

TD1210 Verification Device for Leakage Current Tester



1. Summary

TD1210 integrates the DC~1MHz wideband constant current standard source, constant voltage standard source, DC ohmmeter, impedance tester, AC voltage standard meter and others. It's applied for calibrating conventional leakage current meter, contact current tester, and medical leakage current tester.

2. Features

- Constant current output: 50 μ A ~ 55 mA
- Constant voltage output: 30 mV ~ 31 V
- Frequency: DC ~ 1 MHz
- Sweep frequency test function for measuring network.
- ACV Measurement: 0~300 V.
- 1592 Hz small current source for time constant test.
- LCD touch screen.
- Setting output values by keys.

3. Application



TD1210 Verification Device for Leakage Current Tester

Provincial and municipal metrology institutes
Third-party calibration companies
Enterprise metrology centers

Verify



Reference Standard:
JJG 843-2022



Non-medical leakage current testers

Home appliance manufacturers
Instrument manufacturers
Industrial equipment manufacturers
Electrical research laboratories

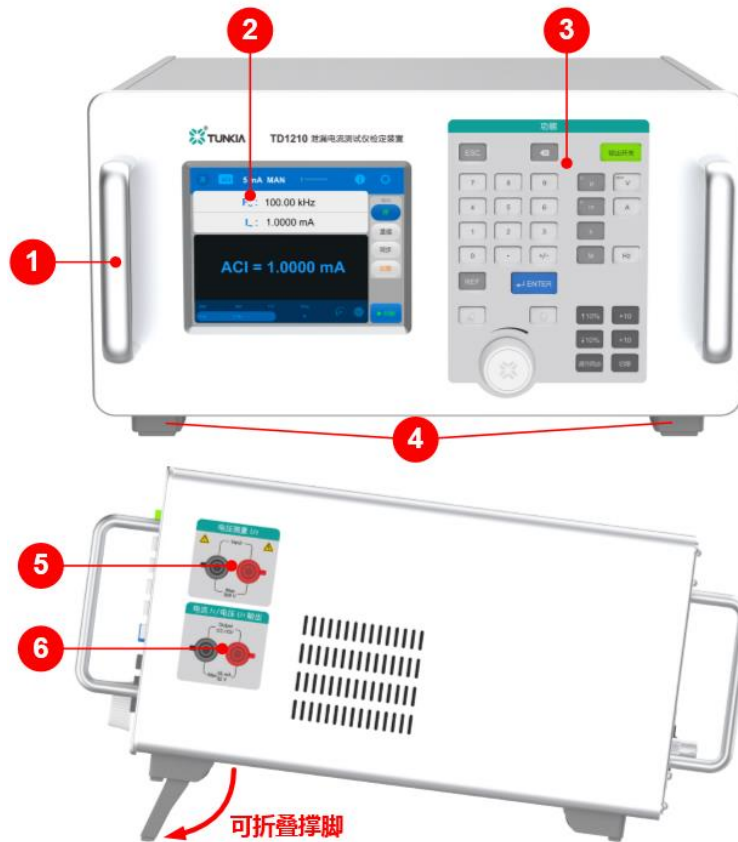


