TD4500 Portable Tester for AC Sampling Devices and Transmitters

1. Summary

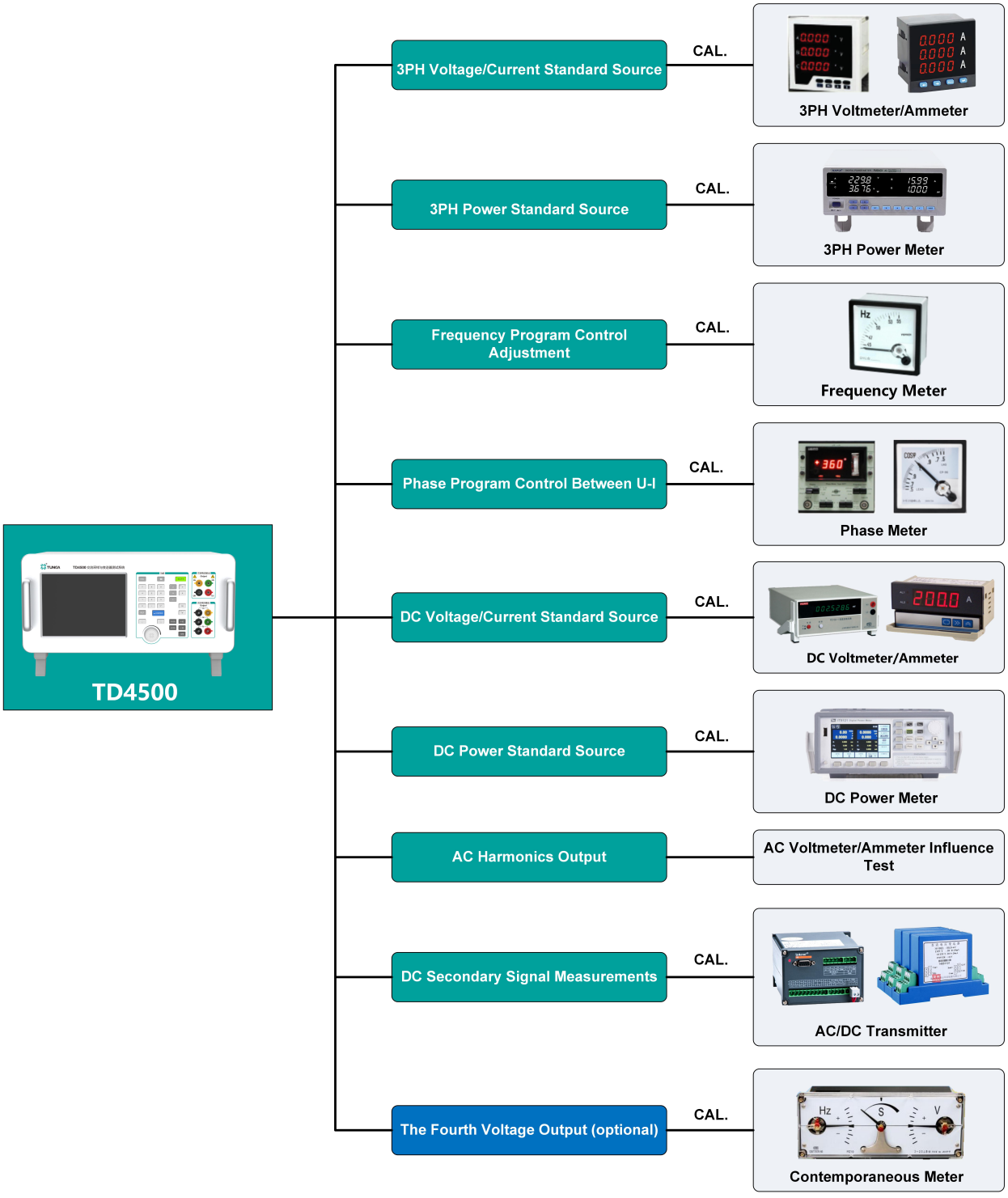
TD4500 is a multi-function 3PH power tester. Class 0.02 / class 0.05 available. It integrates AC/DC power output function, 3PH measuring function, harmonic function, transmitter test function, U4th voltage output function, AC energy meter test function. Can be used to calibrate AC/DC voltmeter, AC/DC ammeter, AC/DC power meter and transmitter, etc.

