

TD6600 Relay Protection Tester Verification Device



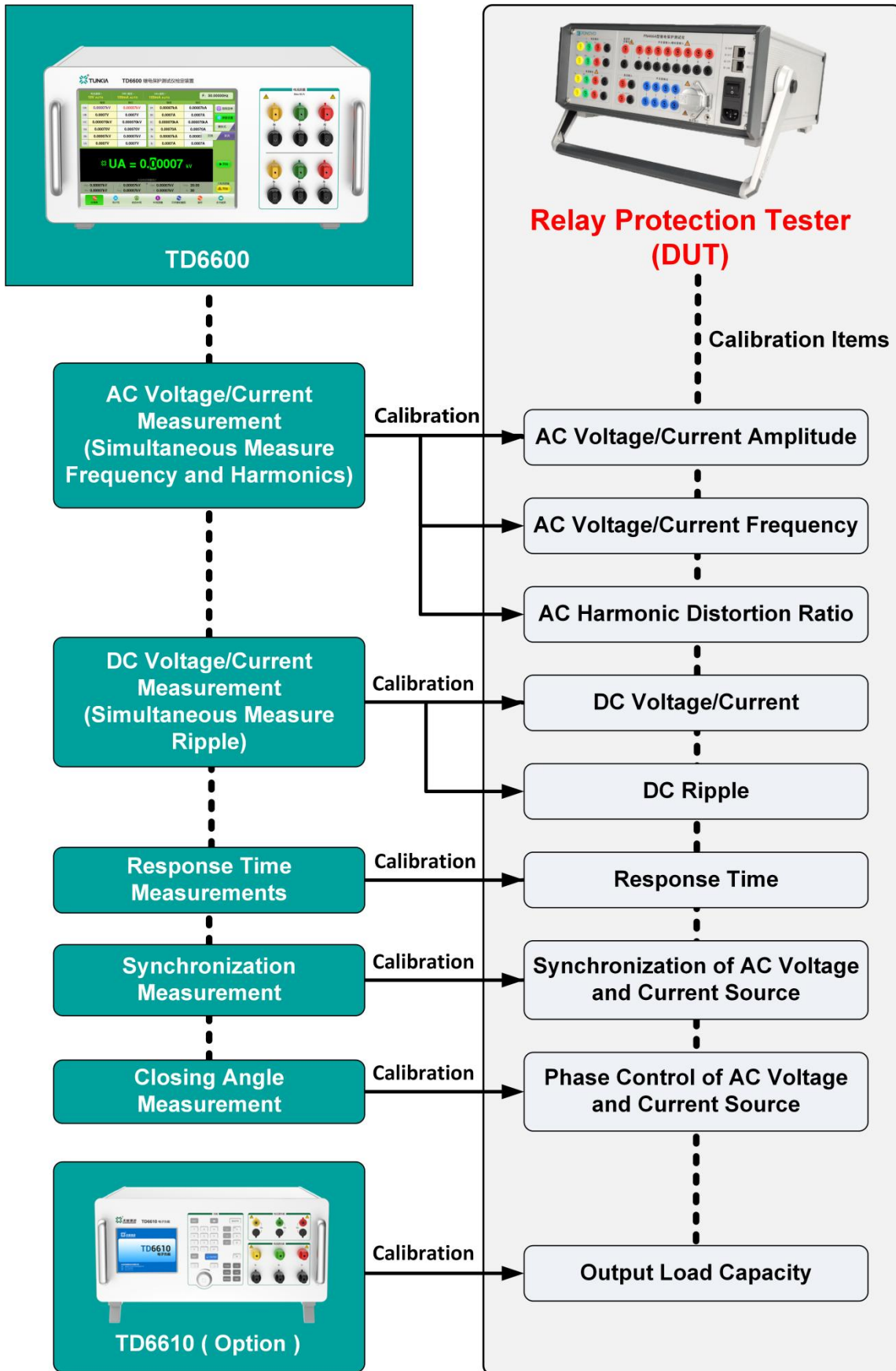
1. Summary

TD6600 is an intelligent instrument dedicated to testing the technical performance of relay protection testers. The instrument can accurately measure multiple channels of AC/DC voltages, currents, and small signal voltages. Its accuracy is Class 0.02. The user can complete the full-function test of the relay protection tester of Class 0.05 and below with this instrument. Compared with traditional methods, this instrument has the characteristics of simple connection and convenient operation.