Application



4. Appearance

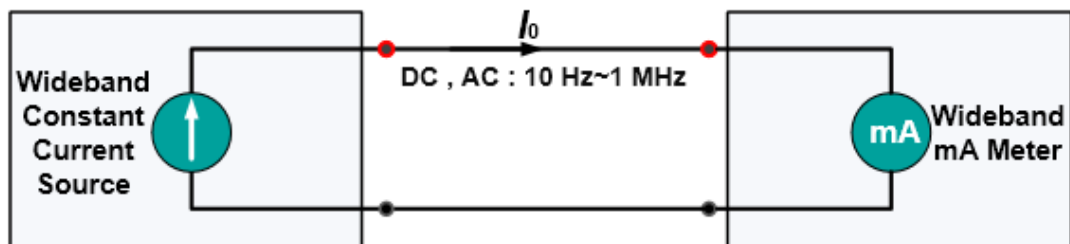
☆ Front/Side Panel



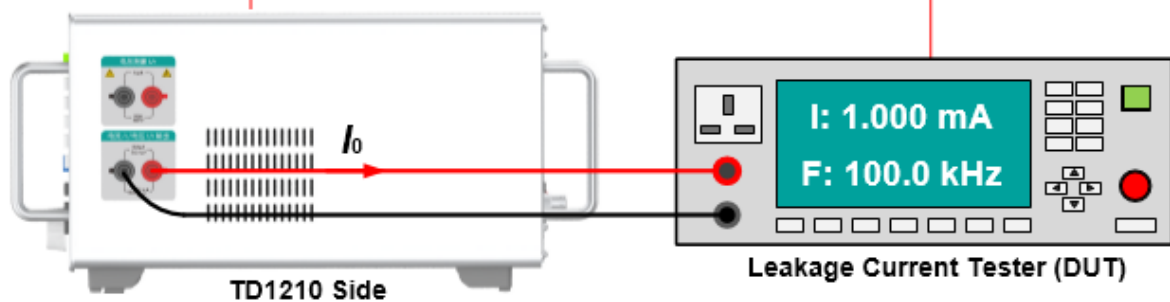
S/N	Description
1	Handles for easy carrying and transportation.
2	Touchable large-size LCD color screen for easy operation.
3	Keypad for easy setting of standard current and frequency values.
4	Foldable feet.
5	Voltage measurement terminal for measuring the output voltage of the leakage current meter under test
6	Constant current (CC) or constant voltage (CV) output terminal for calibrating the error of the leakage current meter under test

5. Characteristics

☆ Wideband Constant Current Source



(a) Calibrate Leakage Current Error Principle



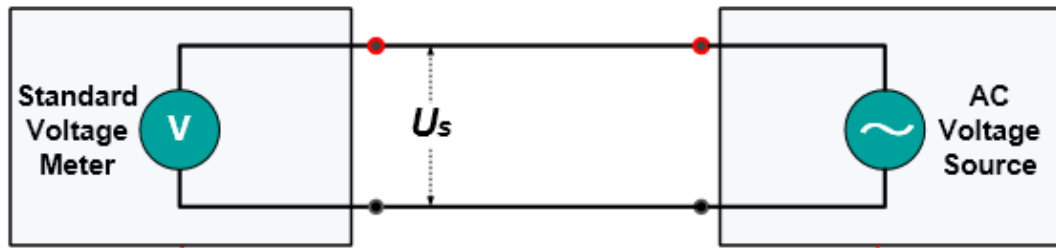
(b) Calibrate Leakage Current Error Connection



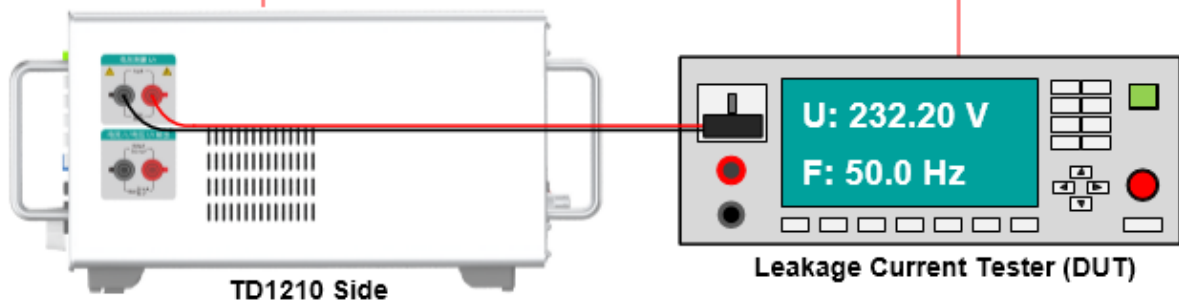
(c) TD1210 Setting Interface

- 50 μ A ~ 55 mA constant current source applied to calibrate the leakage current error.
- The constant current source has a wide frequency output range of DC, AC 10 Hz~1 MHz, applied to calibrate conventional or medical leakage current testers.

