$

$$D = \frac{G_p}{\omega C_p} = \omega L_p G_p$$

$$D = \tan(90 - \theta)^\circ = \frac{1}{Q}$$

Angle (θ)

When measuring impedance (Z), admittance (Y), quality factor (Q), and dissipation factor (D), their phase angles are measured.

Relevant Formulas**:**

$$Z_s = R + jX = R + j\omega L = R - \frac{j}{\omega C}$$

$$Y_p = G + jB = G + j\omega C = G - \frac{j}{\omega L}$$

$$Q = \frac{1}{\tan(90 - \theta)^\circ} = \frac{1}{D} \qquad D = \tan(90 - \theta)^\circ = \frac{1}{Q}$$

$$R_s = |Z|\cos\theta \qquad X_s = |Z|\sin\theta$$

$$\mathrm{G_p} = |Y|\cos\theta \qquad B_p = |Y|\sin\theta$$

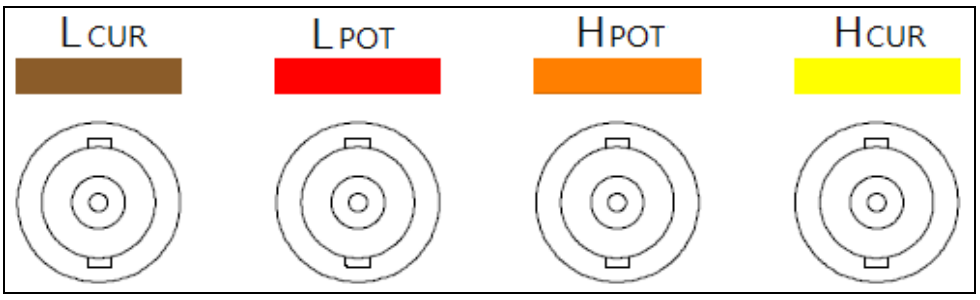
2.2 Measurement Terminal

LCUR: Receives the test current source; connect to the negative (-) terminal of the DUT.

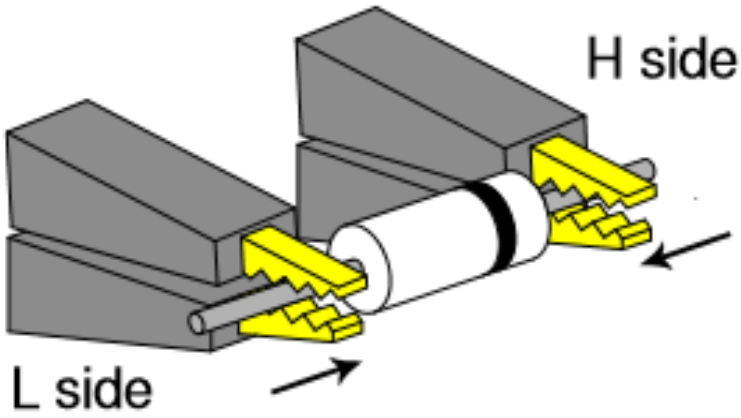
LPOT: Negative voltage sensing terminal; connect to the negative (-) terminal of the DUT.

HPOT: Positive voltage sensing terminal; connect to the positive (+) terminal of the DUT.

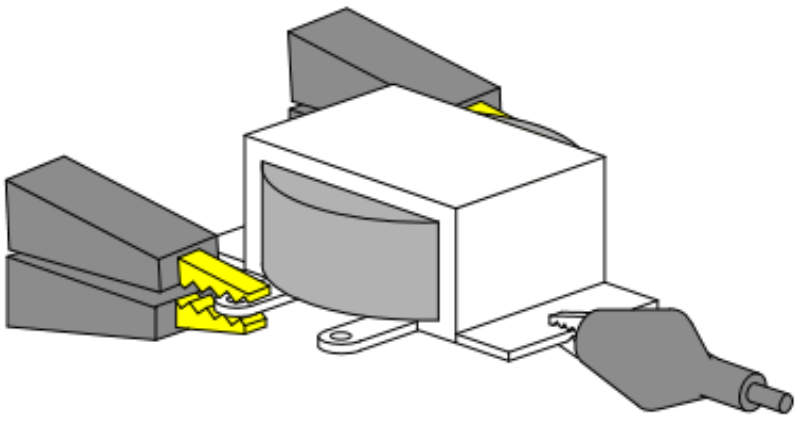
HCUR: Provides the test current source; connect to the positive (+) terminal of the DUT.



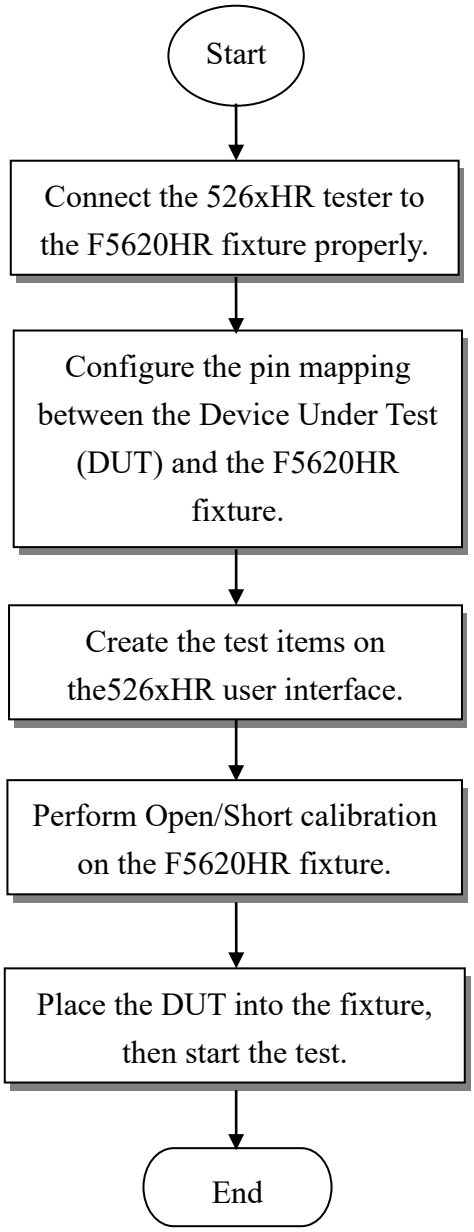
1. Before connecting the fixture, ensure the DUT is fully discharged.
2. Connect the fixture terminals to the BNC connectors on the front panel according to their corresponding color codes.
3. Connect the DUT to the fixture:
   - If the DUT is polarized, connect the H-side clip of the fixture to the positive (+) terminal of the DUT.
   - Connect the L-side clip to the negative (−) terminal of the DUT.
   - Ensure the fixture clips are positioned as close as possible to the DUT body to minimize measurement error.



4. If the DUT has a shielding enclosure that is not connected to any fixture clip, connect the enclosure to ground to reduce noise interference.



2.3 Setup Procedure



2.4 Pre-Power-On Precautions

Before operating the 526xN Transformer Tester, ensure that a stable and adequate AC power source is available.

⚠ Warning: Risk of Electric Shock

1. Use the grounding conductor of the power cord to ground the instrument, and verify that the protective earth terminal is properly connected.
2. When connecting to AC power, always use the original power cord provided with the product. Do not use non-original cords due to potential overvoltage or unforeseen risks. It is recommended that a qualified technician select a power

cord no longer than 3 meters if replacement is required.

3. Before connecting to AC power, ensure that the power switch is in the OFF position before inserting the power cord. For safety, make sure the power outlet is:
   - Located near the operator.
   - Easily accessible for quick disconnection.
   - Surrounded by sufficient free space.
4. The dedicated power cord must not be used with any device other than this instrument.

Power Connection Procedure:

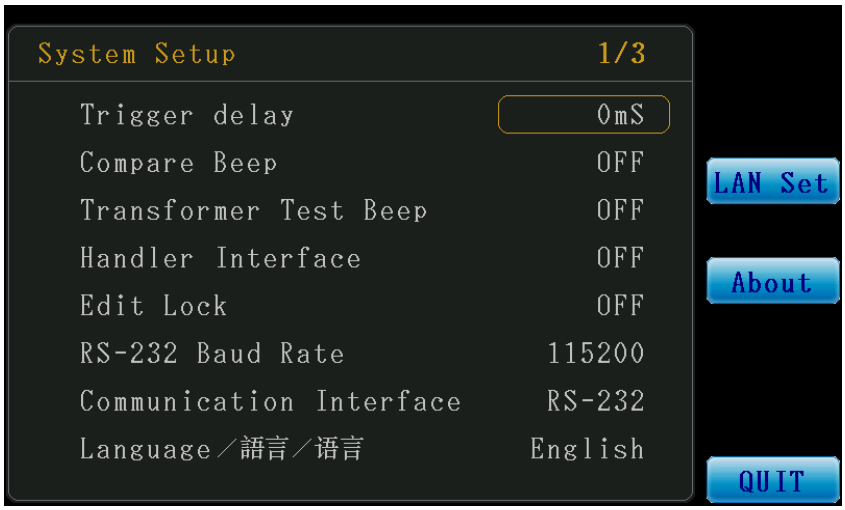
1. Ensure the AC power cord meets the rated input requirements of the instrument.
   - **Input Voltage:** 90 Vac ~ 264 Vac
   - **Frequency:** 47 Hz ~ 63 Hz
2. Make sure the POWER switch is in the OFF position.
3. Insert the power cord into the AC inlet on the rear panel of the device.
4. Plug the power cord into a properly grounded AC power outlet.

Chapter 3 SYSTEM Page

In the MAIN MENU, select [**SYSTEM**] to enter the System Setup.



Page 1/3:



1. **Trigger delay:** This function is applicable to both METER mode and transformer test **(TRANS)** mode. (Units: mS)
2. **Compare Beep:** When the **Comparator function** is enabled in **METER** mode, the buzzer operation timing.
   OFF: Disables the buzzer notification.
   NG: The buzzer sounds when any one of the enabled comparison items exceeds the preset limit range (FAIL).
   OK: The buzzer sounds only when all enabled comparison items are within the preset limit range (PASS).
3. **Transformer Test Beep**: When the instrument is set to **TRANS** mode, the buzzer notification behavior.
   ALL: The buzzer is enabled for all test results, including both PASS and FAIL results.
   OK: The buzzer is enabled only when the test result is PASS.
   NG: The buzzer is enabled only when the test result is FAIL.
   OFF: Disables the buzzer notification.
4. **Handler Interface**: Sets remote control function ON/OFF.
   ON: Enables the function.
   OFF: Disables the function.
5. **Edit Lock:** When a password is set, a password prompt window will appear. The setting values can only be modified after the correct password has been verified.
   ON: Enables the function.
   OFF: Disables the function.

※To set or change the password, press [**Set P/W**] function key on the right side of the screen.

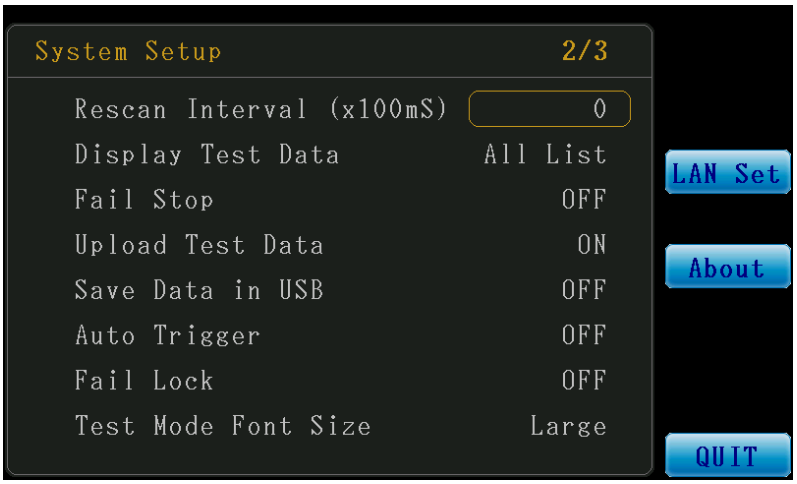
Set P/W: This function is used to prevent unauthorized modification of the **Edit Lock**.

Setting a new password: Enter the new password →Confirm the password →Completed

Changing/Clearing the password: Enter the current password → Enter the new password/ Do not enter any digits →Confirm the password/ Do not enter any digits →Completed

6. **RS-232 Baud Rate:**
   Selectable rates: 115200/ 56000/ 384000/ 19200/ 9600 bps
   Transmission format: 8/N/1 (8 Data Bit/ No Parity Bit/ 1 Stop Bit)
7. **Communication Interface**: RS-232 or LAN communication interface can be selected.
8. **Language:** English, Traditional Chinese, and Simplified Chinese

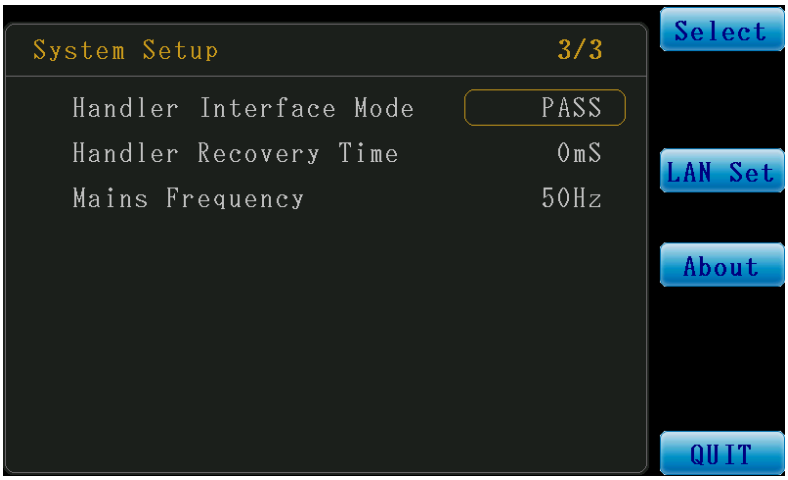
Page 2/3



9. **Rescan Interval (x100mS):** Sets the time for continual test and continual test intervals in **TRANS** mode; the setting range is between 0~100.
   - When the value is set as 0, the continual test function is disabled.
   - When the value is set between 1~100, the continual test function is enabled and the time for continual test intervals is the value set x100mS. (Setting value=5, 5*100mS=500mS)
10. **Display Test Data:** Sets the display method of the **TRANS** data.
    ALL List: Display on the screen whether the test data is PASS/FAIL.
    NG List: Only display FAIL data on the screen.
11. **Fail Stop:** Sets whether to turn the test fail stop function ON/OFF under **TRANS** mode.
    OFF: Disables test stop function.
    ON: Enables test stop function. (When an item is tested as FAIL, the test stops)

12. **Upload Test Data:** Sets whether to turn the data upload function ON/OFF under transformer test mode.
    OFF: Disables the test data upload function.
    ON: Enables the test data upload function. When the test is complete, the test data will be automatically uploaded through the communication port (RS-232/LAN) set.
13. **Save Data in USB:** Sets whether to turn the save test data to USB ON/OFF under **TRANS** mode.
    OFF: Disables the function.
    ON: Enables the save test data to USB; once test is completed, the test data will be saved into the USB.
    ※When this function is enabled, please ensure that a USB is connected to the machine.
14. **Auto Trigger:** In the Trans test mode, turn on/off to set the auto trigger function.
    OFF: Disable the auto trigger function.
    ON: Enable the auto trigger function. (Selectable test speed: NORMAL/FAST)
    WARNING: To avoid cut your hands, please do not using when the fixture is working by cylinder.
15. **Fail Lock:** Enable or disable the **Fail Lock** function in **TRANS** mode.
    OFF: Disable the Fail Lock function.
    ON: Enable the Fail Lock function.
16. **Test Mode Font Size:** To set the font display large/small in the **TRANS** mode.
    Large: Test mode font display Large (Default).
    Small: Test mode font display Small.

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17. **Handler Interface Mode:** In test mode with the multi-DUT setting enabled, configure the output channel status (PASS or FAIL) for each individual DUT.
    PASS: Output only when the test result is PASS.
    FAIL: Output only when the test result is FAIL.
    (For the multi-DUT output pin definitions of the Handle Interface, refer to Section 7.1.)
18. **Handler Recovery Time:** Remote Control Output Reset Time Setting. (Units: mS)
    Setting range: 0 ~ 2000 (0=Disable this function)
19. **Mains Frequency:** Set according to the AC power standard of the region where the instrument is used. (50/60Hz)

3.1 LAN Set

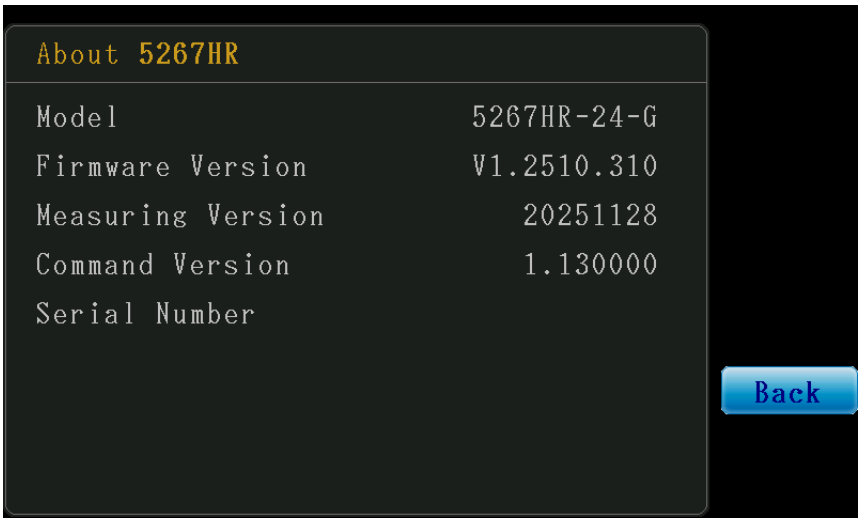
On the SYSTEM page, press the **[LAN Set]** key to enter the network settings.
*To enable communication between the instrument and a local area network (LAN), a network cable must be connected and the IP address must be configured.