2 Features

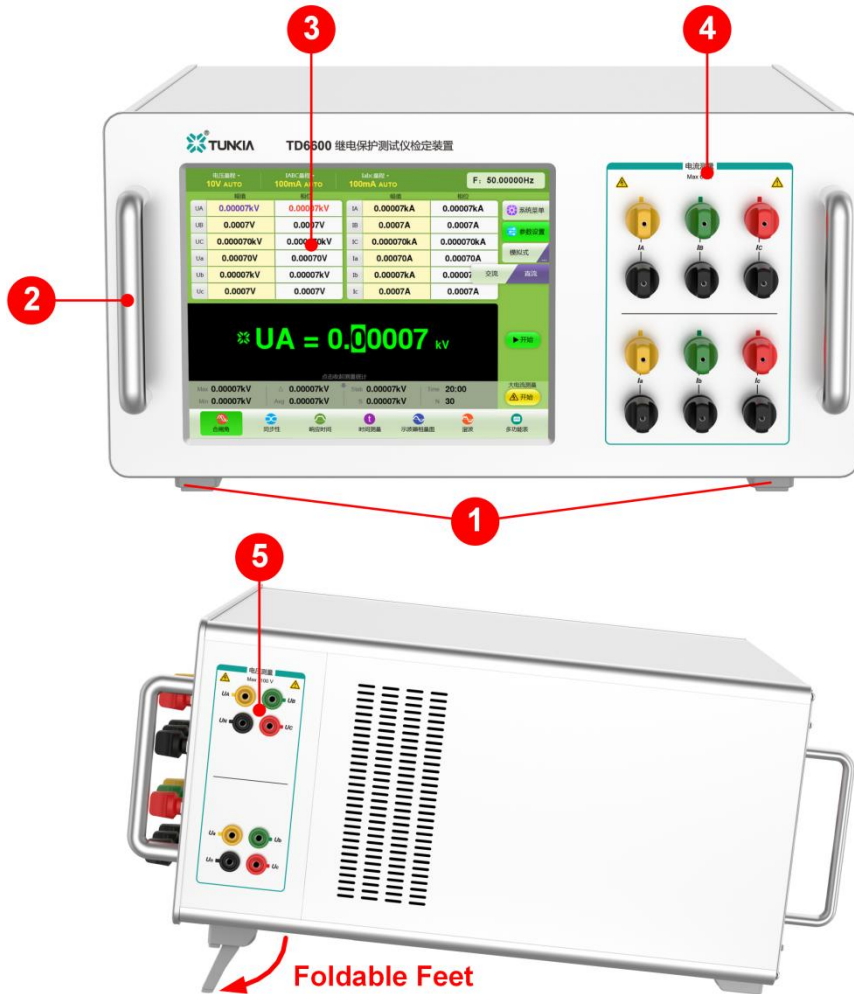
- 6-channel of AC/DC Voltage Measurement: 200 mV~1100 V
- 6-channel of AC/DC Current Measurement: 1 mA~60 A
- 12-channel of Small Signal Measurement: 1 mV~7.7 V
- Frequency: 10 Hz~1 kHz
- Phase: 0.000°~359.999°
- Voltage/Current Accuracy: Class 0.02
- Harmonic/Ripple Measurement Function
- 4 Pairs of Binary Input, 4 Pairs of Binary Output
- Time Measurement Function