2. Features

- 3PH AC voltage output：6 V～456 V
- 3PH AC current output：0.1 A～6.25 A
- 3PH voltage meter：6 V～456 V；
- 3PH current meter：0.1 A～6 A
- Frequency：45 Hz～70 Hz
- U-I phase：0°～360°
- DC voltage output：10 mV～330 V
- DC current output：0.1 mA～22 mA
- Accuracy class: 0.02, 0.05.
- 2nd~21st harmonic output
- Transmitter test function
- U4 AC voltage output function

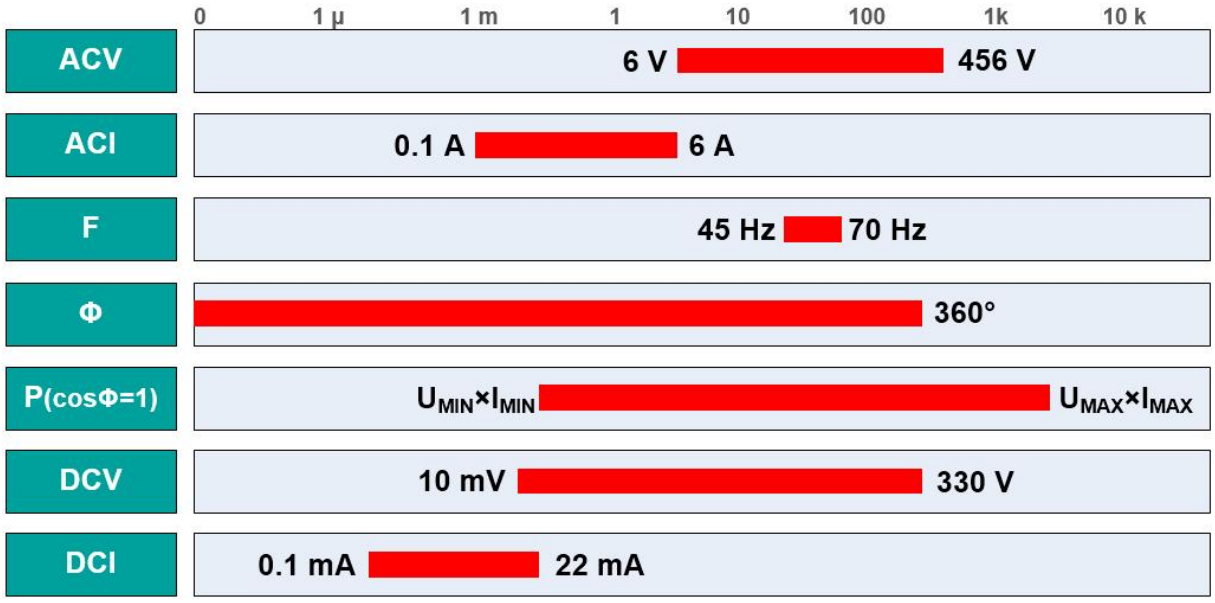
- Test software（option）

3. Application



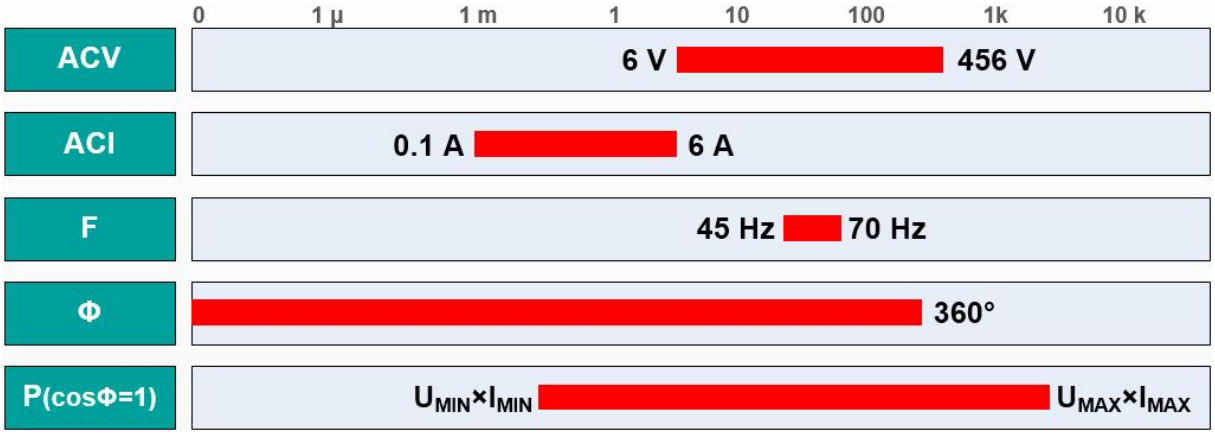
4. Characteristics

☆ Wide Output



- It can meet most single-phase / three-phase meters or DC meters.