Auto IP:
DHCP: Automatically obtain an available IP address through the DHCP server. When this function is enabled, the settings below cannot be configured manually.
OFF: Manually configure the following network parameters.

3.2 About 526xHR Page

Overview of the instrument's current information.



Chapter 4 METER mode

In the MAIN MENU, select [**METER**] to start measurement.



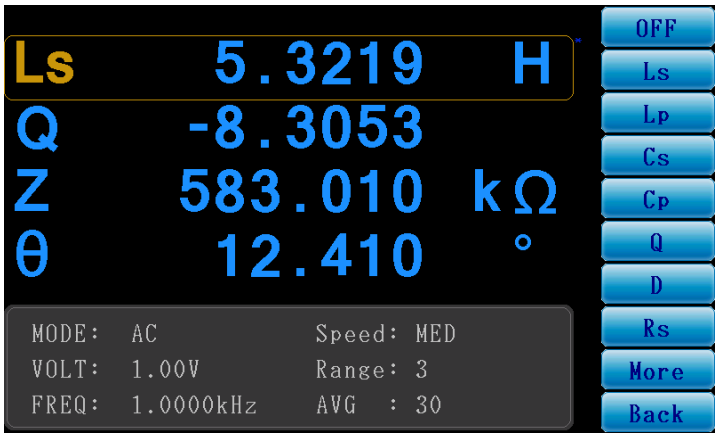
- **MODE:** AC/DC mode selection is available. In DC mode, only Rdc measurement can be performed.

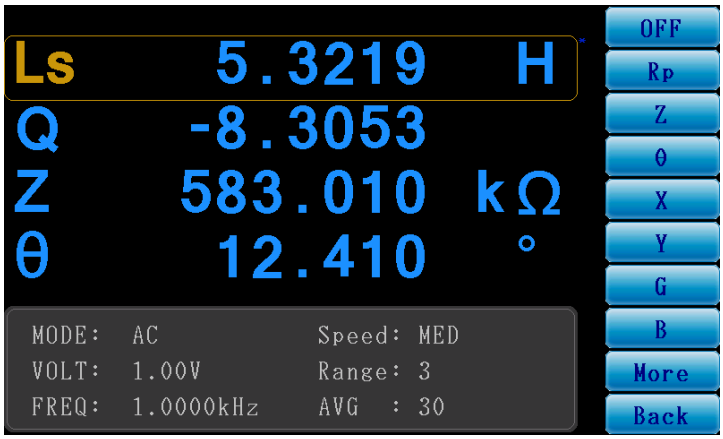


- **VOLT:** Measurement voltage.
- **FREQ:** Measurement frequency. AC mode only.
- **Speed:** Select the measurement speed.
  Fastest (10mS) /Fast (25mS) /Medium (100mS) /Slow (250mS)
- **Range:** Measurement range.
  AUTO /HOLD (Keep the current range) /1 /2 /3
- **AVG:** Average count setting. The setting range is 1 ~ 64.

4.1 ITEM

Press **[ITEM]** key to configure parameters.





Use the **Up&Down** keys to select the fields highlighted in yellow (up to four measurement parameters can be measured simultaneously). Use the **Left&Right** keys or the **rotary knob** to select the desired measurement parameter. For descriptions of the measurement parameters displayed on the right side of the screen, please refer to section 2.1.

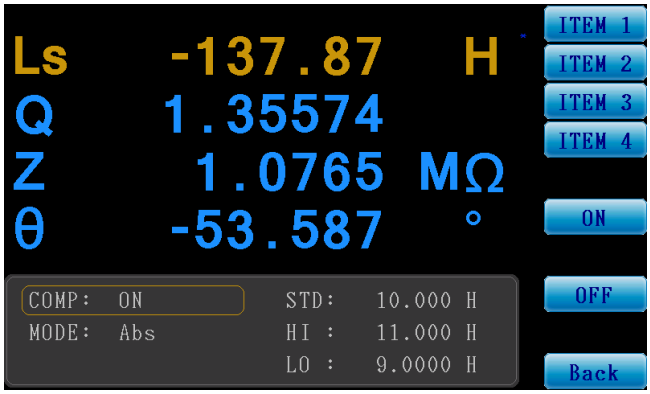
OFF: Disables measurement of this item. (All four items cannot be set to OFF at the same time.)

MORE: Switches to the next menu page.

BACK: Returns to the measurement screen.

4.2 COMP.

Press the **[COMP.]** key to configure the comparison-function conditions.



- **COMP:** Sets the comparison function ON (enabled) or OFF (disabled).
- **MODE:** Sets the comparison mode.

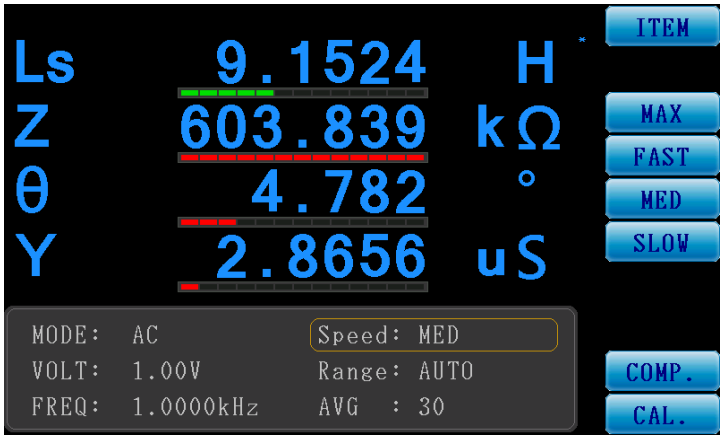
  Abs: The upper and lower limits are determined by the values entered in the HI and LO fields.

  ΔAbs: Upper Limit = STD + HI; Lower Limit = STD + LO.

  Δ%: Upper Limit = STD + (STD × HI %); Lower Limit = STD + (STD × LO %).
- **STD:** Sets the standard value.

- **HI:** Sets the upper limit.
- **LO:** Sets the lower limit.

When the comparison function is enabled, a bar appears below the measured value. The bar changes dynamically according to the measurement result.





4.3 CAL.

Press [**CAL.**] to enter calibration page.



OPEN/SHORT (O/S)

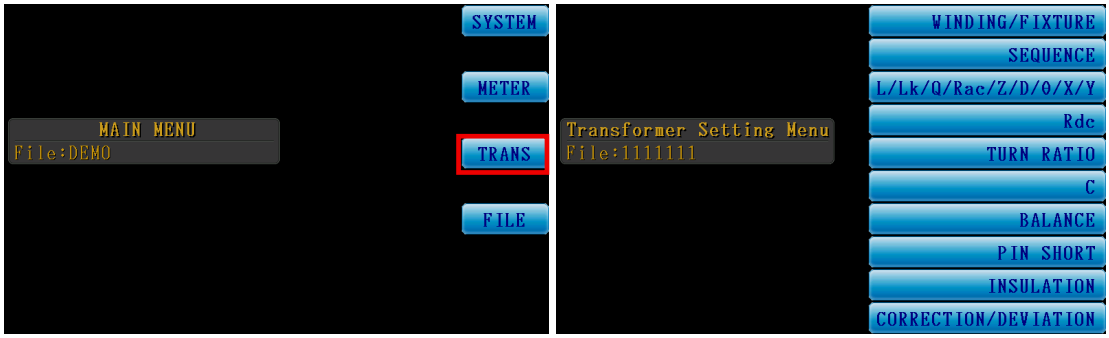


- **DC:** Starts DC O/S-circuit calibration.
- **Spot:** Starts O/S-circuit calibration using the current AC configuration.
- **ALL Freq:** Starts O/S-circuit calibration for all frequencies.

* It is recommended that open-circuit and short-circuit calibration be performed before the first measurement and whenever the measurement fixture or test leads are replaced.

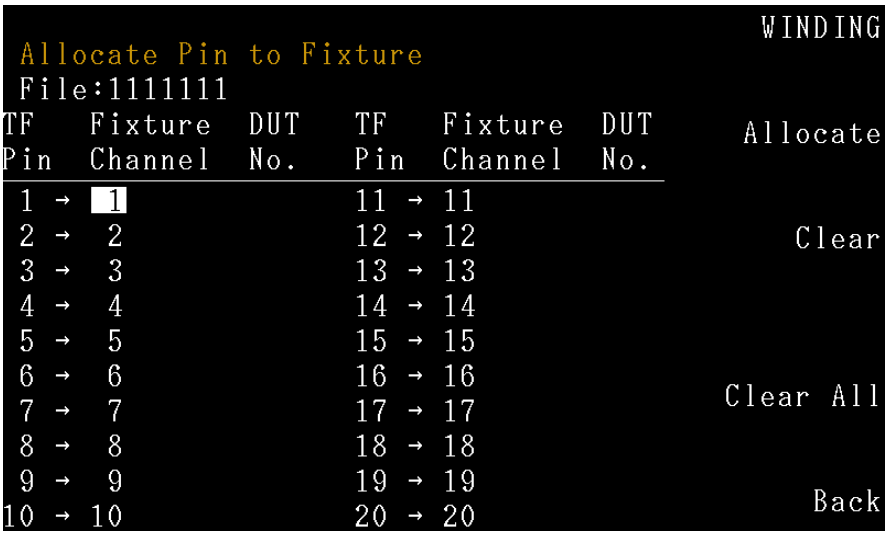
Chapter 5 Transformer Setting Menu

Press the [**Menu**] key on the front panel to open the Main Menu, then select the key corresponding to [**TRANS**].

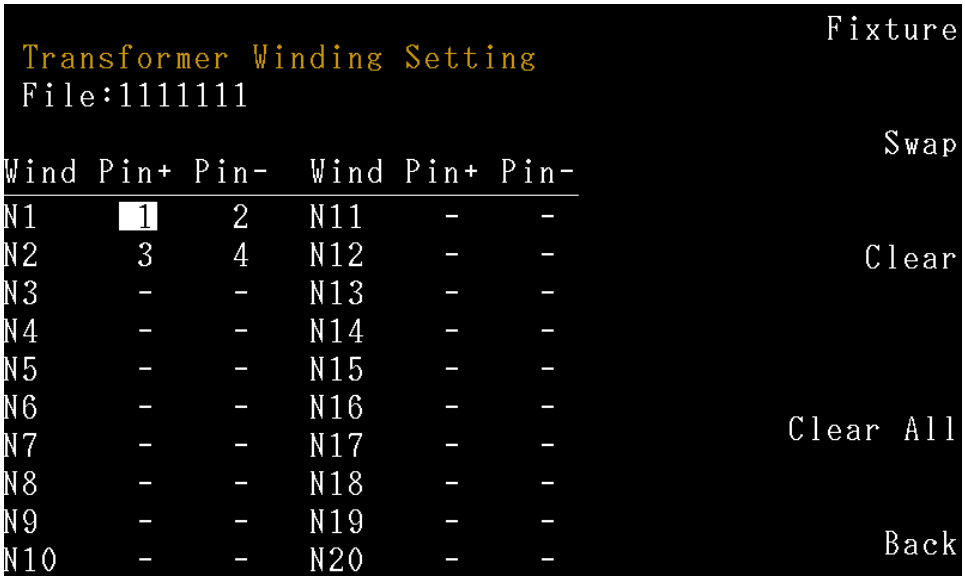


5.1 WINDING/FIXTURE

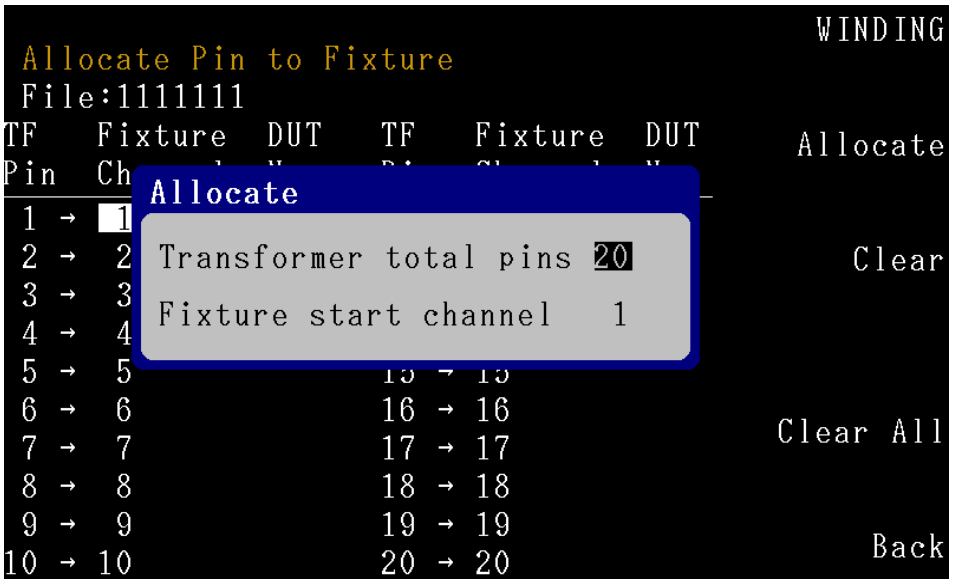
Select the key corresponding to [**WINDING/FIXTURE**] to enter the Allocate Pin to Fixture screen.



1. **TF Pin:** Transformer pin. Up to 20 pins can be assigned.
2. **Fixture Channel:** Sets the fixture position into which each transformer pin is inserted. Enter the value using the numeric keys.
3. **DUT NO.:** DUT Number. Settable from 1 to 12. When testing multiple DUTs, assign a different number to each DUT for identification.
4. **WINDING:**



   - **Swap:** Swap the pin address assignments of Pin+ and Pin−.
   - **Clear:** Clear the pin address assignment for the currently selected item.
   - **Clear All:** Clear all the pin address assignment on the current page.
5. **Allocate:**

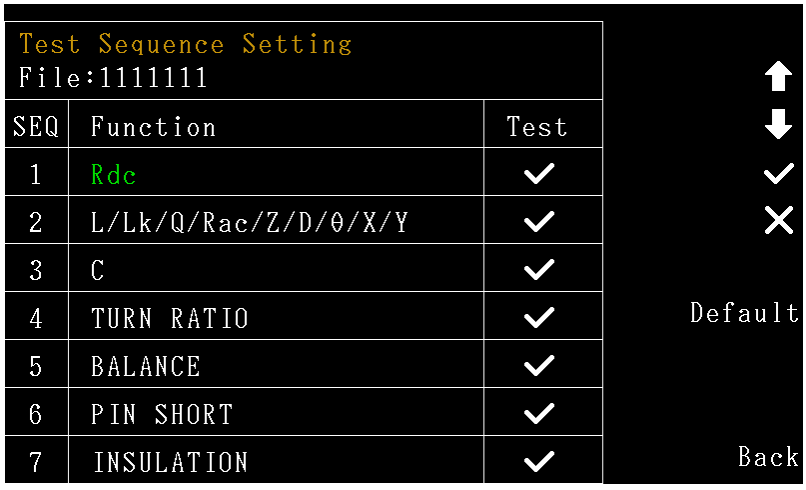


- **Transformer total pins:** Set the total number of TF pins here.
- **Fixture start channel:** Set the starting pin number for the TF here.

6. **Clear:** Clears one setup item.
7. **Clear All:** Clears all previously configured on the current page.
8. **Back:** Returns to the Transformer Setting Menu.

5.2 SEQUENCE

Set the test sequence for each item and specify whether the item is to be tested. Select the key corresponding to [**SEQUENCE**] to enter the Test Sequence Setting screen.



Sets the test order of each item and whether each item is tested.

1. : Changes the test sequence.

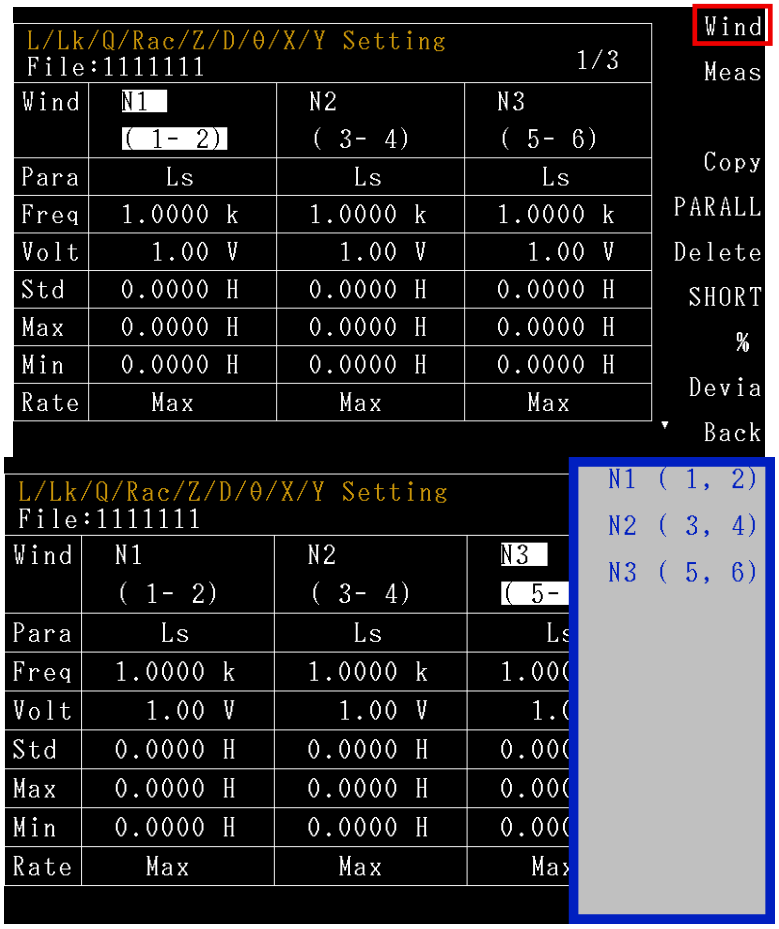
2. : Enables/disables testing of the currently selected test item.