3. Application



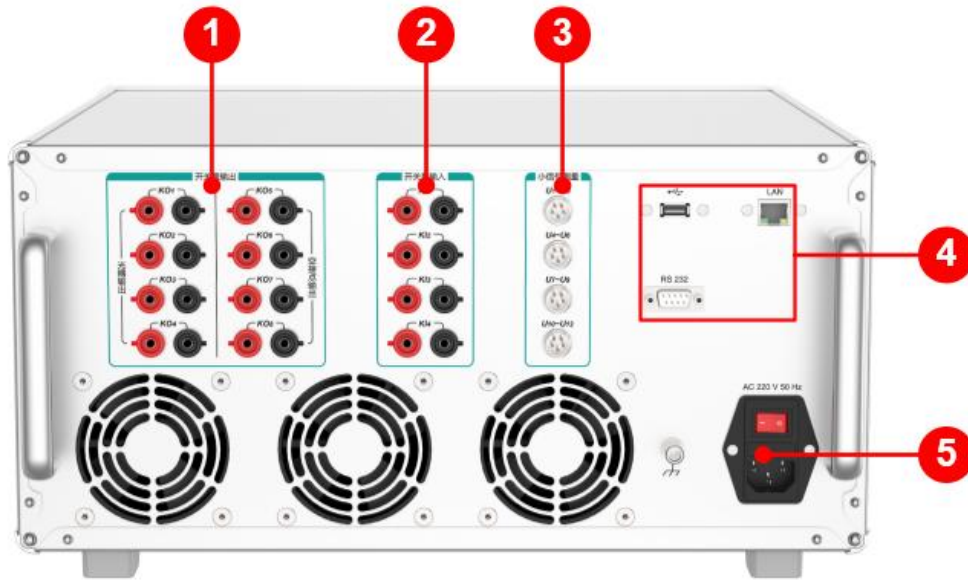
4. Instrument Appearance

☆ Instrument Front/Side Panel



Number	Function
1	The feet can be folded to raise the instrument slightly to a certain angle to obtain the best viewing angle for operation and reading.
2	The instrument handle is convenient for carrying the instrument.
3	LCD touch color screen, intuitive display of multiple power levels, full touch operation, greatly improving the usability of the instrument.
4	6-channel current input terminal.
5	6-channel current input terminal.

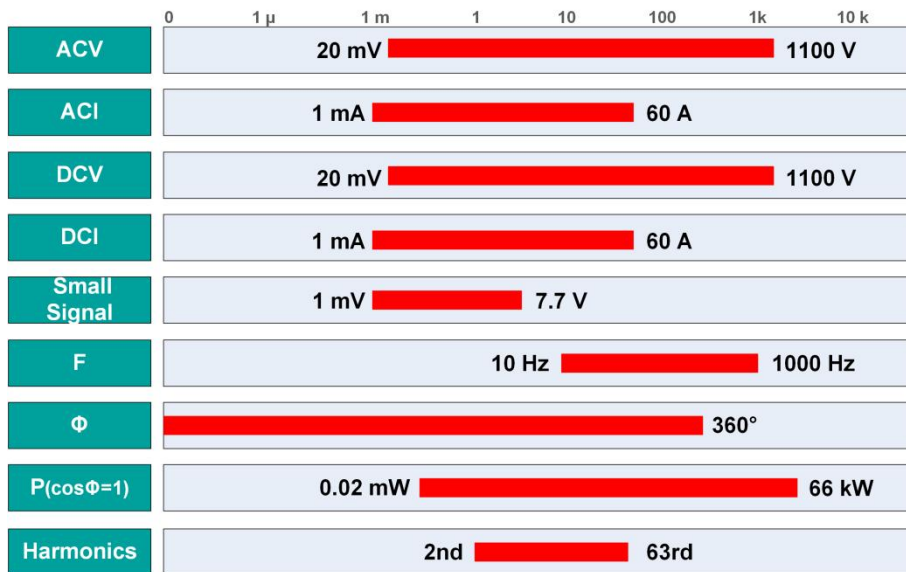
☆ Instrument Rear Panel



Number	Function
1	8-channel switch output terminals, including 4-channel optocoupler outputs and 4-channel empty contact outputs.
2	4-channel switch input terminals.
3	12-channel small signal measurement terminals.
4	USB interface, RS232 interface, LAN interface, used to connect to the computer for communication.
5	220V power input socket with ship type switch and fuse.