☆ Wide Input

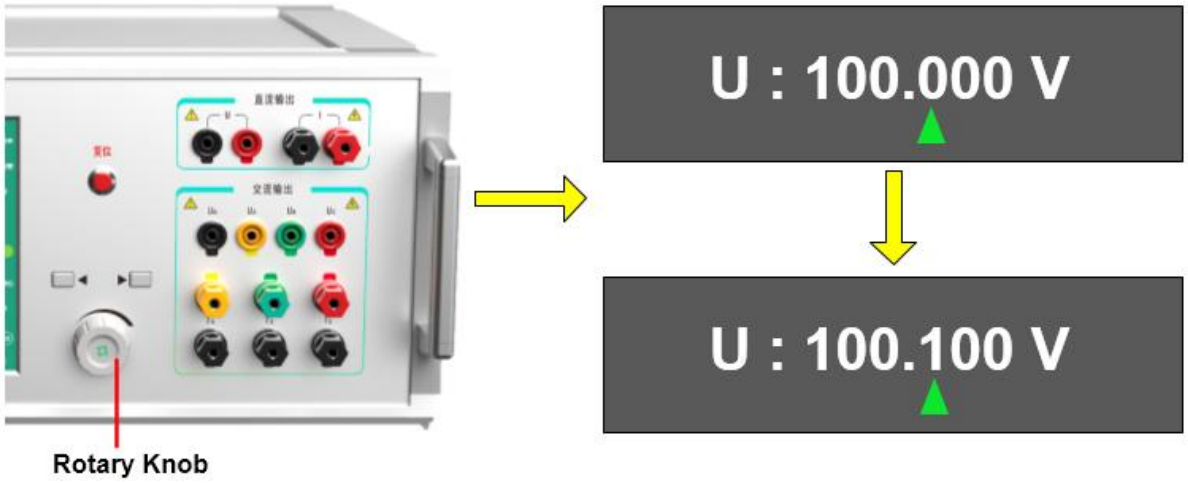


- It can meet most single-phase / three-phase source.

☆ Multiple Output Mode

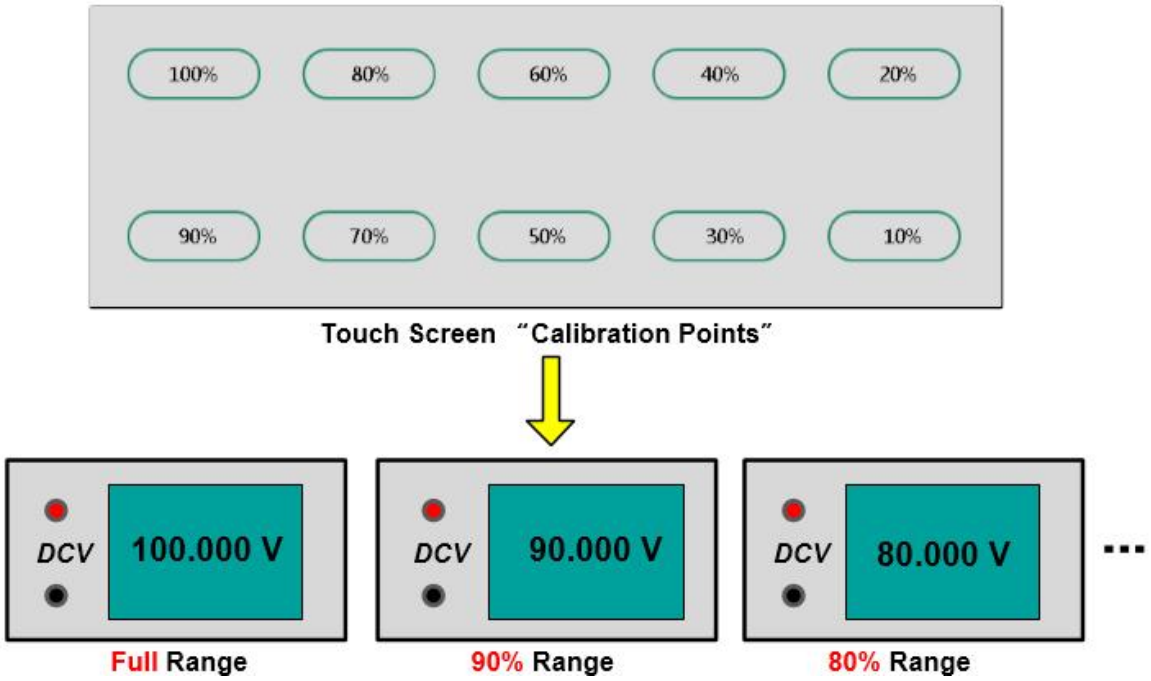
(a) DC Power Output　　(b) AC Power Output