3. **Default:** Restores the default values.
4. **Back:** Returns to the Transformer Setting Menu.

5.3 L/Lk/Q/Rac/Z/D/θ/X/Y (AC Test Items)

Select the key corresponding to [**L/Lk/Q/Rac/Z/D/θ/X/Y**] to enter the L/ Lk/ Q/ Rac/ Z/ D/ θ/ X/ Y Setting screen. For the names of the individual measurement parameters, refer to Section 2.1.

1. **Wind:**

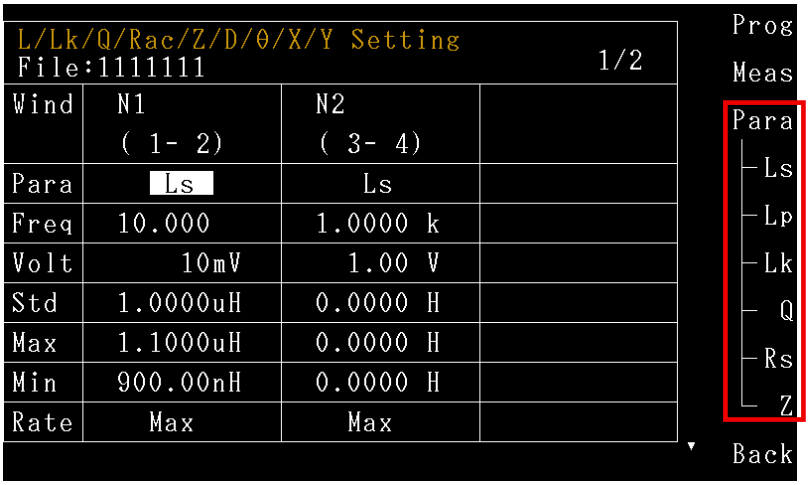


- **Wind:** Press this function key to select a previously edited coil winding.
- **Meas:** Measurement key. Use the test fixture to measure the DUT under the current settings. The measured value can then be applied as the reference value for this test item. (Place the DUT properly before measurement.)
- **Copy:** Copies this test item to the next group.
- **PARALL:** Configure the transformer's parallel pin assignments. Press this key to open the Parallel Settings screen.
- **Delete:** Deletes this test item. (To delete, press the **[Delete]** function key on the right twice.)
- **SHORT:** Sets transformer short-circuit pins. Press **[SHORT]** to enter the

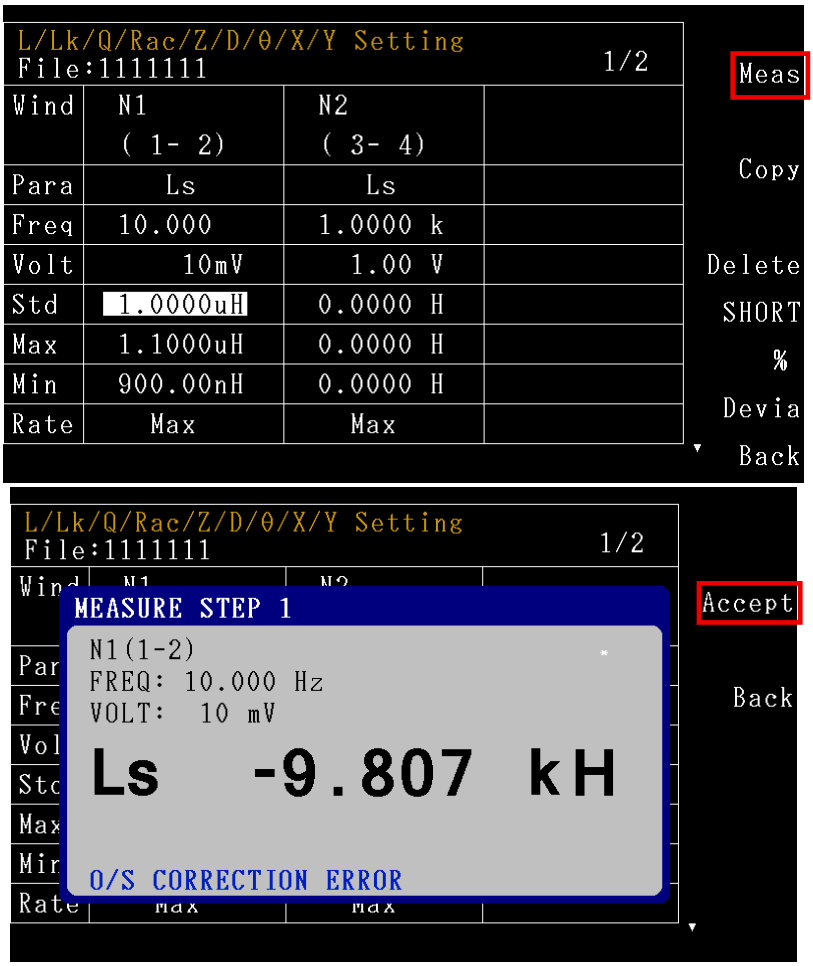
Fixture Relay Short Setting screen.

- **%:** Sets the upper (MAX) and lower (MIN) limits as percentages, calculated from the standard value (STD).
- **Devia:** Deviation function. Measures the DUT through the fixture using the settings for this item. The system automatically calculates the error between the measured value and the item's STD. After the deviation value is confirmed, this error value is automatically deviated during testing.
- **Back:** Exits this function screen.

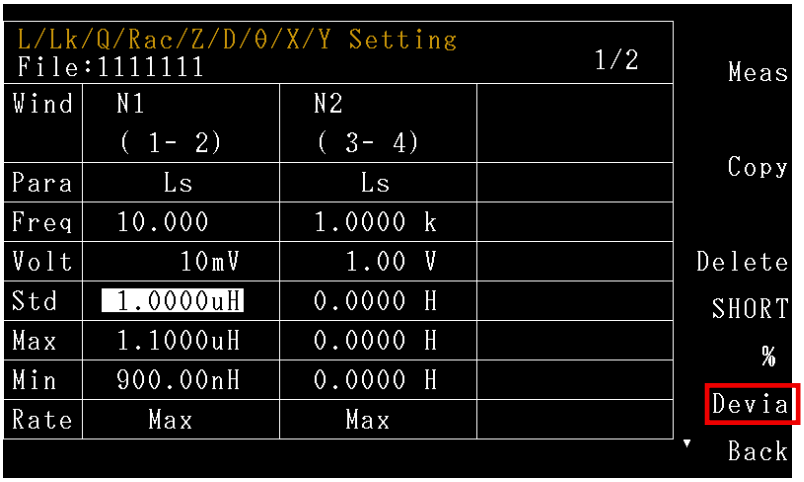
2. **Para:** Select the test parameter. The test parameter shown by the function keys **[Para]** on the right side of the screen.

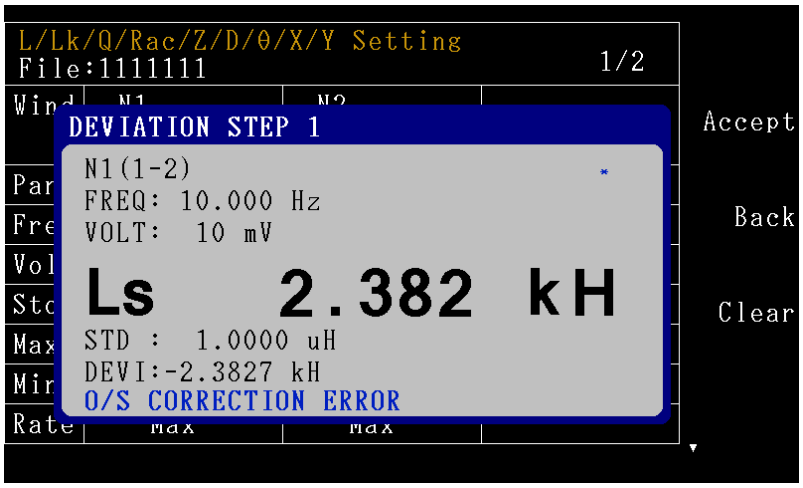


3. **Freq:** The configurable range is 10Hz to 1MHz.
4. **Volt:** The configurable range is 10mV to 2V.
5. **Std:** Sets the standard value.
   a. Enter the value directly using the numeric keys.
   b. Press the **[Meas]** then press the **[Accept]** to use the measured value directly as the standard value.



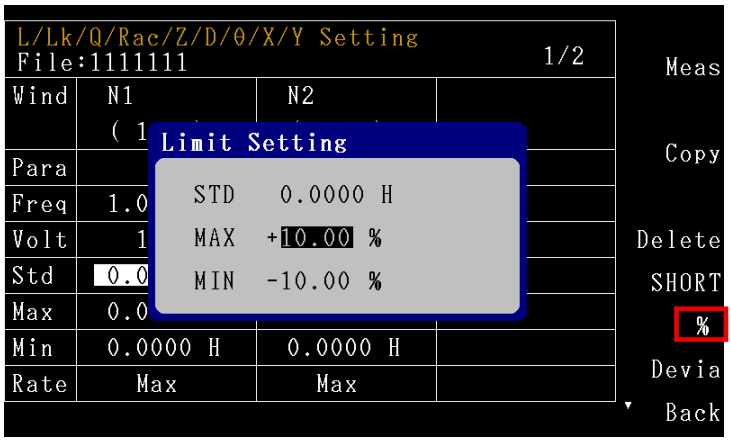
c. First select the **Std**, then press the **[Devia]** function key on the right. The system automatically corrects the measured value to the entered standard value. After confirmation, the system automatically records the deviation value and applies it when this item is tested.



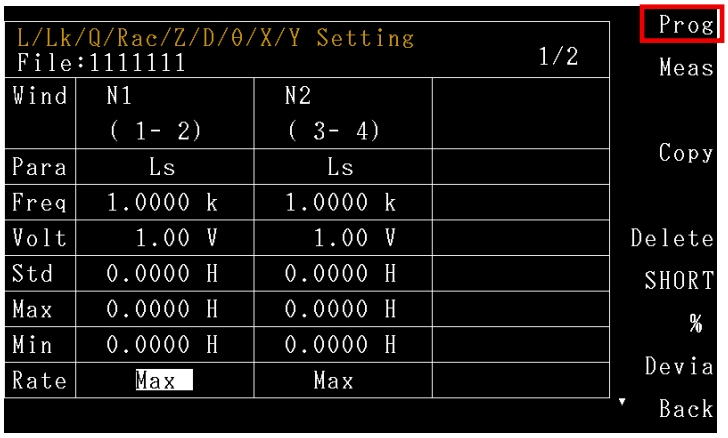


***Perform fixture zero calibration before using methods b or c.**

6. **Max/Min:** Sets the upper/lower-limit fields. Values can be entered directly or set using the **[%]** key. In the upper/lower-limit setup window, enter the MAX and MIN percentage values and press **[Enter]**. The system then automatically enters the calculated values into the MAX and MIN fields.

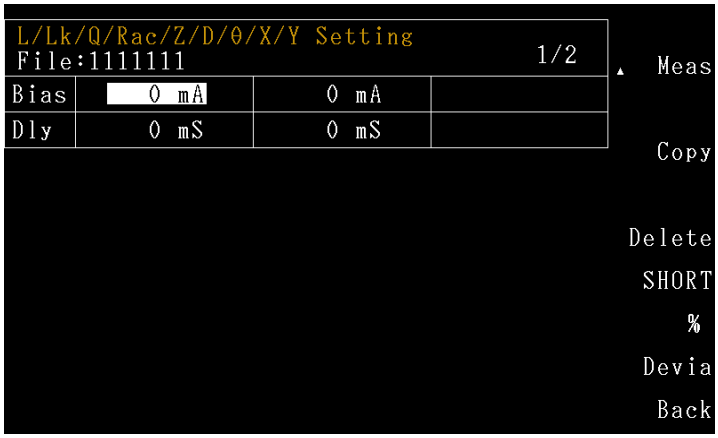


7. **Rate:** Measurement-speed setting field. Selectable range is Max/ Fast/ Med/ Slow.



8. **Bias:** DC Bias Current function. The configurable range is 0 to 100mA. This

function requires a fixture with DC Bias Current capability (F5620HR).

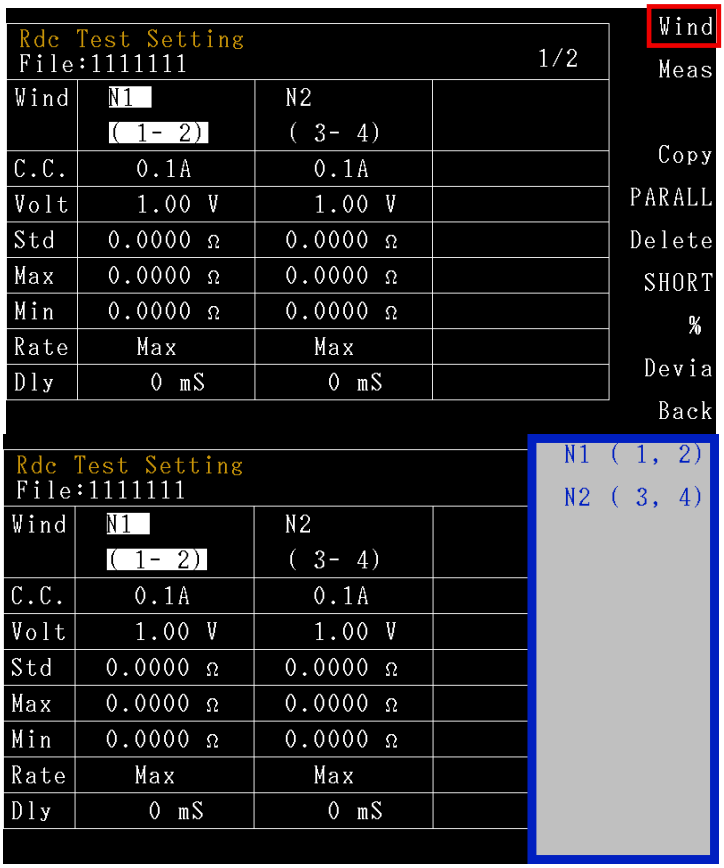


9. **Dly:** Delay-time setting field. Configurable range is 0 to 9999ms.

5.4 DC Resistance (Rdc)

Select the key corresponding to **[Rdc]** to enter the Rdc Test Setting screen.

1. **Wind:**

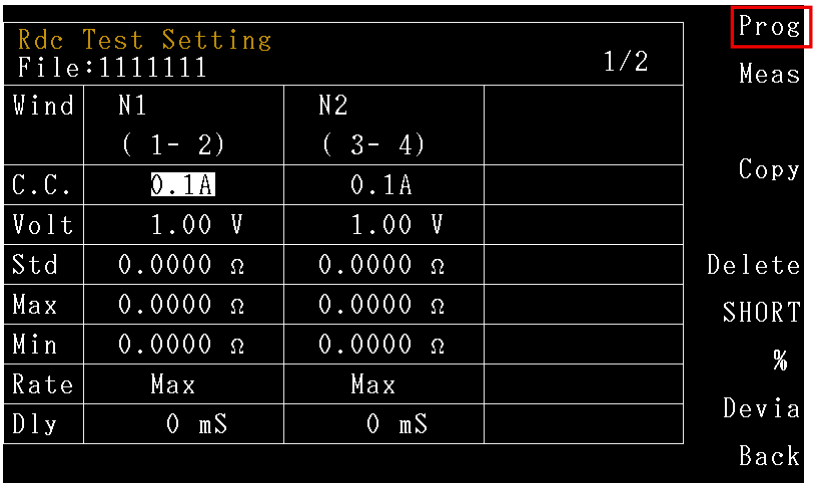


- **Wind:** Press this function key to select a previously edited coil winding.
- **Meas:** Measurement key. Use the test fixture to measure the DUT under the current settings. The measured value can then be applied as the reference

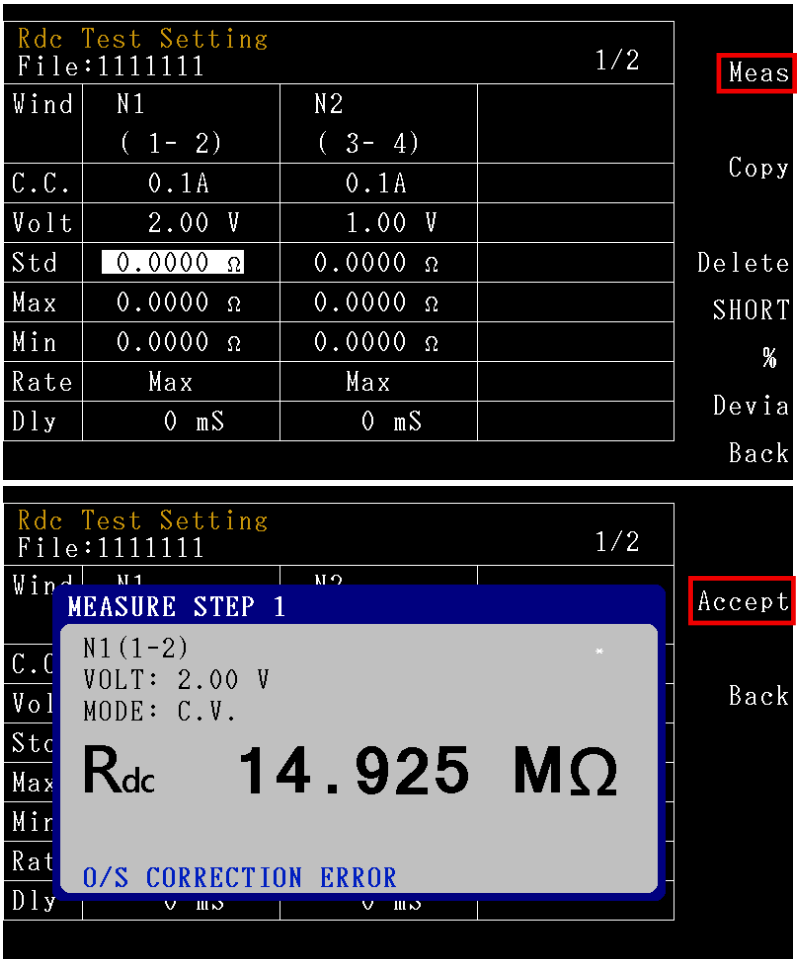
value for this test item. (Place the DUT properly before measurement.)