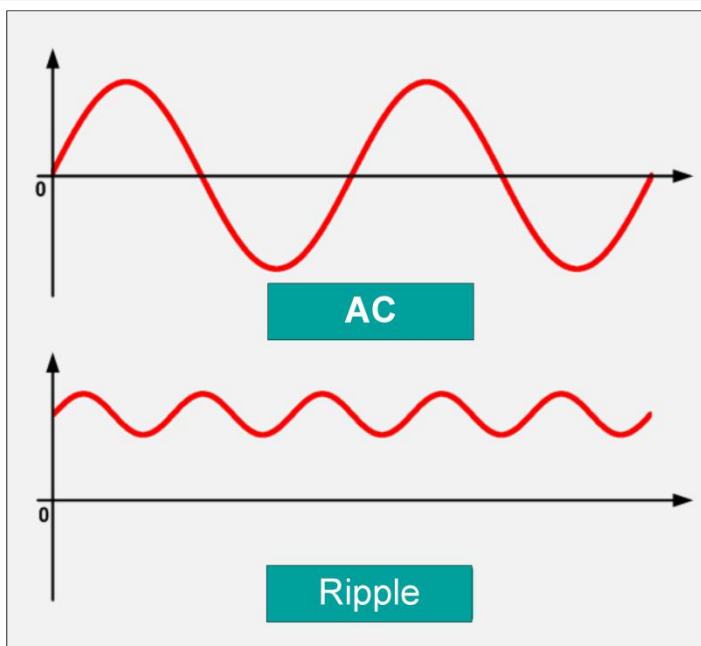
5. Characteristics

☆ Wide Measuring Range



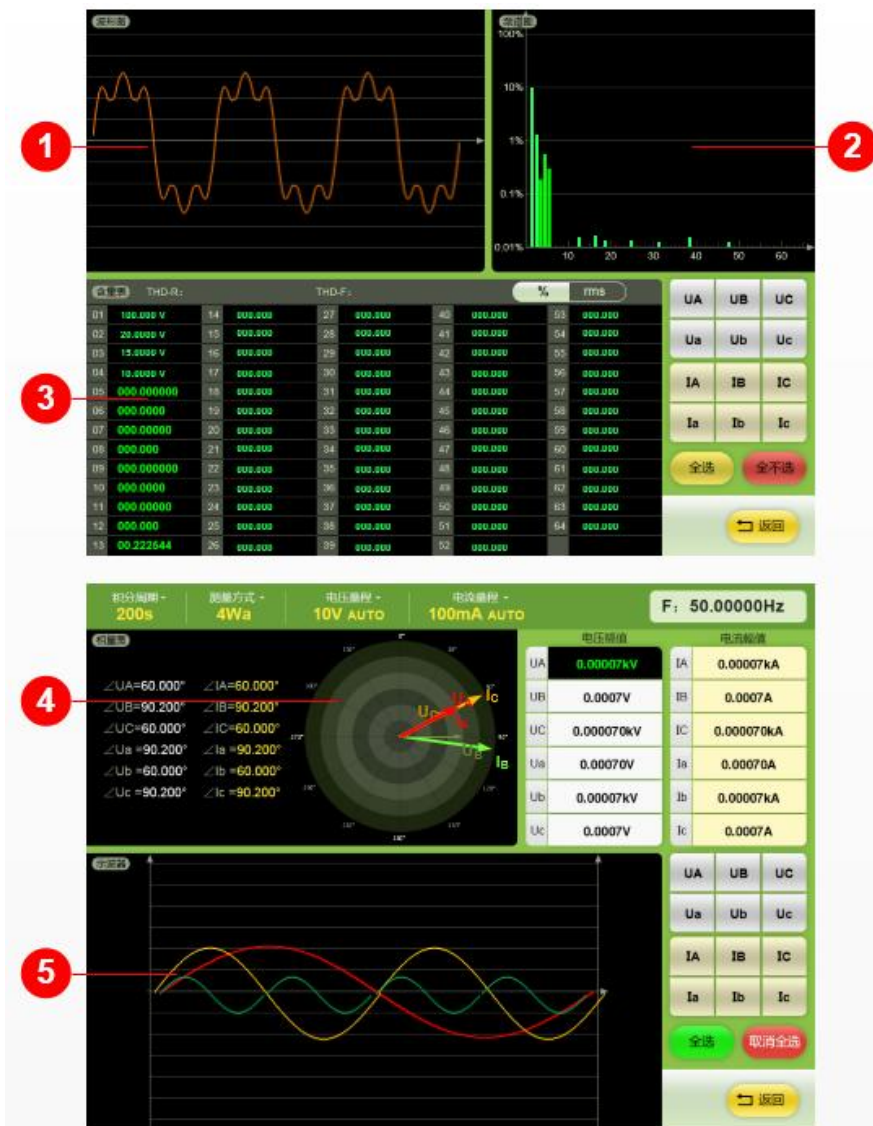
- A wide range of measurements can meet the calibration of relay protection testers commonly used in power systems
- Fully automatic range switching, built-in protection module in the circuit, and alarm prompt when necessary.