- "**Direct output**"mode，User can set output value by physical key or touch screen.
- Three-phase unit adjustment or single phase adjustment.



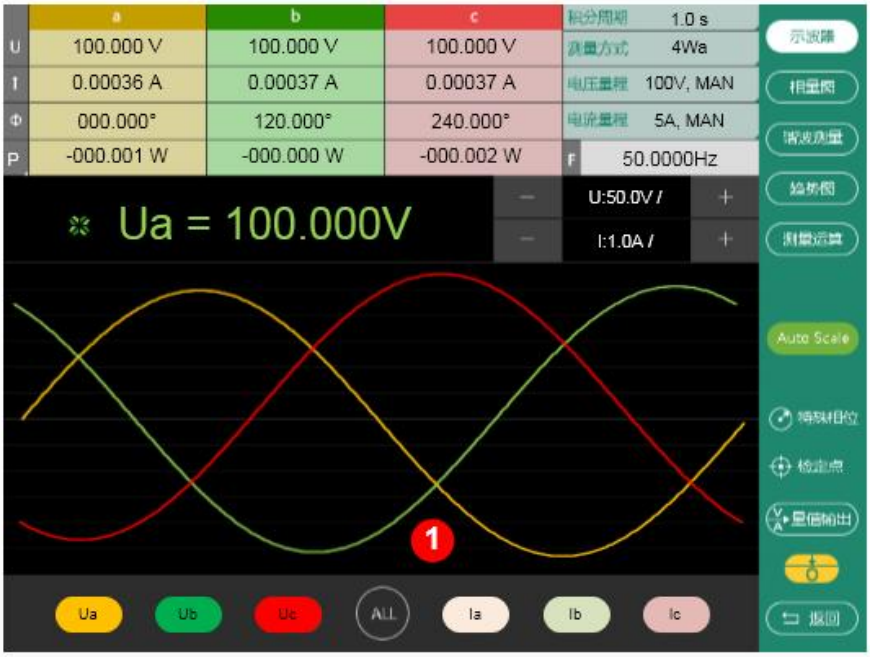
- "**Rotary Knob**"mode，User can setting in clockwise direction or anticlockwise direction.

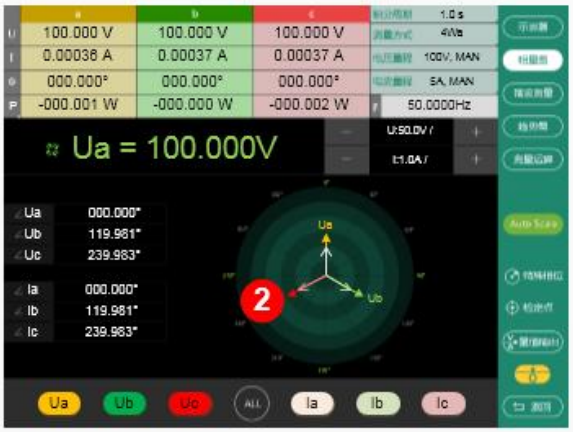
☆ Multiple Output Mode

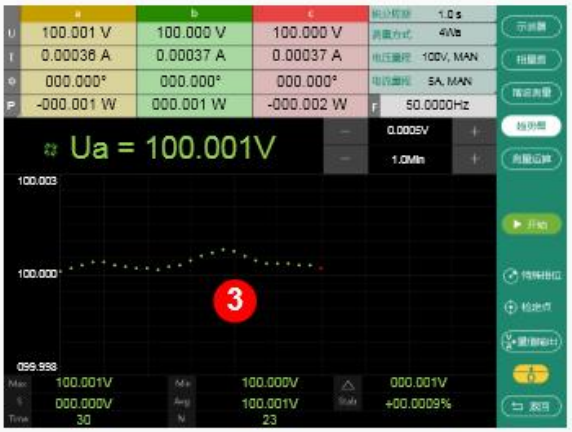


- Touch "**Calibration point**"of screen for "% setting".