- **Copy:** Copies this test item to the next group.
- **PARALL:** Configure the transformer's parallel pin assignments. Press this key to open the Parallel Settings screen.
- **Delete:** Deletes this test item.
- **SHORT:** Sets transformer short-circuit pins. Press **[SHORT]** to enter the Fixture Relay Short Setting screen.
- **%:** Sets the upper (MAX) and lower (MIN) limits as percentages, calculated from the standard value (STD).
- **Devia:** Deviation function. Measures the DUT through the fixture using the settings for this item. The system automatically calculates the error between the measured value and the item's STD. After the deviation value is confirmed, this error value is automatically deviated during testing.
- **Back:** Exits this function screen.

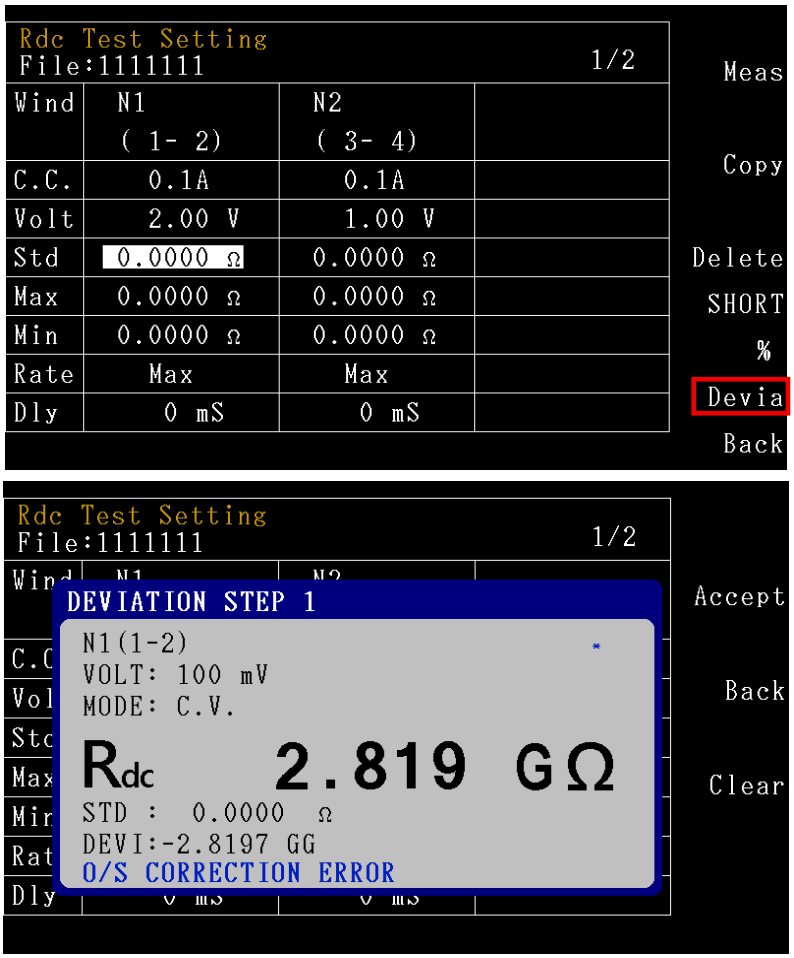
2. **C.C.:** Constant current setting. Press **[Prog]** to select the current range. The available ranges are 0.1 A, 1 A, and OFF.



3. **Volt:** The configurable range is 10mV to 2V.
4. **Std:** Sets the standard value.
   a. Enter the value directly using the numeric keys.
   b. Press the **[Meas]** then press the **[Accept]** to use the measured value directly as the standard value.

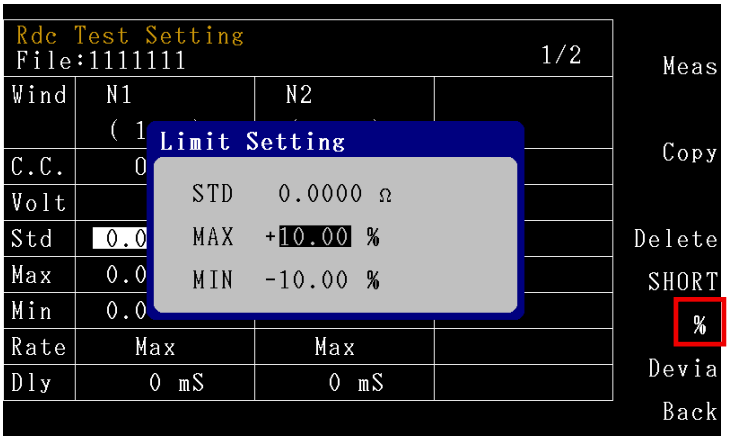


c. First select the **Std**, then press the **[Devia]** function key on the right. The system automatically corrects the measured value to the entered standard value. After confirmation, the system automatically records the deviation value and applies it when this item is tested.

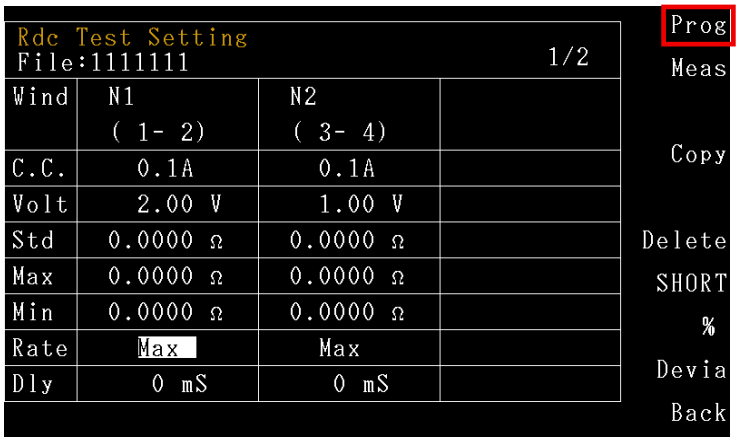


*** Perform fixture zero calibration before using methods b or c.**

5. **Max/Min:** Sets the upper/lower-limit fields. Values can be entered directly or set using the **[%]** key. In the upper/lower-limit setup window, enter the MAX and MIN percentage values and press **[Enter]**. The system then automatically enters the calculated values into the MAX and MIN fields.



6. **Rate:** Measurement-speed setting field. Selectable range is Max/ Fast/ Med/ Slow.

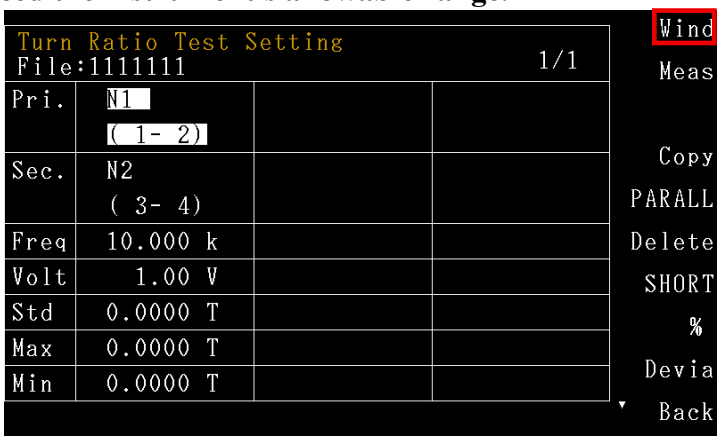


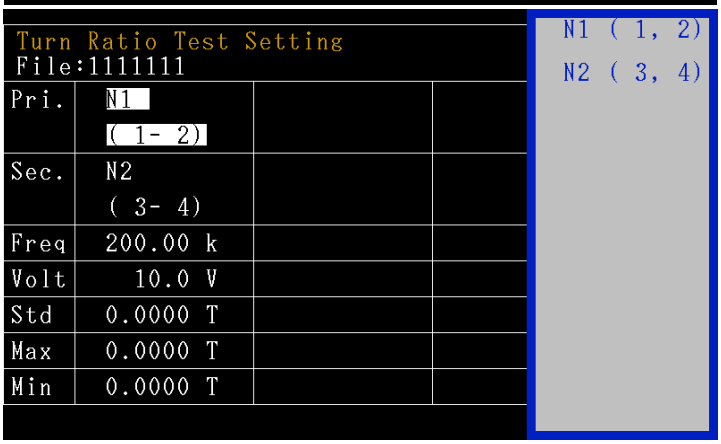
7. **Dly:** Delay-time setting field. Configurable range is 0 to 9999ms.

5.5 TURN RATIO

Select the key corresponding to **[TURN RATIO]** to enter the Turn Ratio Test Setting screen.

1. **Pri. & Sec.:** In the primary winding and secondary winding setting fields, ***It is strongly recommended that, during this setup step, the winding with more turns be assigned to Pri. and the winding with fewer turns to Sec. This avoids excessive voltage caused by forced signal amplification that could exceed the instrument's allowable range.**



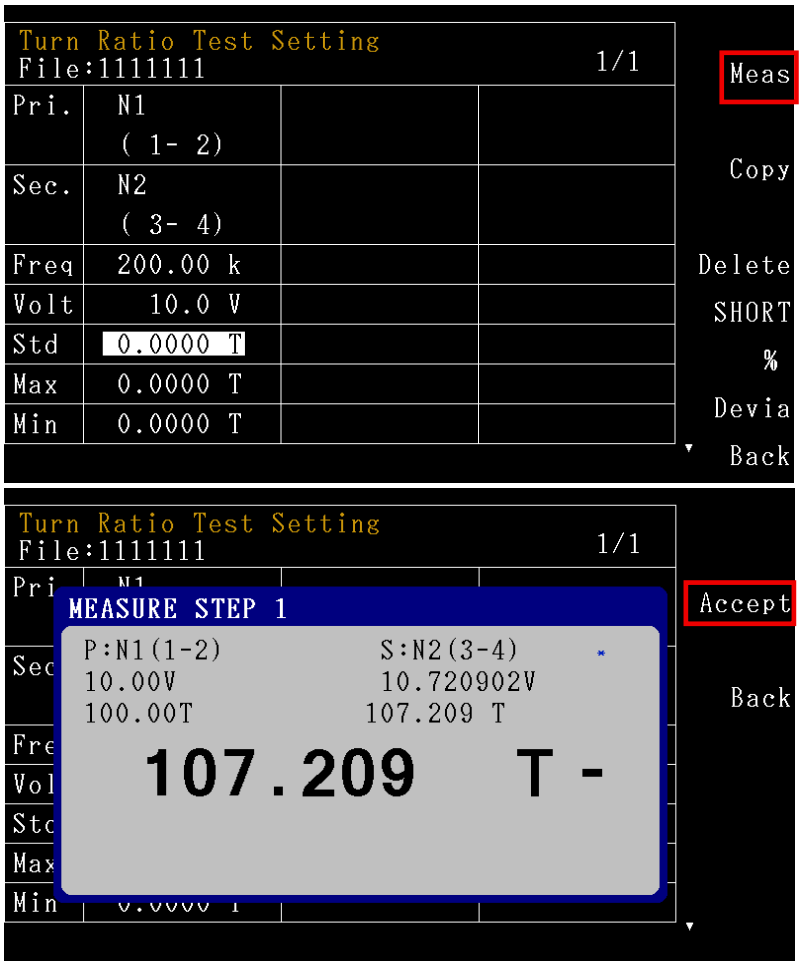


- **Wind:** Press this function key to select a previously edited coil winding.

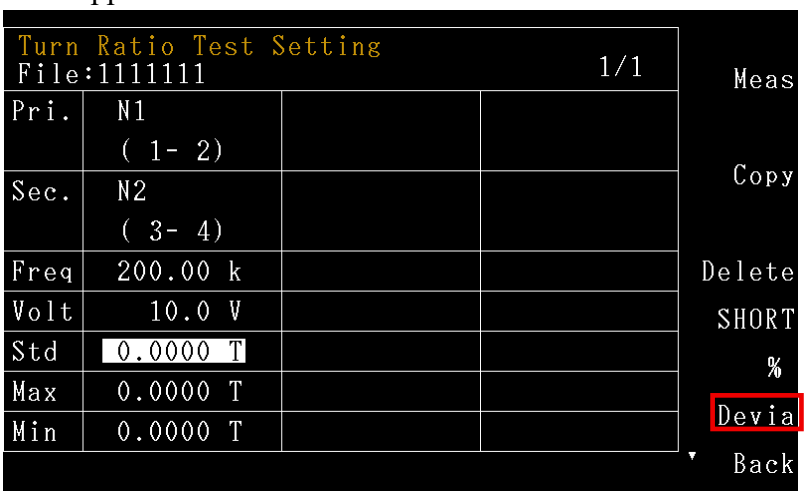
- **Meas:** Measurement key. Use the test fixture to measure the DUT under the current settings. The measured value can then be applied as the reference value for this test item. (Place the DUT properly before measurement.)
- **Copy:** Copies this test item to the next group.
- **PARALL:** Configure the transformer's parallel pin assignments. Press this key to open the Parallel Settings screen.
- **Delete:** Deletes this test item.
- **SHORT:** Sets transformer short-circuit pins. Press **[SHORT]** to enter the Fixture Relay Short Setting screen.
- **%:** Sets the upper (MAX) and lower (MIN) limits as percentages, calculated from the standard value (STD).
- **Devia:** Deviation function. Measures the DUT through the fixture using the settings for this item. The system automatically calculates the error between the measured value and the item's STD. After the deviation value is confirmed, this error value is automatically deviated during testing.
- **Back:** Exits this function screen.

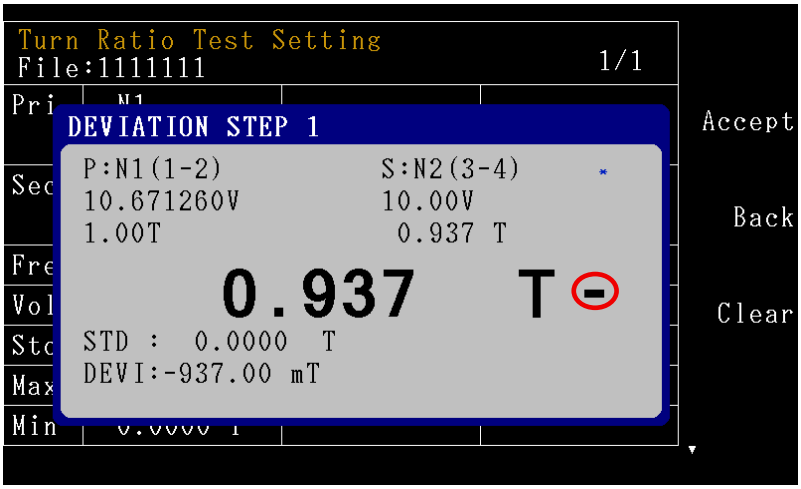
2. **Freq:** The configurable range is 50Hz~200kHz.
3. **Volt:** The configurable range is 10mV~10V.
4. **Std:** Sets the standard value.
   a. Enter the value directly using the numeric keys.

   b. Press the **[Meas]** then press the **[Accept]** to use the measured value directly as the standard value.



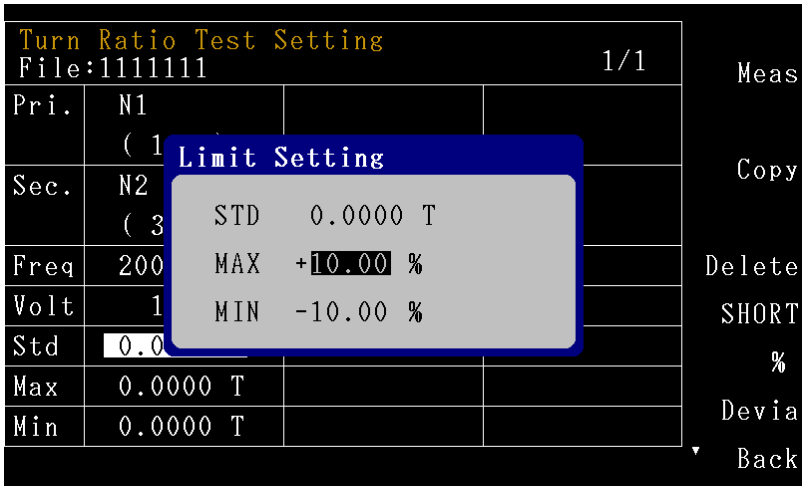
c. First select the **Std**, then press the **[Devia]** function key on the right. The system automatically corrects the measured value to the entered standard value. After confirmation, the system automatically records the deviation value and applies it when this item is tested.