☆ Ripple Measurement Function



In the DC measurement mode, TD6600 can analyze the ripple from 1 Hz to 5 kHz, measure its effective value, and complete the ripple test of DC voltage/current.

☆ Harmonic Measurement Function and Graphical Display



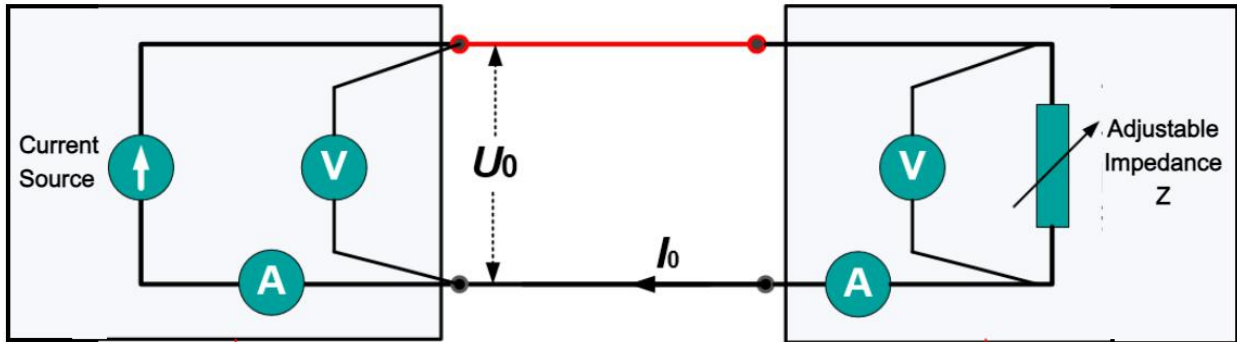
Number	Function
1	The instrument can measure 2nd to 63rd harmonics, and observe the waveforms of the electric quantities of each phase after the harmonics are loaded.
2	The histogram visually displays the frequency spectrum of each harmonic (fundamental wave is 100%).
3	It displays the content and phase value of the 2 nd to 63 rd harmonic.
4	It can visually display the phasor diagram, the output voltage and current amplitude and phase direction of each channel.
5	Display the waveform of the measured power in real time, and intuitively analyze the waveform distortion of the measured power.