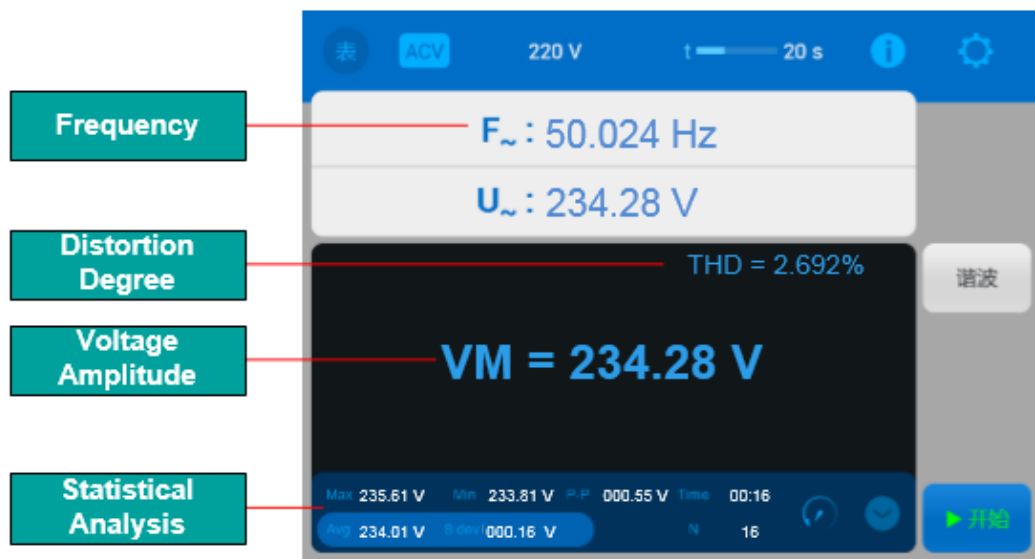
☆ Built-in Standard Voltage Meter



(a) Calibrate Test Voltage Error Principle



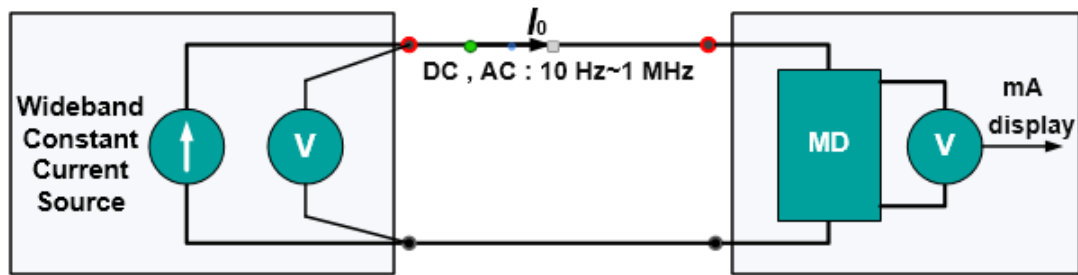
(b) Calibrate Test Voltage Error Connection



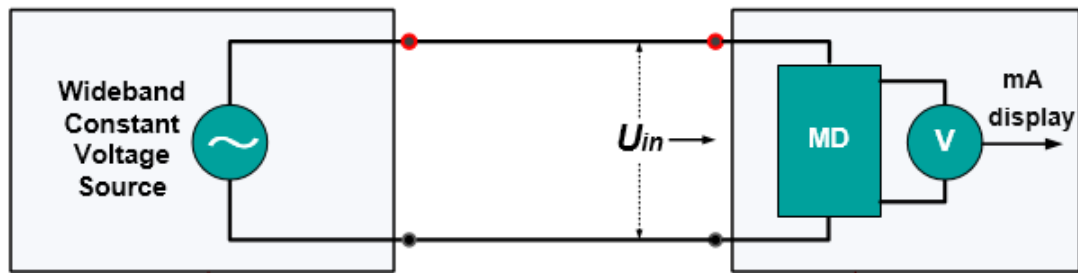
(c) TD1210 AC Voltage Test Interface

- AC standard voltmeter applied to test voltage error and distortion.
- With data statistics and analysis function, it can measure and calculate the Max, Min, P-P, Avg and S.dev for AC voltage source.