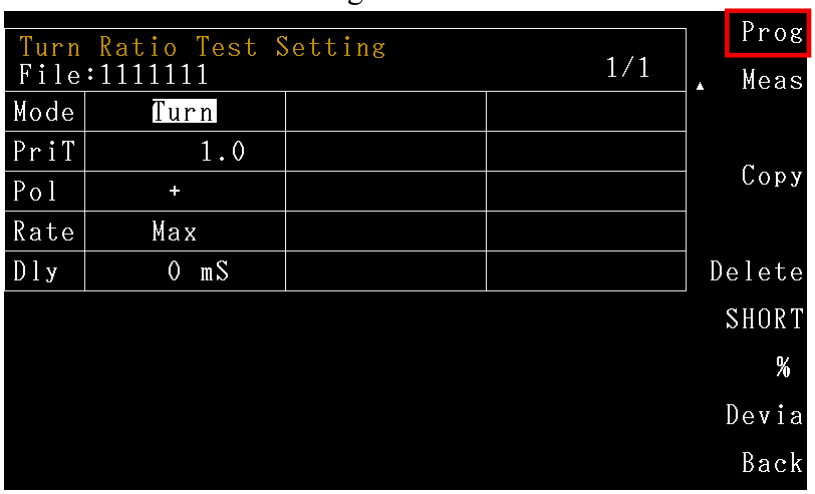


(The "-" sign displayed to the right of the measured value indicates polarity.

5. **Max/Min:** Sets the upper/lower-limit fields. Values can be entered directly or set using the **[%]** key. In the upper/lower-limit setup window, enter the MAX and MIN percentage values and press **[Enter]**. The system then automatically enters the calculated values into the MAX and MIN fields.



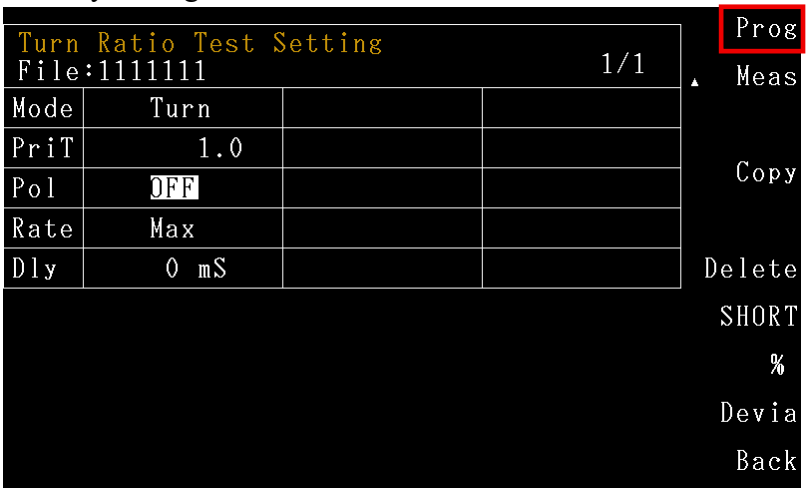
6. **Mode:** Measurement-mode setting field.



- **Turn:** Displays the test value as a turn ratio.

- **Volt:** Displays the test value as a voltage value. (When this function is enabled, PriT cannot be configured.)

7. **PriT:** Primary-winding turns setting field. The configurable range is 1~100000.
8. **Pol:** Polarity setting field. Select "+", "-", or "OFF".

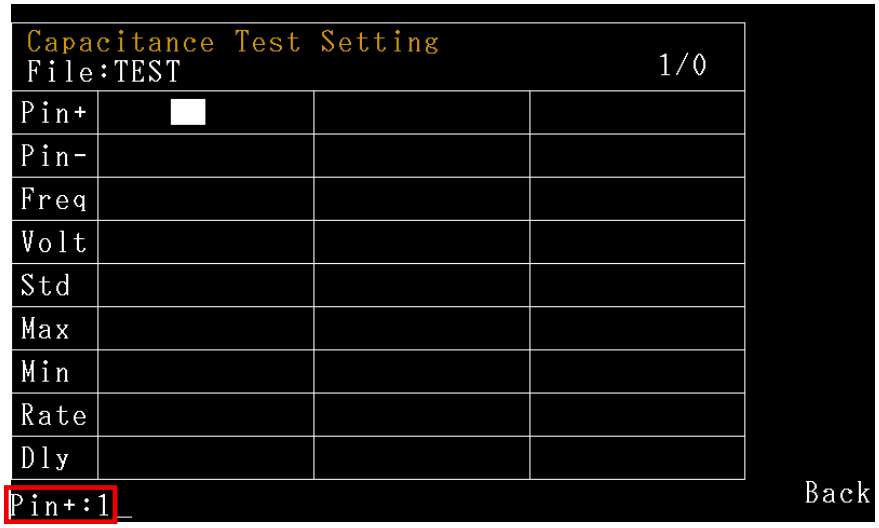


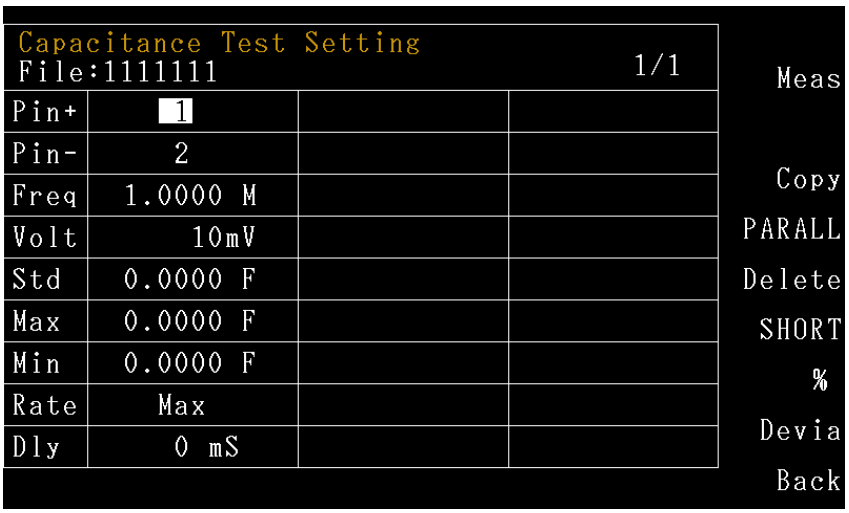
9. **Rate:** Measurement-speed setting field. Selectable range is Max/ Fast/ Med/ Slow.
10. **Dly:** Delay-time setting field. Configurable range is 0 to 9999ms.

5.6 C (Capacitance)

Select the key corresponding to **[C]** to enter the capacitance test setting screen.

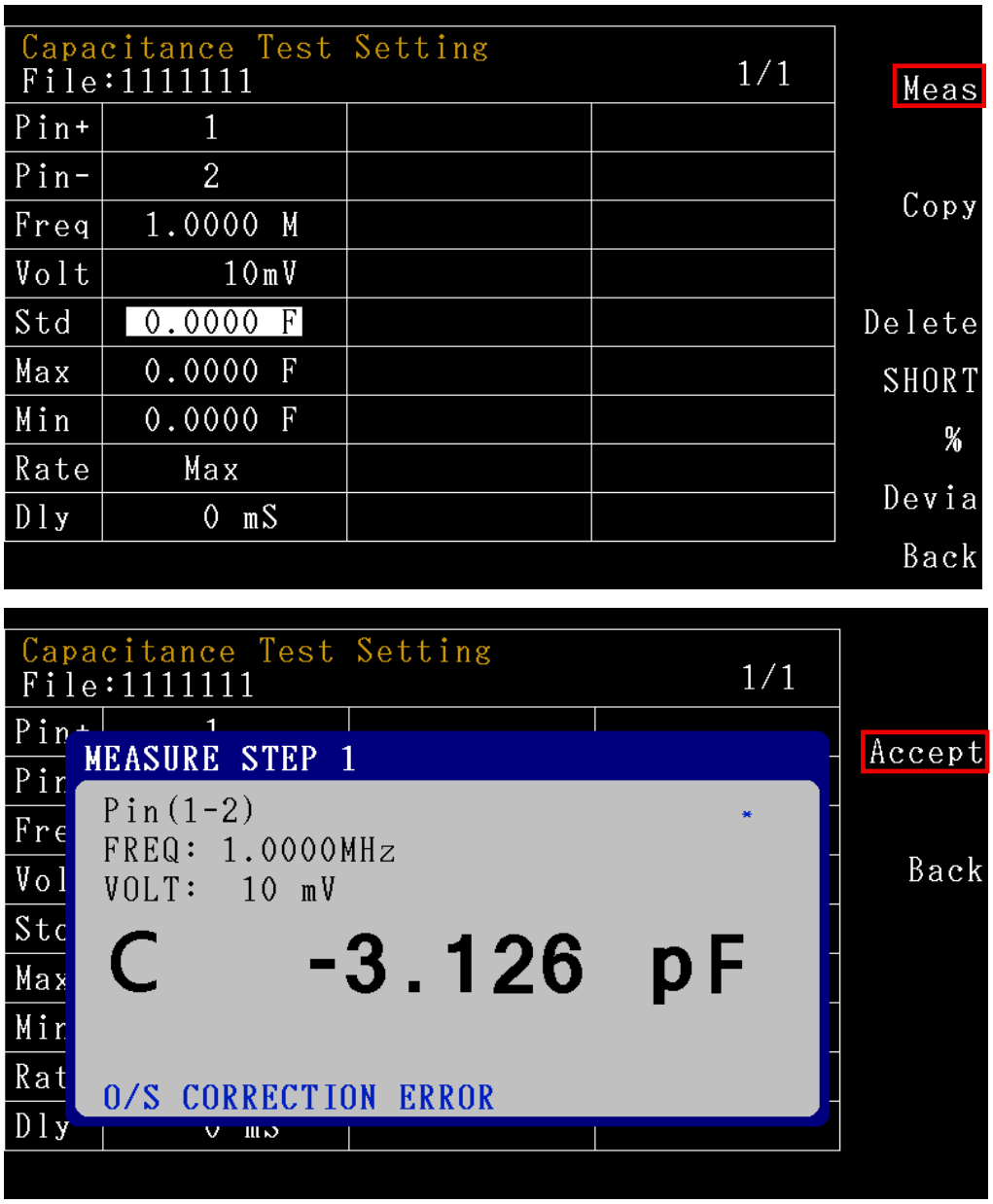
1. **Pin+/ Pin-:** Set the transformer pins used to measure capacitance. Press a numeric key on the front panel to add a new test item.



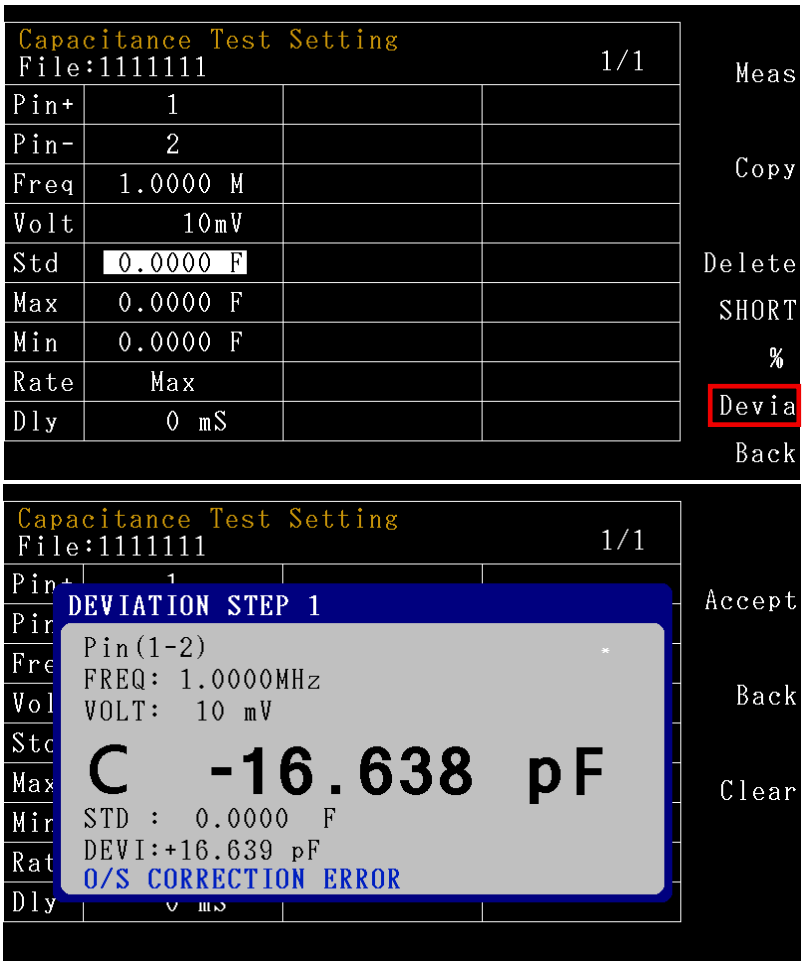


- **Meas:** Measurement key. Use the test fixture to measure the DUT under the current settings. The measured value can then be applied as the reference value for this test item. (Place the DUT properly before measurement.)
- **Copy:** Copies this test item to the next group.
- **PARALL:** Configure the transformer's parallel pin assignments. Press this key to open the Parallel Settings screen.
- **Delete:** Deletes this test item.
- **SHORT:** Sets transformer short-circuit pins. Press **[SHORT]** to enter the Fixture Relay Short Setting screen.
- **%:** Sets the upper (MAX) and lower (MIN) limits as percentages, calculated from the standard value (STD).
- **Devia:** Deviation function. Measures the DUT through the fixture using the settings for this item. The system automatically calculates the error between the measured value and the item's STD. After the deviation value is confirmed, this error value is automatically deviated during testing.
- **Back:** Exits this function screen.

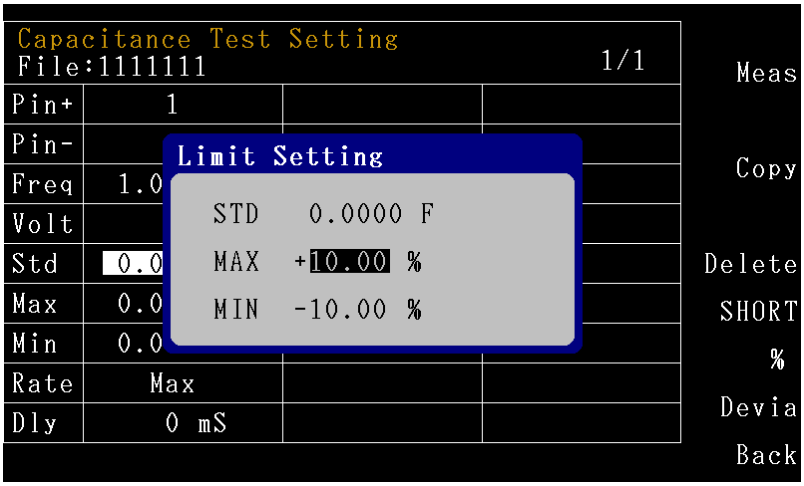
2. **Freq:** The configurable range is 10Hz to 1MHz.
3. **Volt:** The configurable range is 10mV to 2V.
4. **Std:** Sets the standard value.
   a. Enter the value directly using the numeric keys.
   b. Press the **[Meas]** then press the **[Accept]** to use the measured value directly as the standard value.



c. First select the **Std**, then press the **[Devia]** function key on the right. The system automatically corrects the measured value to the entered standard value. After confirmation, the system automatically records the deviation value and applies it when this item is tested.



5. **Max/Min:** Sets the upper/lower-limit fields. Values can be entered directly or set using the **[%]** key. In the upper/lower-limit setup window, enter the MAX and MIN percentage values and press **[Enter]**. The system then automatically enters the calculated values into the MAX and MIN fields.



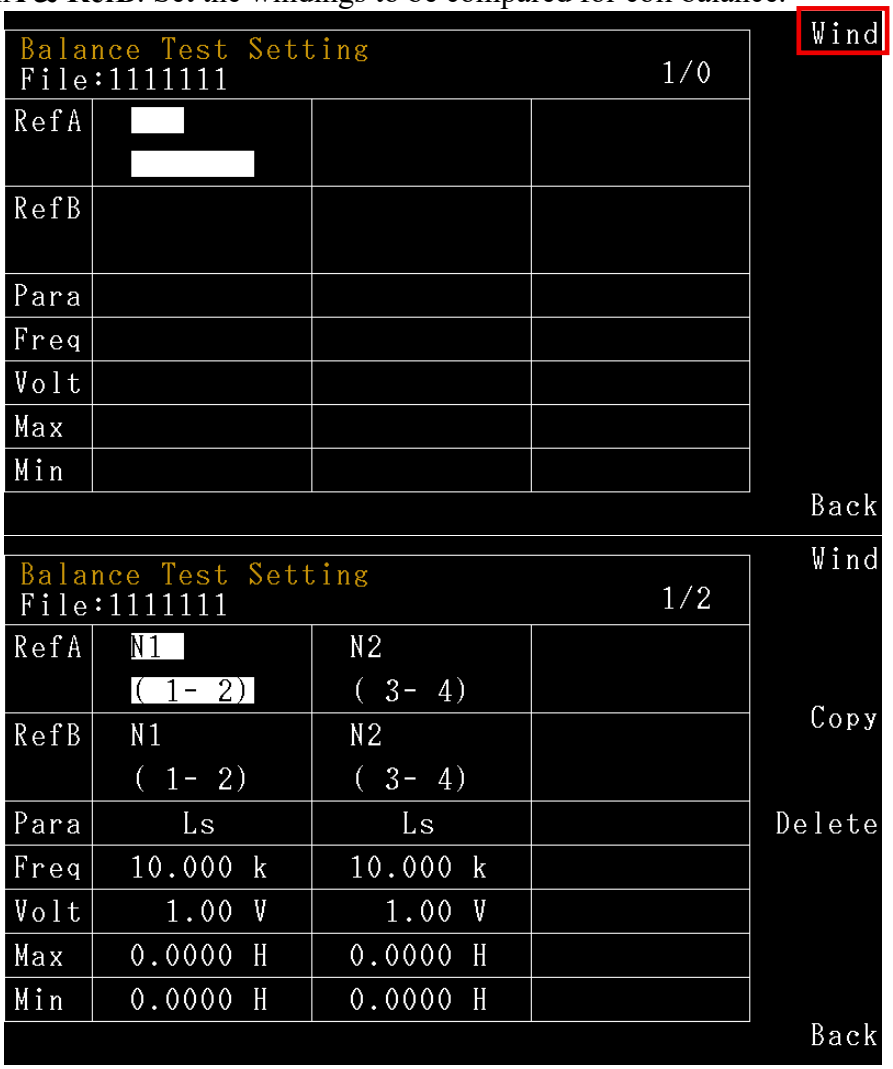
6. **Rate:** Measurement-speed setting field. Selectable range is Max/ Fast/ Med/ Slow.
7. **Dly:** Delay-time setting field. Configurable range is 0 to 9999ms.