☆ Binary Input/Output and Time Measurement



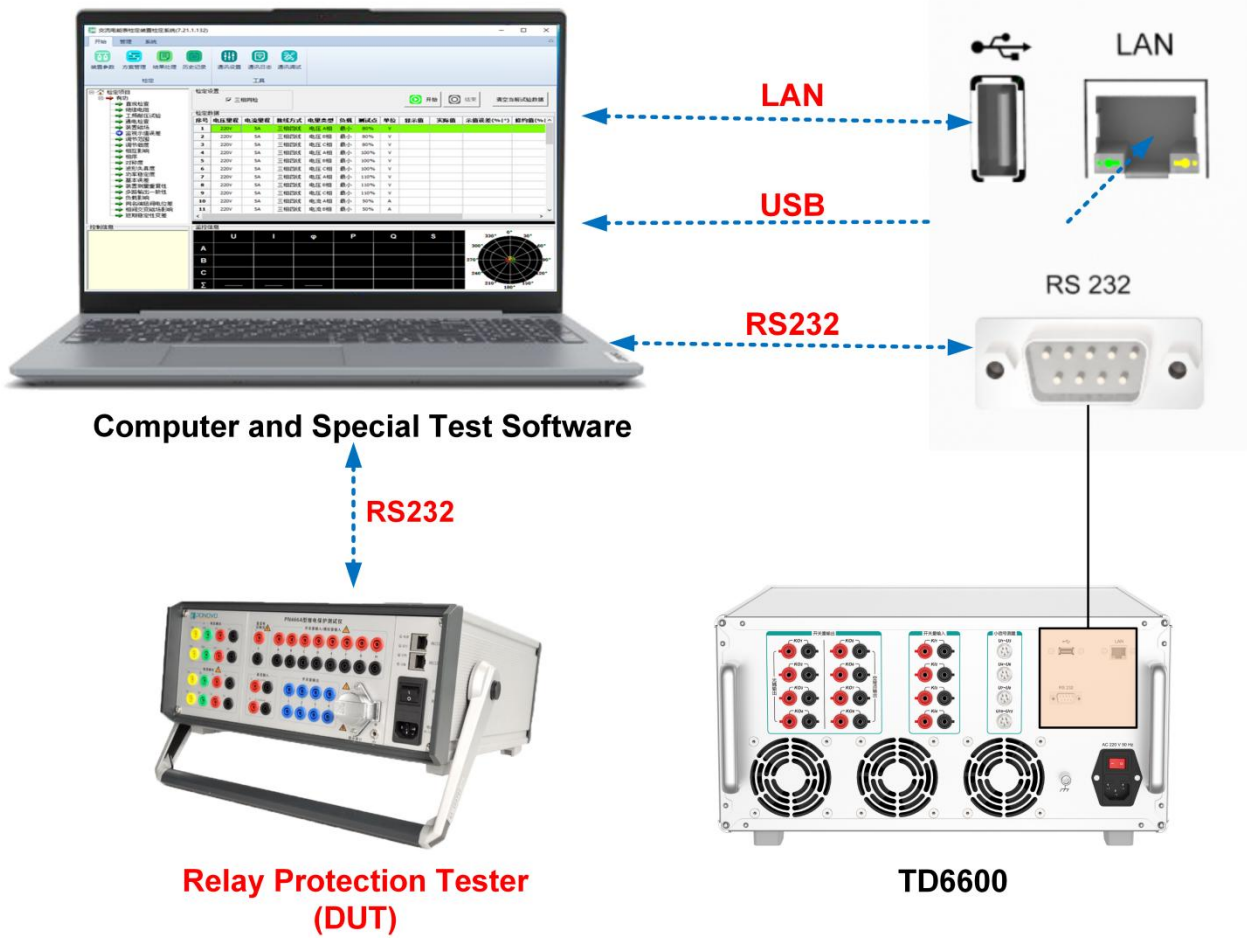
Number	Function
1	Built-in time measurement module, response time uncertainty up to 2 μ s, can complete response time and synchronization test.
2	Binary Input: 4 pairs, open contact or TTL level (0~5) V.
3	Binary Output: 4 pairs of optocoupler output, 4 pairs of open contact output.
4	Binary Output: 4 pairs of open contact outputs.

☆ TD6610 With Load Capacity Test (option)



- TD6610 is a program-controlled and adjustable electronic load, which is specially used to test the load capacity of voltage source and current source.
- Voltage source electronic loads up to 100 VA, current source electronic loads up to 240 W.
- The load power factor is adjustable and meet the requirements of the load capacity test with an adjustable range of 0.4L ~ 1.0 ~ 0.4C.

☆ Communication Interface and Special Software



- The rear panel of the instrument is equipped with rich communication interfaces such as RS232, USB, LAN, etc., which is convenient for building a fully automatic test system.
- Equipped with special test software, and automatically generate test reports to improve test efficiency.