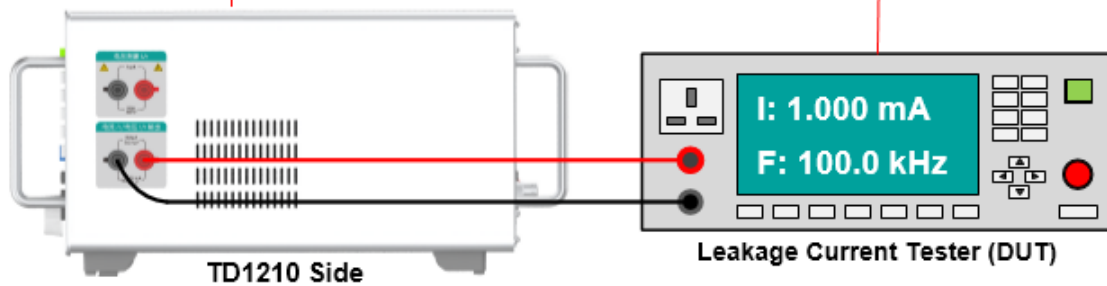
☆ Measuring Network Test



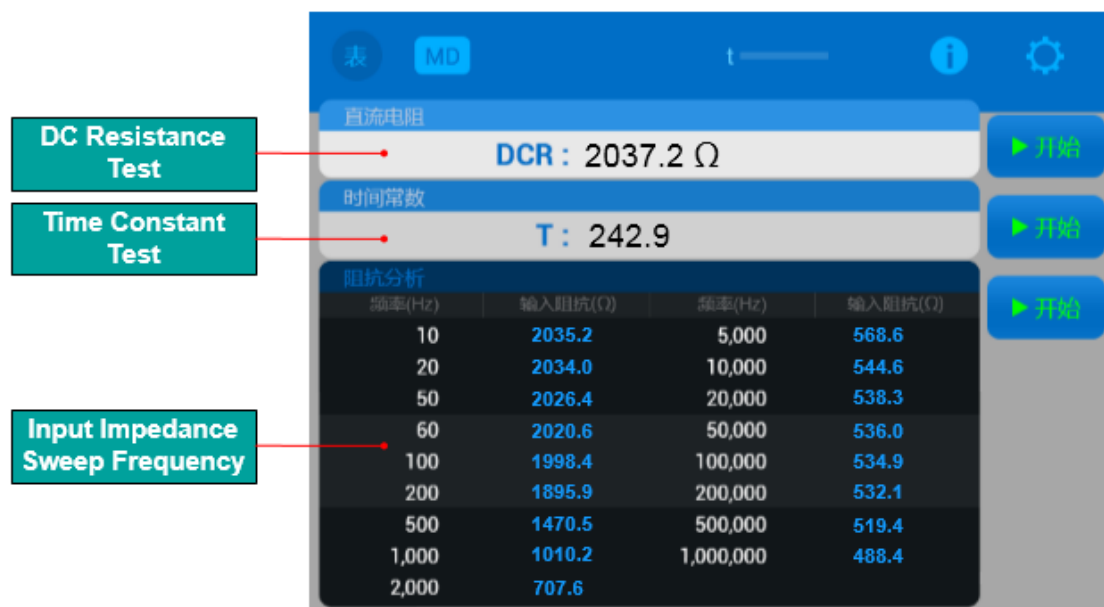
(a) DC Resistance, Input Impedance Test Principle



(b) Transmission Characteristics Test Principle



(c) DUT Measuring Network Connection



TD1210 Measuring Network Test Interface

- The calibration items of DUT measurement network include DC resistance test, impedance test, transmission characteristic measurement, etc.

☆ Multiple Output Mode



Keypad



Touch Screen Output

- **"Direct output"**mode, User can set output value by physical key or touch screen.



Rotary Knob



I : 40.000 mA



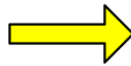
I : 40.100 mA

- **"Rotary Knob"**mode, User can setting in clockwise direction or anticlockwise direction.