5.7 BALANCE

Coil-balance test-item setup. Two coil windings can be compared under the same conditions. Note that the windings edited for coil balance must be windings for which actual test items have been created; otherwise, the correct result cannot be calculated.

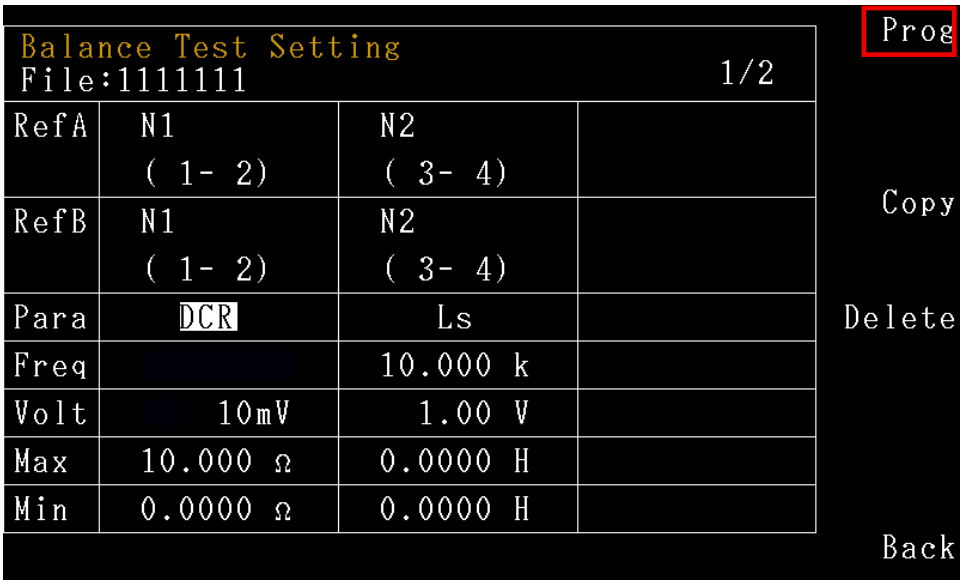
Select the key corresponding to **[BALANCE]** to enter the Balance Test setting screen.

1. **RefA & RefB**: Set the windings to be compared for coil balance.



- **Wind:** Press this function key to select a previously edited coil winding.
- **Copy:** Copies this test item to the next group.
- **Delete:** Deletes this test item.
- **Back:** Exits this function screen.

2. **Para:** Test-item field. Press the **[Prog]** to select among Ls, Lp, Lk, Rs, Z, and DCR.

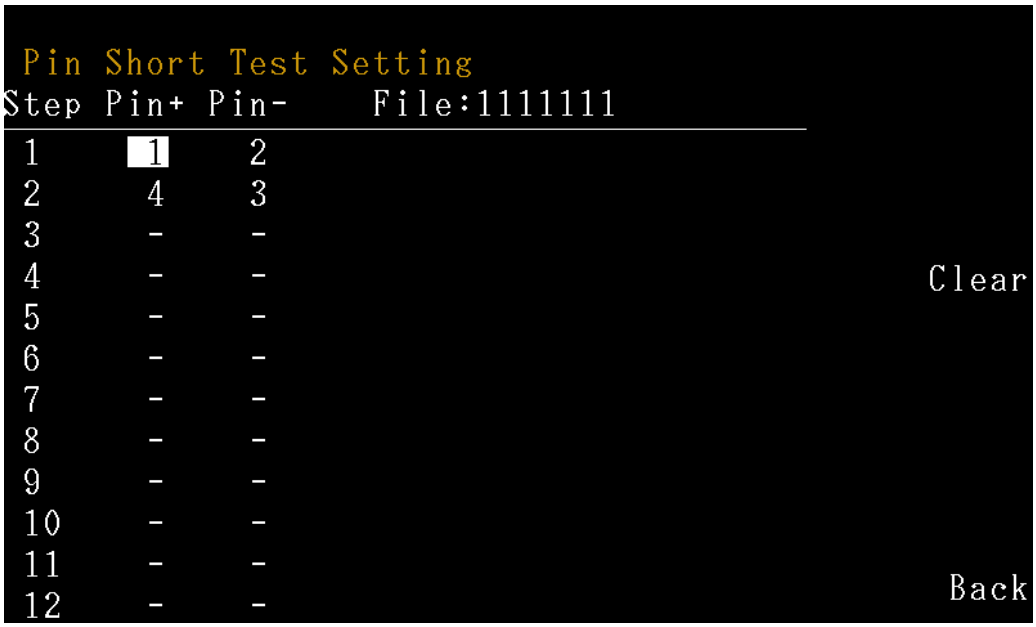


3. **Freq:** The configurable range is 10Hz to 1MHz.
4. **Volt:** The configurable range is 10mV to 2V.
5. **Max/Min:** Set the upper/lower-limit fields.

5.8 PIN SHORT

Transformer short-circuit test item.

Select the key corresponding to **[PIN SHORT]** to enter the Pin Short Test setting screen.

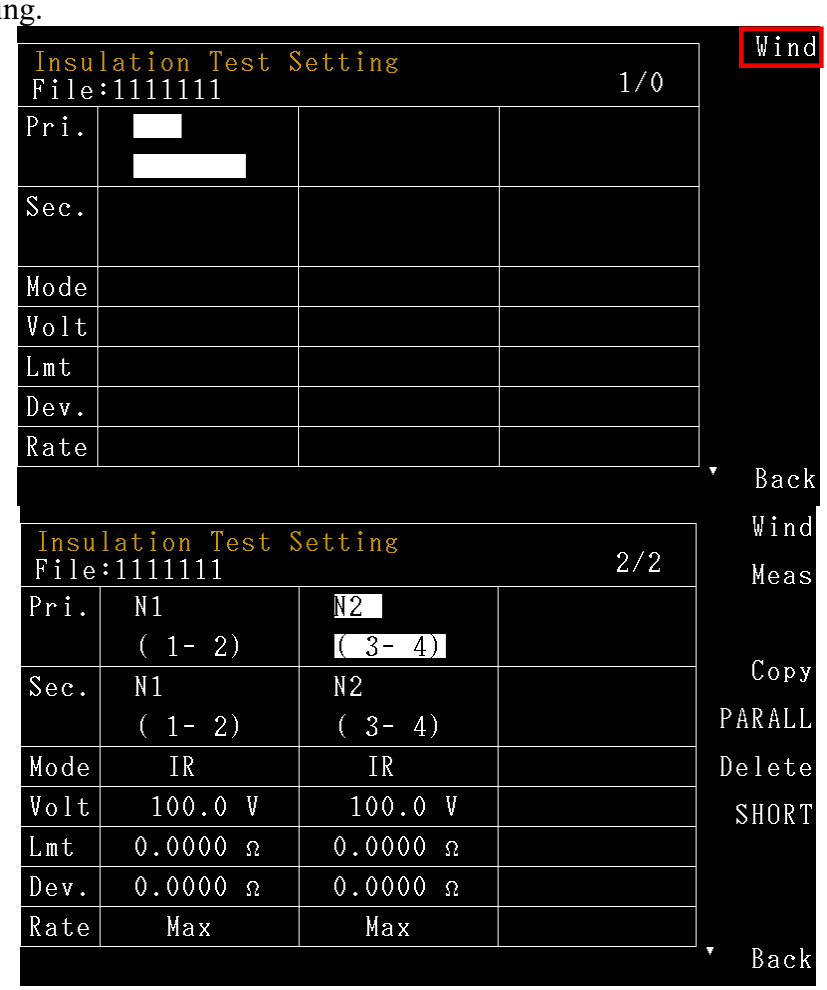


1. **Step:** Test step. Up to 12 short-circuit test items can be edited.
2. **Pin+/ Pin-:** Set the transformer pin combination for the short-circuit test.

5.9 INSULATION

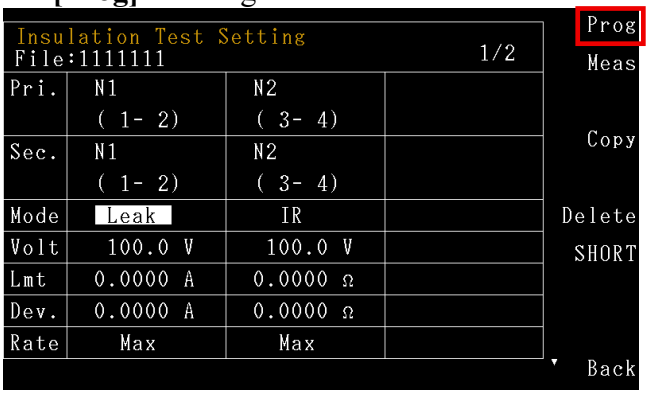
Select the key corresponding to **[INSULATION]** to enter the Insulation Test Setting screen.

1. **Pri. & Sec.:** Setup fields for the transformer's primary winding and secondary winding.

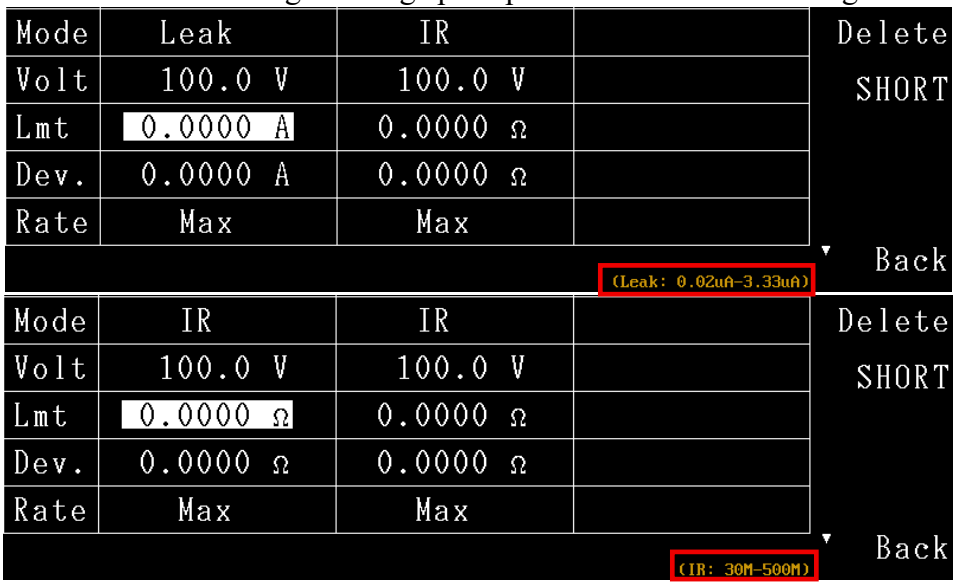


- **Wind:** Press this function key to select a previously edited coil winding.
- **Meas:** Measurement key. Use the test fixture to measure the DUT under the current settings. The measured value can then be applied as the reference value for this test item. (Place the DUT properly before measurement.)
- **Copy:** Copies this test item to the next group.
- **PARALL:** Configure the transformer’s parallel pin assignments. Press this key to open the Parallel Settings screen.
- **Delete:** Deletes this test item.
- **SHORT:** Sets transformer short-circuit pins. Press **[SHORT]** to enter the Fixture Relay Short Setting screen.
- **Back**: Exits this function screen.

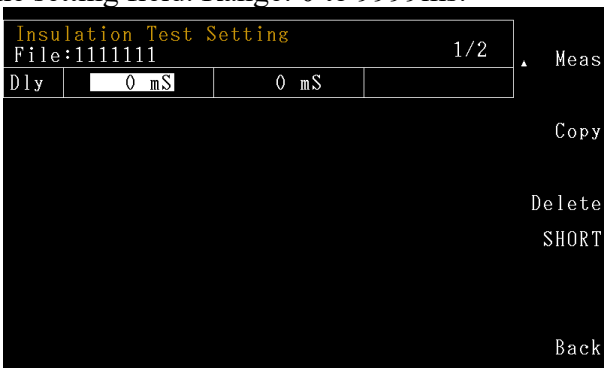
2. **Mode:** Press the **[Prog]** to change Leak or IR mode.



3. **Volt:** The configurable range is 10.0 to 100.0V.
4. **Lmt:** Sets the limit range. A range prompt is shown in the lower-right corner.



5. **Dev.:** Deviation function. Measures the DUT through the fixture using the settings for this item. The system automatically calculates the error between the measured value and the item's STD. After the deviation value is confirmed, this error value is automatically deviated during testing.
6. **Rate:** Measurement-speed setting field. Selectable range is Max/ Fast/ Med/ Slow.
7. **Dly:** Delay-time setting field. Range: 0 to 9999ms.



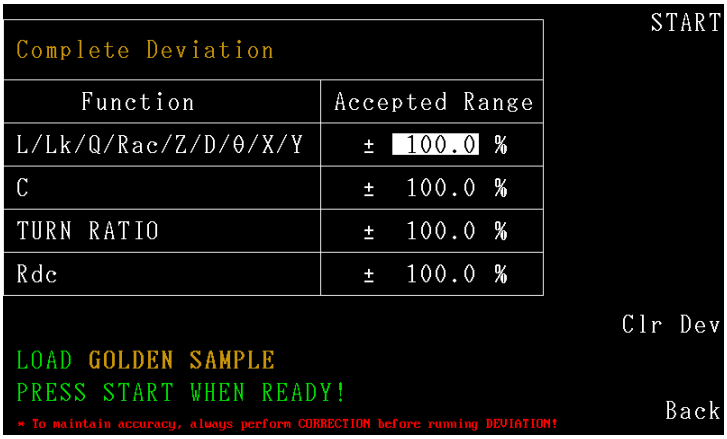
5.10 CORRECTION/DEVIATION

Fixture-error calibration. The purpose of calibration is to remove errors caused by parasitic capacitance or series impedance in the fixture or test leads.
Select the key corresponding to **[CORRECTION/DEVIATION]** to enter the CORRECTION screen.



1. **OPEN:** Calibrates the fixture error under open-circuit conditions.
2. **SHORT**: Calibrates the fixture error under short-circuit conditions.
3. **Both:** First calibrates the fixture error under open-circuit conditions, then calibrates the error under short-circuit conditions.
4. **Ext S/C:** Performs external short calibration. Before executing this function, short-circuit all channels to be used (for example, using a shorting plate) so that the actual zero point is calibrated up to the DUT terminals.
5. **Back:** Exits this function screen.
6. **Dev.:** For this setting, securely place the GOLDEN SAMPLE in the F5620HR test fixture.

*** For this setup, place the GOLDEN SAMPLE properly in the F5620HR test fixture.**



- **L/Lk/Q/Rac/Z/D/θ/X/Y (AC Test Item):** Displays the test items for which deviation can be performed.

- **Accepted Range:** Sets the upper and lower limits of the deviation value to define the maximum allowable deviation range.
- **Clr Dev:** Clears all deviation values.
- **Back:** Exits this function screen.
- **START:** Enters the COMPLETE DEVIATION screen.



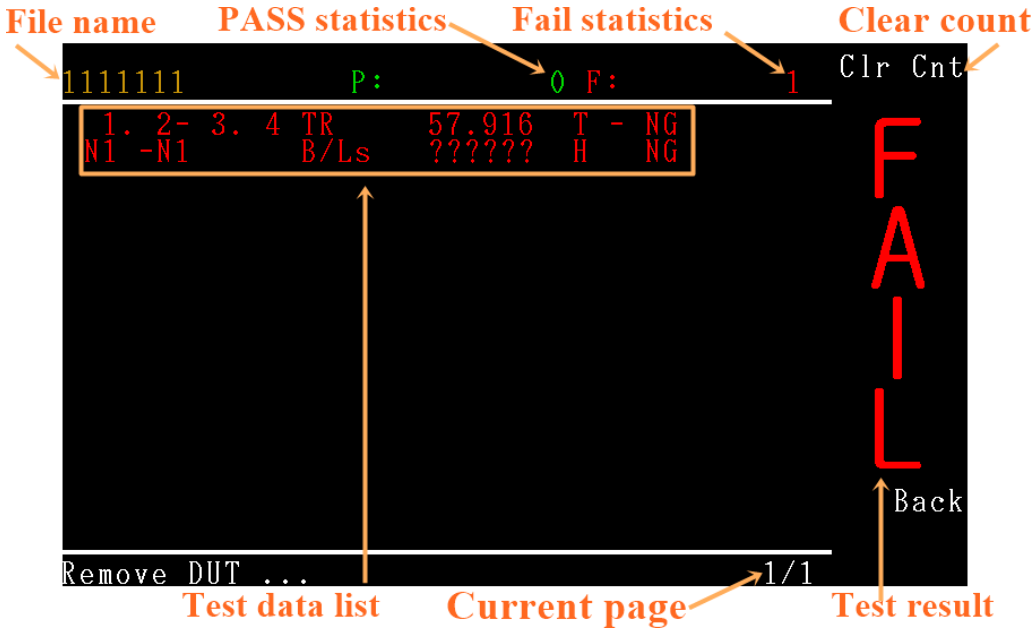
  - **START:** Start the test and calculate the **deviation value**. The previously configured test items are executed in sequence. Each measured value is compared with the standard value set for the corresponding test item, and the deviation is applied based on that standard value.
    REJECT: The deviation value exceeds the configured upper or lower limit and cannot be applied.
    ACCEPT: The deviation value is within the acceptable range.
  - **Save:** Saves the deviation values from this test.
  - **Back:** Exits this function screen.