6. Specifications

6.1 AC/DC Measurement (6-channels for voltage/current)

Range	Resolution	Uncertainty (k=2) (ppm*RD+ppm*RG) ^[1]	Temperature Coefficient ppm*RD /°C @ (15~30) °C
2 V	10 μV	120 + 80	<5
5 V	10 μV	120 + 80	< 5
10 V	0.1 mV	120 + 80	< 5
20 V	0.1 mV	120 + 80	< 5
50 V	0.1 mV	120 + 80	< 5
100 V	1 mV	120 + 80	< 5
200 V	1 mV	120 + 80	< 5
500 V	1 mV	120 + 80	< 5
1000 V	10 mV	120 + 80	< 5

Note 【1】 : RD is the reading value, RG is the range value, the same below.

Range	Resolution	Uncertainty (k=2) (ppm*RD+ppm*RG) ^[1]	Temperature Coefficient ppm*RD /°C @ (15~30) °C
10 mA	0.1 μA	120 + 80	< 5
20 mA	0.1 μA	120 + 80	< 5
50 mA	0.1 μA	120 + 80	< 5
100 mA	1 μA	120 + 80	< 5
200 mA	1 μA	120 + 80	< 5
500 mA	1 μA	120 + 80	< 5
1 A	10 μA	120 + 80	< 5
2 A	10 μA	120 + 80	< 5
5 A	10 μA	120 + 80	< 5
10 A	0.1 mA	120 + 80	< 5
20 A	0.1 mA	120 + 80	< 5
50 A	0.1 mA	120 + 80	< 5

- Voltage measurement range: 200mV~1100 V, current measurement range: 1 mA~60 A, manual/automatic shift.

6.2 AC/DC small signal voltage measurement (12-channel)

Range	Resolution	Uncertainty (k=2) (ppm*RD+ppm*RG) ^[1]	Temperature Coefficient ppm*RD /°C @ (15~30) °C
10 mV	0.1 μV	120 + 10	10
20 mV	0.1 μV	120 + 10	10
50 mV	0.1 μV	120 + 10	10
100 mV	1 μV	120 + 10	10
200 mV	1 μV	120 + 20	10
500 mV	1 μV	120 + 40	10
1 V	10 μV	120 + 80	10
2 V	10 μV	120 + 160	10
5 V	10 μV	120 + 400	10

- Measurement range: 1 mV~7.7 V, 6-digit display, manual/automatic shift

6.3 Frequency Measurement

Voltage Frequency	Resolution	Uncertainty (k=2) (ppm*RD+ppm*RG)
10Hz≤F≤65Hz	0.0001 Hz	0.0003 Hz
65Hz<F≤100Hz	0.0001 Hz	0.001 Hz
100Hz<F≤450Hz	0.001 Hz	0.003 Hz
450Hz<F≤1 kHz	0.001 Hz	0.005 Hz

6.4 Phase/Ripple/Harmonic Measurements

- Phase: The frequency of the input voltage and current are both 40 Hz~70 Hz
Measuring range: 0.000°~359.999°, Uncertainty (k=2): 0.02°
- Harmonic measurement: 2nd to 63rd; Uncertainty (k=2): 0.02%*RG
- Ripple measurement (frequency band): 1 Hz~5 kHz; Uncertainty (k=2): 0.05%*RG , Effective value display.