★ Multiple Output Mode



% Setting



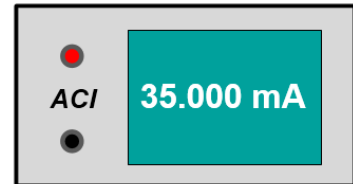
Full Range



90% Range



80% Range



70% Range



- Touch “**Calibration point**” of screen for “% setting”.

6. Specifications

6.1 Wideband Constant Current Source

Range	Optimal Resolution	Frequency (Hz)	Annual Measurement Uncertainty, k=2 (%*RD + A)①	Max Burden (V)
500 μA	1 nA	DC	0.05 + 0.25 μ	15
		10 ≤ F ≤ 40	0.12 + 0.4 μ	10
		40 < F ≤ 1 k	0.06 + 0.2 μ	10
		1 k < F ≤ 10 k	0.12 + 0.4 μ	10
		10 k < F ≤ 100 k	0.2 + 1 μ	10
		100 k < F ≤ 300 k	0.5 + 2.5 μ	10
		300 k < F ≤ 1 M	1 + 4 μ	10
5 mA	10 nA	DC	0.05 + 2.5 μ	30
		10 ≤ F ≤ 40	0.12 + 4 μ	30
		40 < F ≤ 1 k	0.06 + 2 μ	30
		1 k < F ≤ 10 k	0.12 + 4 μ	30
		10 k < F ≤ 100 k	0.2 + 10 μ	30
		100 k < F ≤ 300 k	0.5 + 25 μ	30
		300 k < F ≤ 1 M	1 + 40 μ	30
50 mA	0.1 mA	DC	0.05 + 25 μ	30
		10 ≤ F ≤ 40	0.12 + 40 μ	30
		40 < F ≤ 1 k	0.06 + 20 μ	30
		1k < F ≤ 10 k	0.12 + 40 μ	30
		10 k < F ≤ 100 k	0.2 + 100 μ	30
		100 k < F ≤ 300 k	0.5 + 250 μ	30
		300 k < F ≤ 1 M	1 + 400 μ	30
Note: ①RD is the reading value.				

- Output range: 50 μ A ~ 55 mA, adjustment fineness: 0.01% * range
- Display digits: 5/6 digits available.

6.2 Wideband Constant Voltage Source

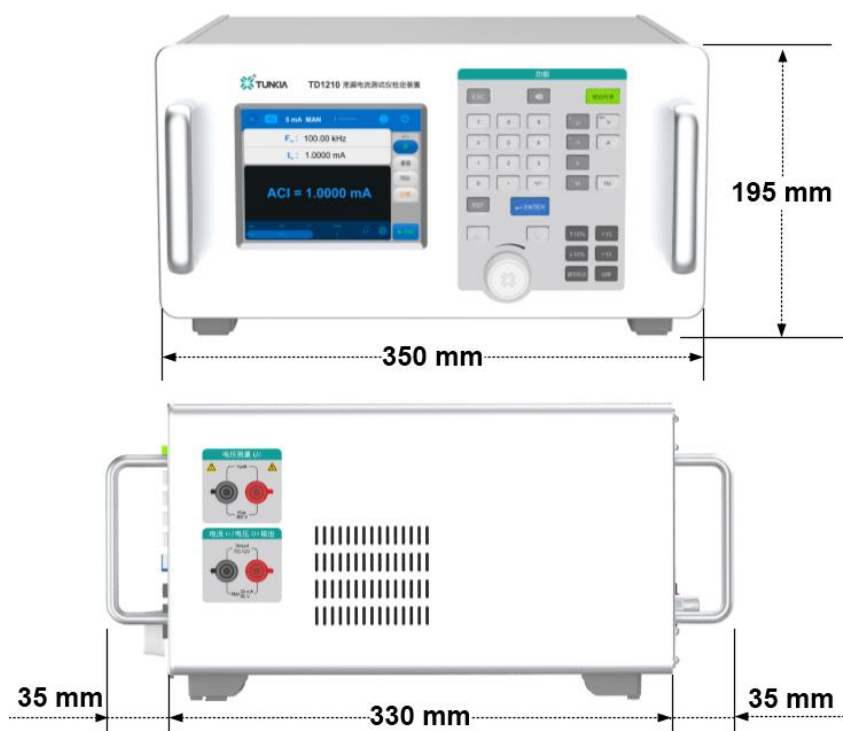
Range	Resolution	Frequency (Hz)	Annual Measurement Uncertainty, k=2 (%*RD+%*RG) ①	Maximum Burden (mA)
0.3 V	1 μV	DC	0.06 + 0.04	20
		10 ≤ F ≤ 40	0.12 + 0.08	20
		40 < F ≤ 1 k	0.06 + 0.04	20
		1 k < F ≤ 10 k	0.12 + 0.08	20
		10 k < F ≤ 100 k	0.2 + 0.1	20
		100 k < F ≤ 300 k	0.5 + 0.2	20
		300 k < F ≤ 1 M	1 + 0.5	20
3 V	10 μV	DC	0.06 + 0.04	50
		10 ≤ F ≤ 40	0.12 + 0.08	50
		40 < F ≤ 1 k	0.06 + 0.04	50
		1 k < F ≤ 10 k	0.12 + 0.08	50
		10 k < F ≤ 100 k	0.2 + 0.1	50
		100 k < F ≤ 300 k	0.5 + 0.2	50
		300 k < F ≤ 1 M	1 + 0.5	50
30 V	0.1 mV	DC	0.06 + 0.04	50
		10 ≤ F ≤ 40	0.12 + 0.08	50
		40 < F ≤ 1 k	0.06 + 0.04	50
		1 k < F ≤ 10 k	0.12 + 0.08	50
		10 k < F ≤ 100 k	0.2 + 0.1	50
		100 k < F ≤ 300 k	0.5 + 0.2	50
		300 k < F ≤ 1 M	1 + 0.5	50
Note: ①RD is the reading value, RG is the range value				