Data obtained after zero calibration is stored in the instrument's internal flash memory and is retained even after power is turned off. However, regular zero calibration is necessary to obtain the most accurate measurements. Calibration should generally be repeated whenever the test frequency or drive voltage is changed.

(Before calibration, remove the transformer from the fixture.)

5.11 Test Mode

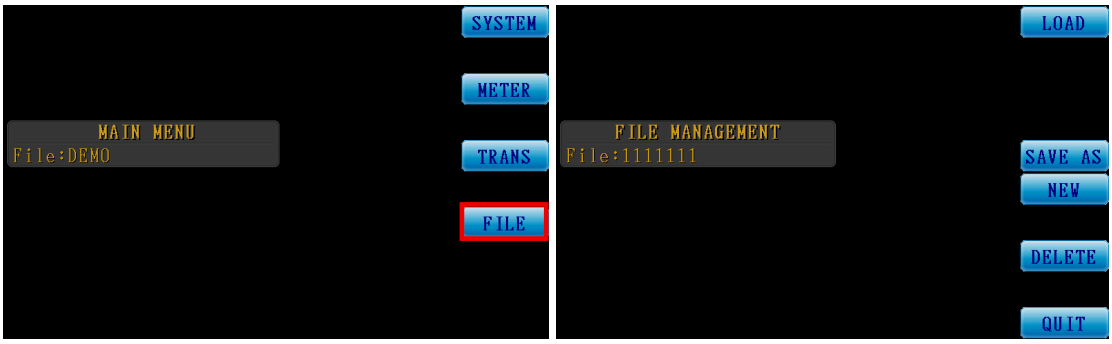
After completing the editing steps, press the **[Test]** key on the front panel to enter test page, then press **[Trigger]** to perform the transformer test.



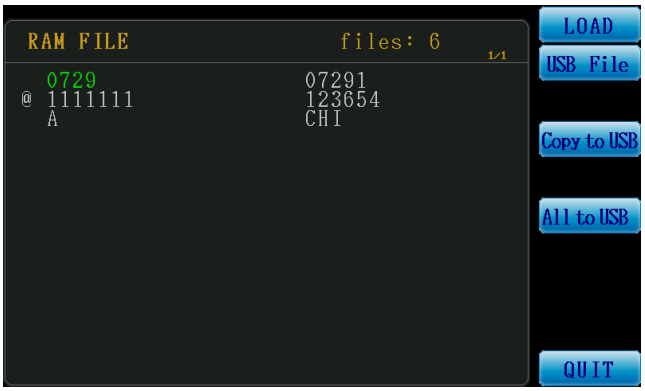
***The maximum count for both good and defective products is 999,999,999. If this value is exceeded, the count returns to 1 and continues accumulating.**

Chapter 6 File Management

Press the **[Menu]** key on the front panel, then select the key corresponding to **[FILE]**.



1. **LOAD:** Loads a file. Use the arrow keys to select the file to be loaded. If file {0729} is displayed in green, it is the currently selected file. Click the **[LOAD]** function key on the right to load it. A file with an {@} symbol before its name indicates the file currently in use.



- **USB File:** Switches to the USB storage.
- **Copy to USB:** Copies the selected files from the RAM to the USB.
- **ALL to USB:** Copies all files from the RAM to the USB.

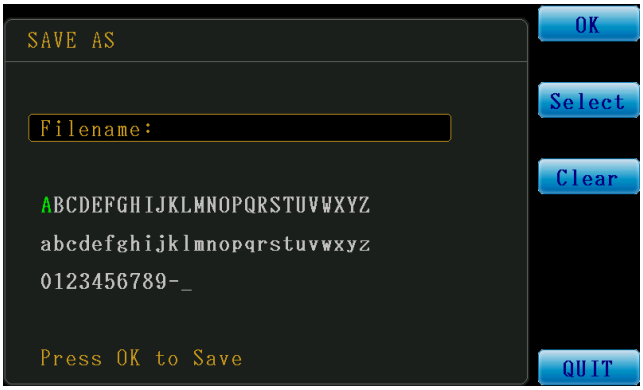
The save path is (USB:\\TF_526xHR\\SetFile). x=5, 6, 7



- **RAM File:** Switches to the internal storage.
- **Copy to RAM:** Copies the selected files from the USB to the RAM.
- **ALL to RAM:** Copies all files from the USB to the RAM.

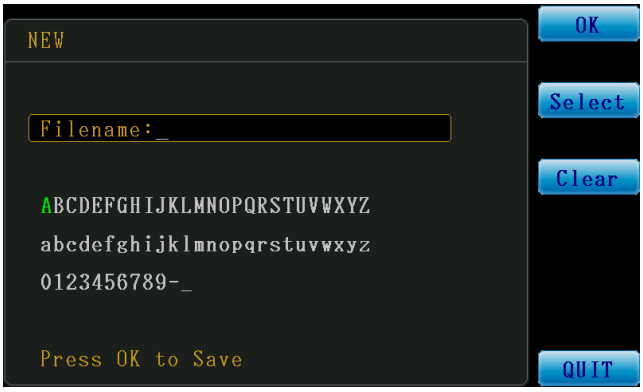
***CAUTION: If a file with the same name already exists in the RAM, it will be replaced by the file on the USB.**

2. SAVE AS: Saves as a new file. Use the arrow keys to select and form Filename.



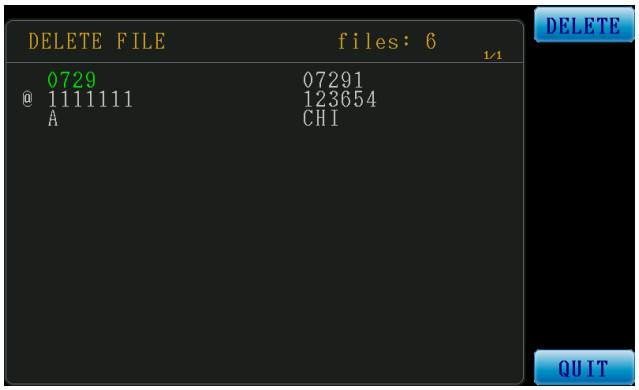
- **Select:** Enter characters into the table.
- **Clear:** Backspace the characters from the table.

3. **NEW:** Creates a new file. Use the arrow keys to select and form Filename.



- **Select:** Enter characters into the table.
- **Clear:** Backspace the characters from the table.

4. **DELETE:** Deletes the selected file. Use the arrow keys to select the file to delete.



5. **QUIT:** Returns to the MAIN MENU.

Chapter 7 Communication Interfaces

Establishing a LAN Communication Interface (NI VISA):

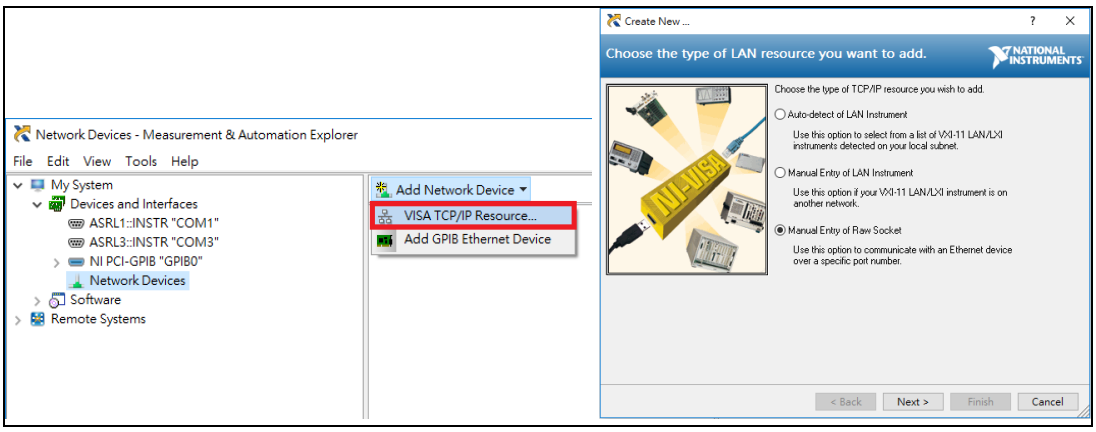
After completing the LAN settings on the instrument, a computer can communicate with the instrument over the network. The following section briefly describes how to establish communication with the instrument using NI VISA.

First, start NI Measurement & Automation Explorer on the computer. As shown below, select **[Network Devices]** under **[Devices and Interfaces]** on the left, then select **[Add Network Device]** in the upper-right corner to add the instrument.

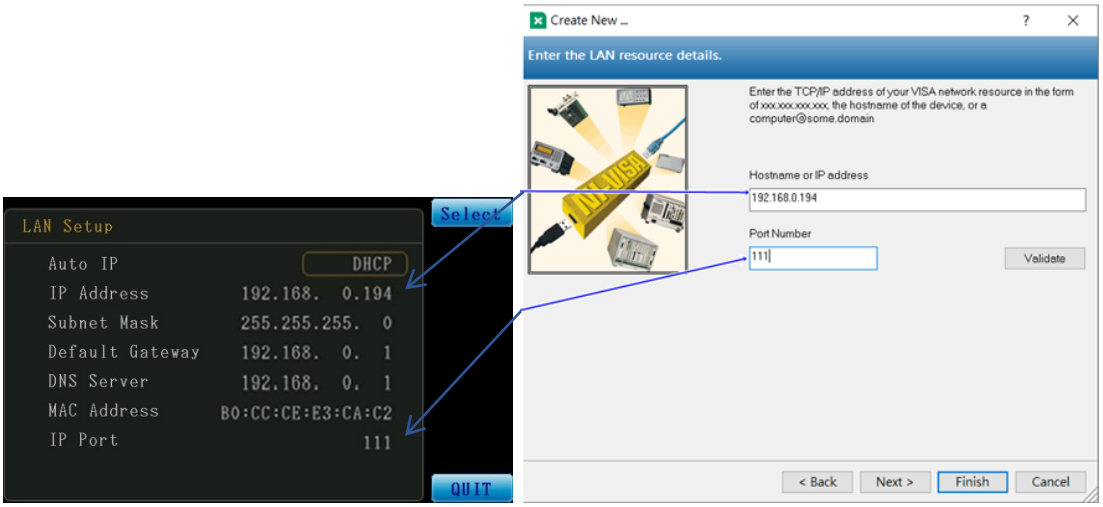


After selecting **[Add Network Device]**, a drop-down window appears. After selecting

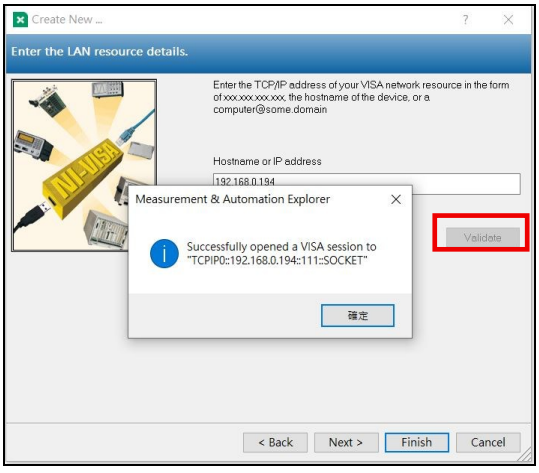
[VISA TCP/IP Resource], a window will appear. Select [**Manual Entry of Raw Socket]**, and then click **[Next >]** to proceed to the next step.



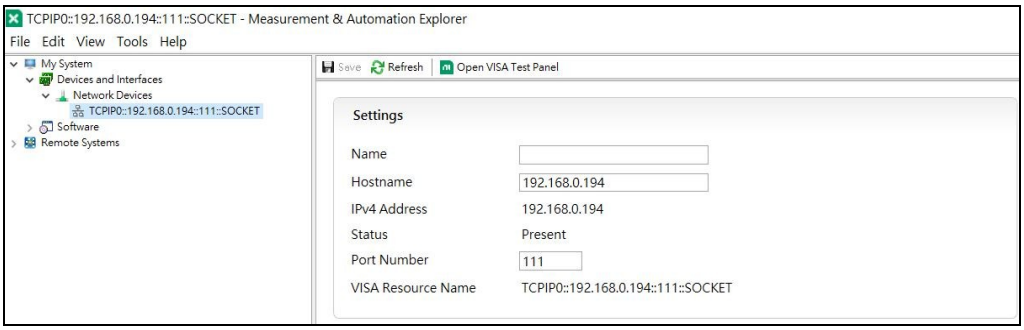
Enter the IP Address displayed on the instrument in the **[Hostname or IP address]** field, and enter the IP Port value in the **[Port Number]** field.



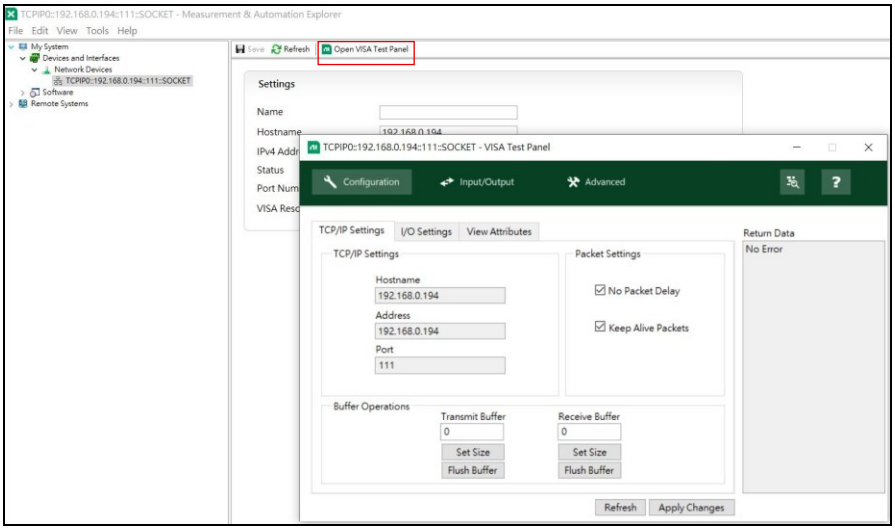
After completing the fields, click **[Validate]** to check whether communication with the instrument is successfully established. When the message Successfully opened a VISA session is displayed, the instrument connection is successful.



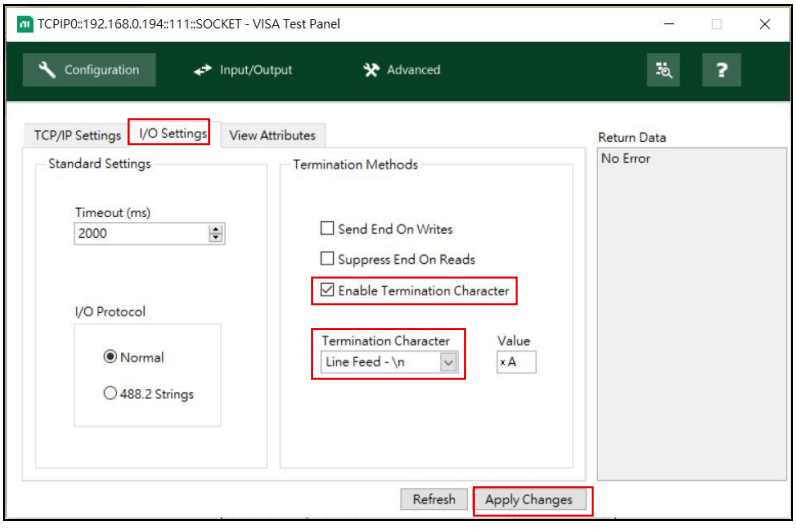
After the connection is established successfully, click Finish to return.
The newly added device (TCPIP0::192.168.0.194::111::SOCKET) is now displayed under **[Network Devices]**.



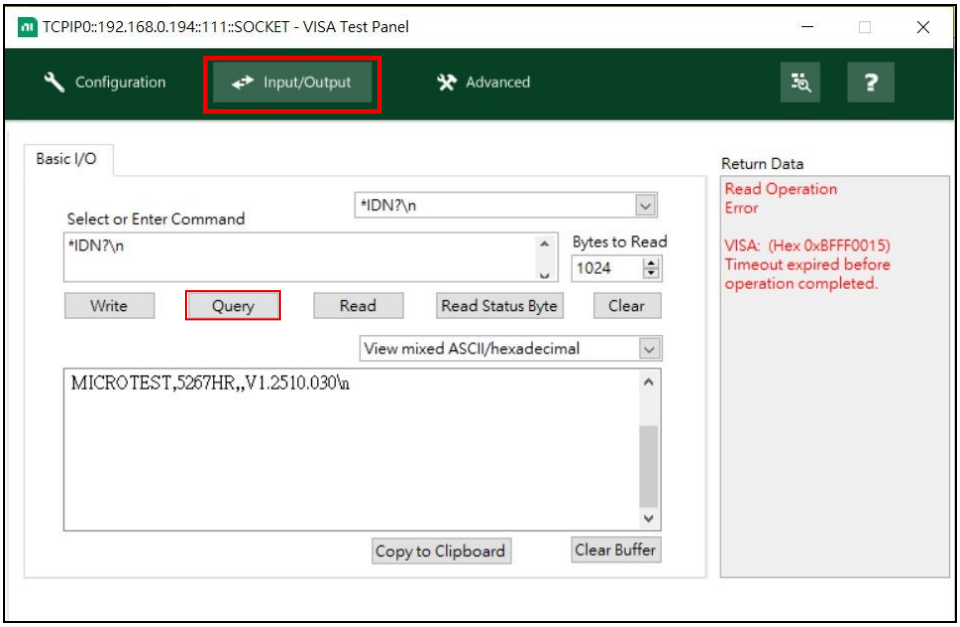
Click **[Open VISA Test Panel]** in the upper-right corner of the window to open the communication interface.