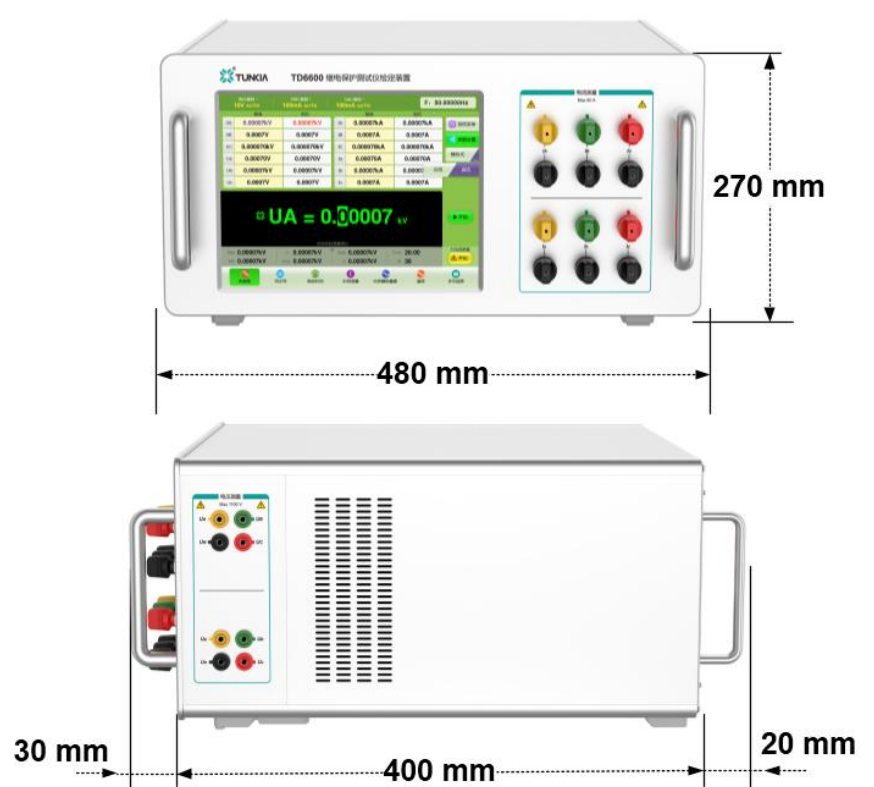
6.5 AC Power Measurement

Type	Range	Uncertainty (k=2)
Active Power	Combination of AC voltage and AC current @40 Hz~70 Hz	0.05%
Reactive Power		0.1%
Apparent Power		0.1%
Power Factor	-1.000...0.000...1.000	0.05%










6.6 Switching Value and Time Measurement




- Binary Input: Open contacts or TTL level (0~5) V, 4 pairs, response time: 20 μs
- Binary Output: Optocoupler output, 4 pairs, contact capacity: 40 V/30 mA, response time: 20 μs
- Open contact output, 4 pairs, contact capacity: 220 V/0.5 A
- Response time measurement uncertainty/ Synchronization measurement uncertainty (k=2): 2 μs
- Closing angle measurement uncertainty (k=2): 0.1°

7. General Specifications

Power Supply	AC (220 ± 22) V, (50 ± 2) Hz
Warm-up Time	20 minute
Maximum Power	100 VA
Temperature Performance	Working Temperature: 0°C~45°C; Storage Temperature: -20°C~70°C
Humidity Performance	Working Humidity: < 80% @ 30°C, < 70% @ 40°C, < 40% @ 50°C Storage Humidity: (20%~80%) R·H, no condensation
Altitude	< 3000 m
Weight	About 18 kg
Communication Interface	RS232、USB、LAN
Dimensions	480 mm(W) × 400 mm(D) × 270 mm(H) (excluding handles and feet)
	

8. Accessories List

Number	Picture	Name	Specification	Quantity	Note
1		Voltage Test Leads	1.5m / 2.1mm ² / Φ 4- Φ 4 socket	Green: 4 Yellow: 4 Red: 16 Black: 20	Standard Accessories
2		Current Test Leads	1.5m / 8mm ² / Φ 4- Φ 4 socket	Green: 2 Yellow: 2 Red: 2 Black: 6	Standard Accessories
3		U-shaped Insert	Φ 12 thin insert / Φ 4 jack	Red: 6 Black: 6	Standard Accessories
4		Small Signal Test Leads	1.5m/6-core aviation head/3 sets of alligator clips	4	Standard Accessories
5		Network Cable	—	1	Standard Accessories
6		Universal Serial Cable	USB to RS232	1	Standard Accessories
7		Power Cable	AC 220V、10A	1	Standard Accessories
8		Glass Fuse	F4A、250V	3	Standard Accessories
9		Packaging Box	Aluminum Alloy Box	1	Standard Accessories

Number	Picture	Name	Specification	Quantity	Note
1		TD6610 Electronic Load	Voltage source electronic load up to 100 VA; Current source electronic load up to 240 W; The load power factor is adjustable in the range of 0.2L~ 1.0~0.2C.	1	Optional Accessories
2		Special Test Software	Card U Disk	1	Optional Accessories
3		Portable Case	——	1	Optional Accessories

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