- Output range: 30 mV ~ 31 V, adjustment fineness: 0.01% * range;
- Display digits: 5/6 digits available.

6.3 Other Functions

AC Voltage Measurement	Measurement Range	30 V~300 V
	Measurement Uncertainty (k=2)	0.06%*RD + 0.04%*RG
	Total Harmonic Distortion Uncertainty (k=2)	< 1%
DC Resistance Measurement	Measuring Range	100 Ω~2.5 kΩ
	Optimal Measurement Uncertainty	0.2%
	Test Current	5 mA
Input Impedance Measurement	Measurement Uncertainty (k=2)	1% @ 10 Hz~100kHz
		2% @ 100 kHz~1MHz
Time Constant Measurement	Test Frequency	1592 Hz
	Optimal Measurement Uncertainty	2 μs
	Test Current	5 mA

7. General Specifications

Power Supply	AC (220 ± 22) V, (50 ± 2) Hz
Warm-Up Time	30 minutes
Maximum Power Consumption	50 VA
Temperature Performance	Operating temperature: 5° C~45° C; Storage temperature: -20° C~60° C
Humidity Performance	Operating humidity: < 80% @ 30°C, < 70% @ 40°C, < 40% @ 50°C Storage humidity: (20%~80%) R • H, non-condensing
Altitude	< 2000 m
Weight	Approx. 7.5 kg
Communication Interface	RS 232
Dimensions	350 mm (width) × 330 mm (depth) × 195 mm (height) (excluding feet and handles) 

8. Accessory List

No.	Pic	Name	Specification	Qty	Remark
1		Test lead	0.4m / 1.6mm ² / Φ 4- Φ 4 banana plug	Red 2	Standard
				Black 2	Accessory
2		Pin	Φ 2*18mm/ Φ 4 jack	Red 2	Standard
				Black 2	Accessory
3		Auxiliary test lead	220V plug → Φ 4 red/black plug	1	Standard Accessory
4		Power cord	AC 220V, 10A	1	Standard Accessory
5		Glass fuse	F0.5A, 250V	3	Standard Accessory
6		Packing box	Aluminum alloy box	1	Standard Accessory

No.	Pic	Name	Specification	Qty	Remark
1		Portable Storage Box	—	1 个	Optional Accessory

Note: The above accessories need to be purchased separately and must be specified in the order contract.