Click the **[I/O Settings]** tab. Select only **[Enable Termination Character]**, and select **[Line Feed - \\n]** from the **[Termination Character]** drop-down list. Click **[Apply Changes]** to confirm the changes.



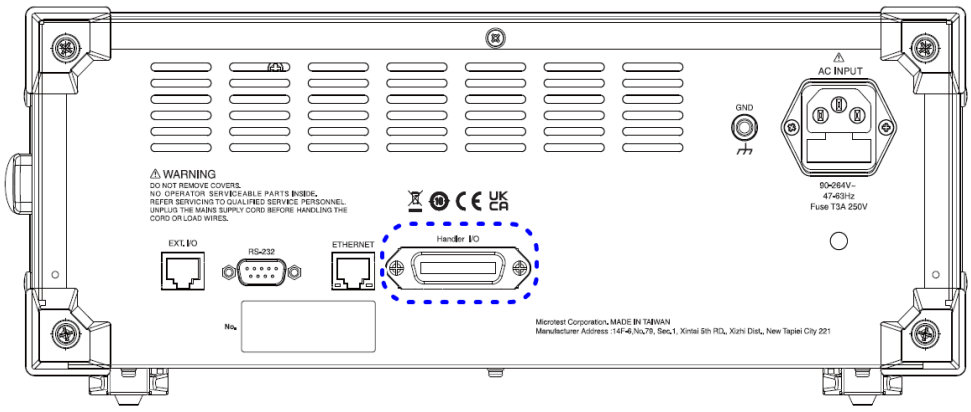
Select the **[Input/Output]** function and click **[Query]**. The lower field should display the message returned by the instrument (MICROTEST,5267HR,,,,V1.2510.030\\n).

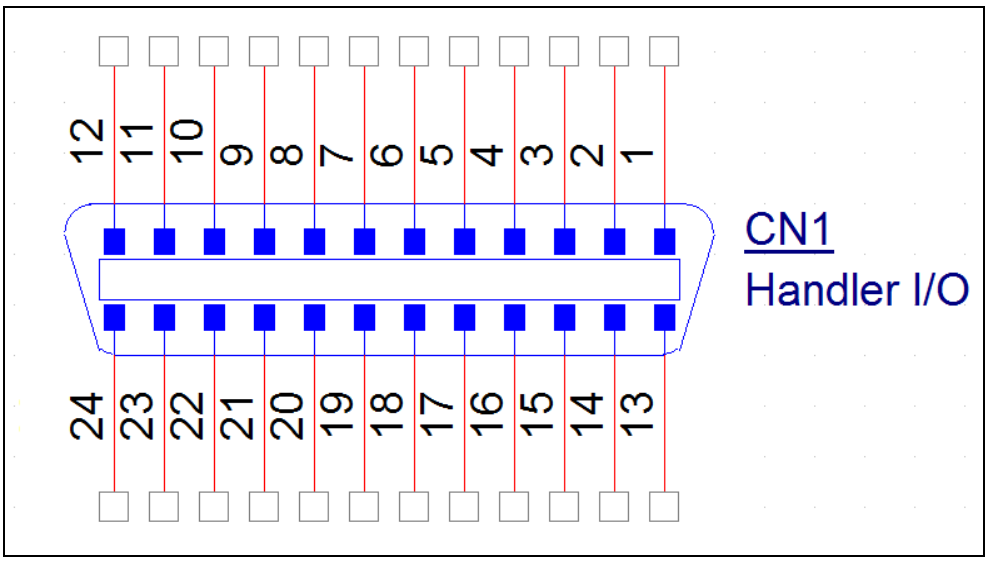


7.1 Handler Interface (Remote-Control Interface)

The remote-control interface uses the Handler I/O port on the rear panel of the instrument to control instrument testing with external signals.

To use this function, go to System Setup and set the Handler remote-control interface to ON.





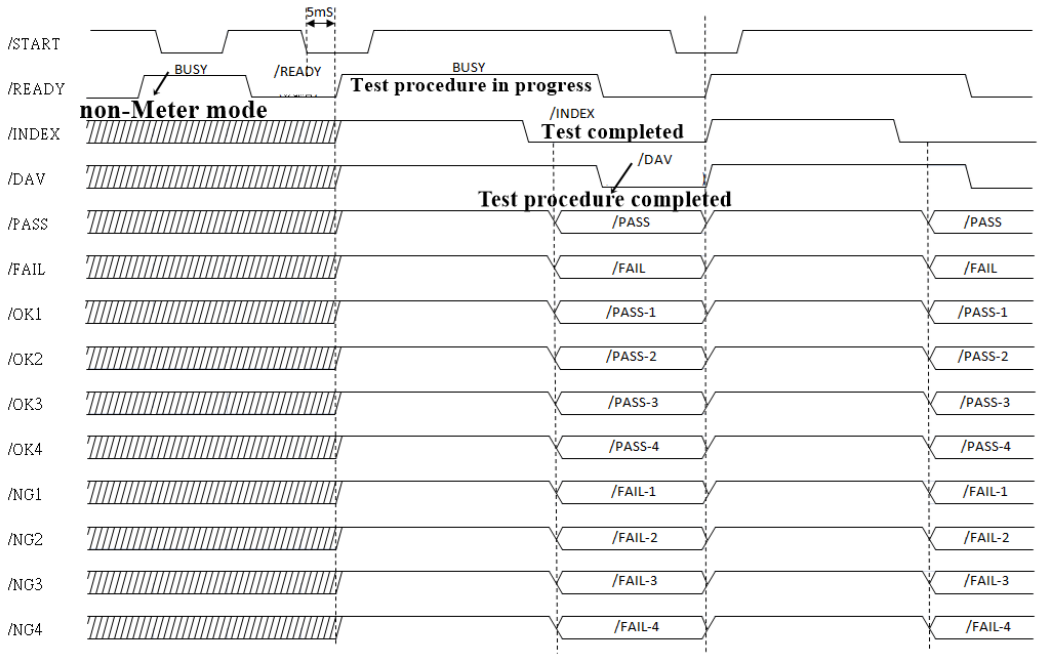
The definitions of the remote-control interface differ slightly between Meter Mode and Transformer Test Mode. Refer to the descriptions below.

● **Handler I/O Pin Description (for Meter Mode):**

Pin	Pin Name	I/O	Function
1	/START	I	Test trigger
2	/ DAV	O	End of test program
3	/PASS	O	Test result judged as good product
4	/FAIL	O	Test result judged as defective product
5	GND	-	Ground
6	GND	-	Ground
7	GND	-	Ground
8	NULL	-	No connection
9	NULL	-	No connection
10	+5V	-	DC +5 V output
11	NULL	-	No connection
12	NULL	-	No connection
13	/READY	O	Test ready, meaning that a trigger can be accepted. (When a measurement program is running, or when the instrument is not in Meter Mode or Transformer Test Mode, this signal is not in the Ready state.)
14	/INDEX	O	Measurement program completed (measurement only; the entire test program has not yet completed)
15	/OK1	O	When the comparison function is enabled in Meter Mode, test item 1 is judged as good.
16	/OK2	O	When the comparison function is enabled in Meter Mode, test item 2 is judged as good.
17	/OK3	O	When the comparison function is enabled in Meter Mode, test item 3 is judged as good.
18	/OK4	O	When the comparison function is enabled in Meter Mode, test item 4 is judged as good.
19	/NG1	O	When the comparison function is enabled in Meter Mode, test item 1 is judged as defective.
20	/NG2	O	When the comparison function is enabled in Meter

			Mode, test item 2 is judged as defective.
21	/NG3	O	When the comparison function is enabled in Meter Mode, test item 3 is judged as defective.
22	/NG4	O	When the comparison function is enabled in Meter Mode, test item 4 is judged as defective.
23	undefined	O	Reserved
24	undefined	O	Reserved

- **Handler I/O Timing Diagram (for Meter Mode):**



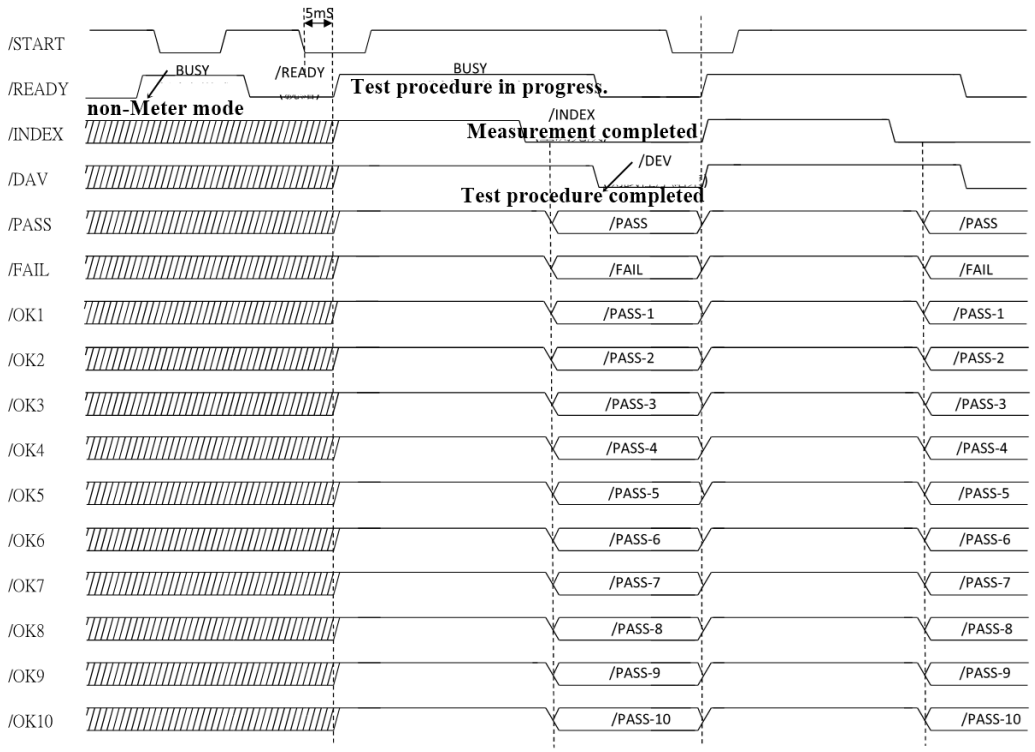
- **Handler I/O Pin Description (for Transformer Test Mode):**

Pin	Pin Name	I/O	Function
1	/START	I	Test trigger
2	/ DAV	O	End of test program
3	/PASS	O	Test result judged as good product
4	/FAIL	O	Test result judged as defective product
5	GND	-	Ground
6	GND	-	Ground
7	GND	-	Ground
8	NULL	-	No connection
9	NULL	-	No connection
10	+5V	-	DC +5 V output
11	NULL	-	No connection
12	NULL	-	No connection
13	/READY	O	Test ready, meaning that a trigger can be accepted. (When a measurement program is running, or when the instrument is not in Meter Mode or Transformer Test Mode, this signal is not in the Ready state.)
14	/INDEX	O	Measurement program completed (measurement

			only; the entire test program has not yet completed)
15	/OK1	O	In Transformer Test Mode, DUT 1 test result is good.
16	/OK2	O	In Transformer Test Mode, DUT 2 test result is good.
17	/OK3	O	In Transformer Test Mode, DUT 3 test result is good.
18	/OK4	O	In Transformer Test Mode, DUT 4 test result is good.
19	/OK5	O	In Transformer Test Mode, DUT 5 test result is good.
20	/OK6	O	In Transformer Test Mode, DUT 6 test result is good.
21	/OK7	O	In Transformer Test Mode, DUT 7 test result is good.
22	/OK8	O	In Transformer Test Mode, DUT 8 test result is good.
23	/OK9	O	In Transformer Test Mode, DUT 9 test result is good.
24	/OK10	O	In Transformer Test Mode, DUT 10 test result is good.

*** Note: The OK1 to OK10 signal outputs are valid only when the multi-DUT definition is enabled. (For multi-DUT numbering, refer to the Winding/Fixture Editing description.)**

- **Handler I/O Timing Diagram (for Transformer Test Mode):**



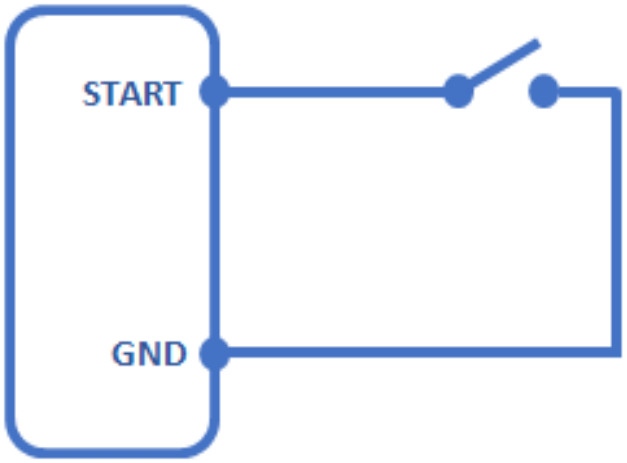
*** Note: The Handler Interface is applicable only in Meter Mode and Transformer Test Mode. When a test is triggered in Meter Mode, the measurement mode is automatically set to Single Trigger mode.**

- **Usage Instructions:**

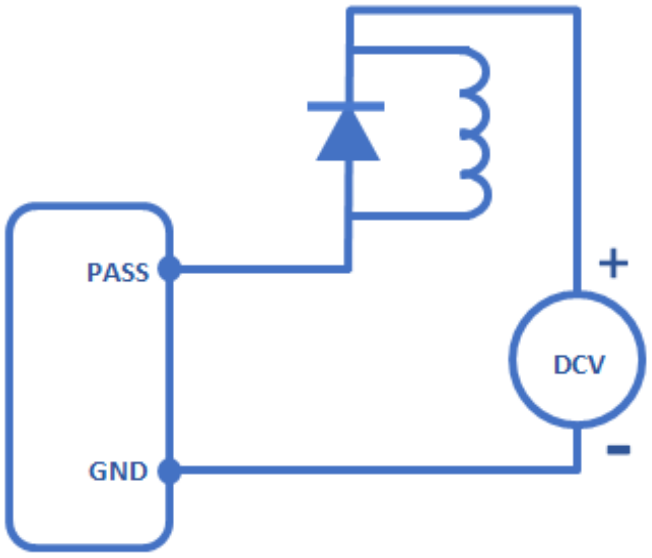
All output pins use open-collector outputs and do not output any voltage or signal. The current through each contact must not exceed 30mA, and the voltage must not exceed DC 24V.

- **Typical Applications:**

1. **Trigger Signal:** Use the normally open contact of a relay to control the instrument and initiate a test. (Note: The trigger signal must be maintained for at least 5ms.)



2. **Output Signal:** Use an output signal to control a relay. For safer operation, connect a Zener diode across the relay coil. (The operating voltage must be less than DC 24V.)



Chapter 8 5265HR / 5266HR / 5267HR Specifications

	5265HR	5266HR	5267HR
Test Frequency	10Hz–200kHz	10Hz–500kHz	10Hz–1MHz
Channels	20		
Frequency Resolution	5 digits		
AC Drive Level	10mV–2Vrms		
Turns-Ratio Test Frequency	50Hz–200kHz		
Output Impedance	100Ω		
LCR Functions	Yes		
Test Fixture	F5620HR		
DC Bias Current Source	0–100mA (F5620HR)		
Low-Resistance Test Range	0.01Ω–1Ω @0.1A 0.001Ω–0.1Ω @1A		
Insulation Resistance	30MΩ–500MΩ @10V,100V		
Test Parameters	L, Z, C, R, G, B, Y, ACR, Q, DCR, leakage inductance, turns ratio, balance, short circuit		
Test Range and Accuracy	**L, LK:** 0.1nH–9999.99H **C:** 0.00001pF–999.99mF **Q, D:** 0.00001–99999 **Z, X, R:** 0.00001Ω–99.9999MΩ **Y:** 0.01nS–99.9999S **θ:** -180°~+180° **DCR:** 0.1mΩ–99.999MΩ **TR:** 0.1–99999.9 turns		
Test Speed	< 20ms @MAX		
Test Mode	LCR + Transformer		
Test Circuit	Series/ Parallel		
Compensation Method	Open Circuit/ Short Circuit		
Built-In Storage	128 sets		
USB Storage	Depends on external capacity (Depend on USB capacity)		
Operating Mode	Auto, Manual, Remote Trigger		
Interfaces	RS-232, Handler, LAN, USB Host		
Power Supply	**Voltage:** 90–264Vac **Frequency:** 47–63Hz		
Power Consumption	70VA		
Display	800×480 color, 7-inch TFT		
Dimensions	358×148×343mm		
Weight	4.5kg		