☆ Graphics Features

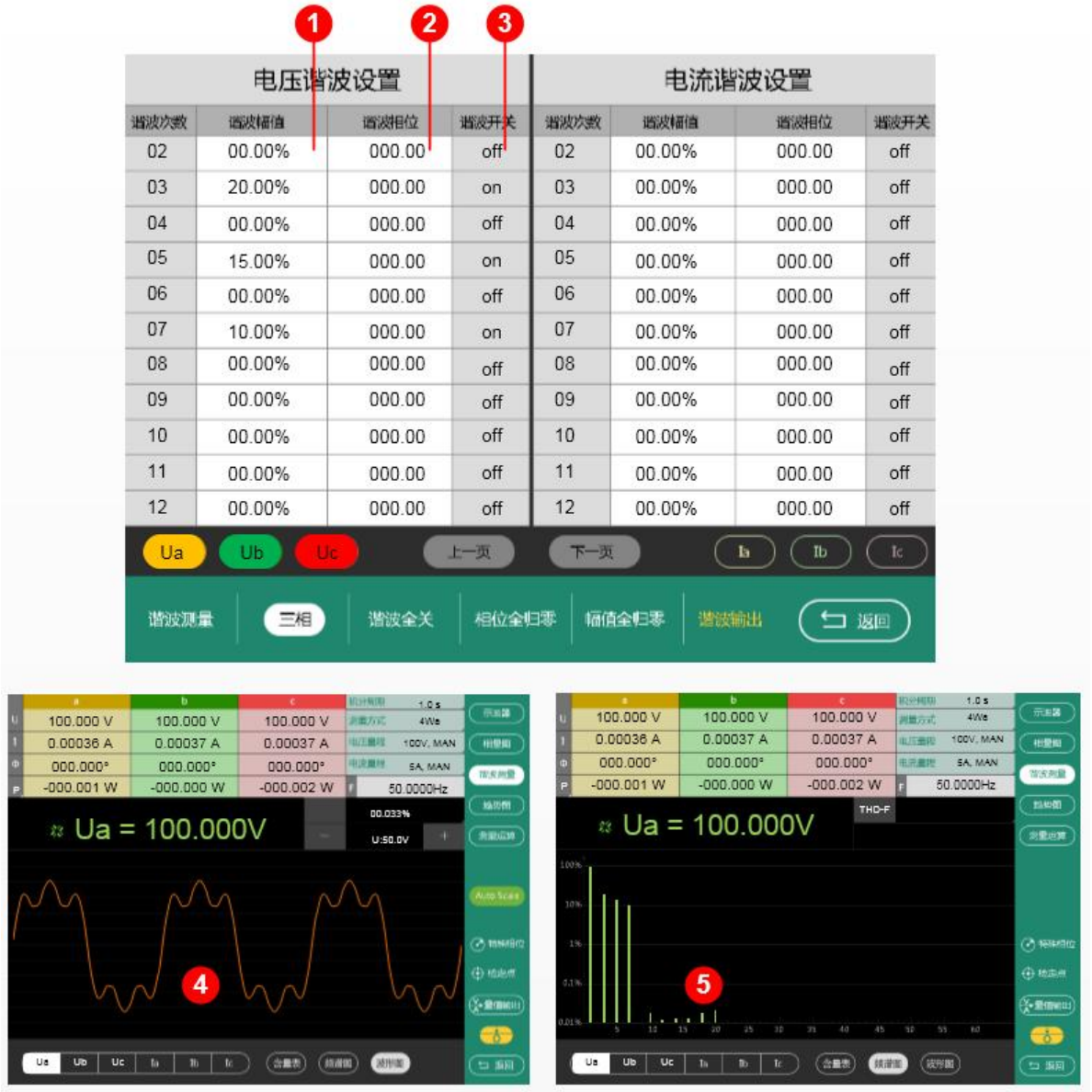






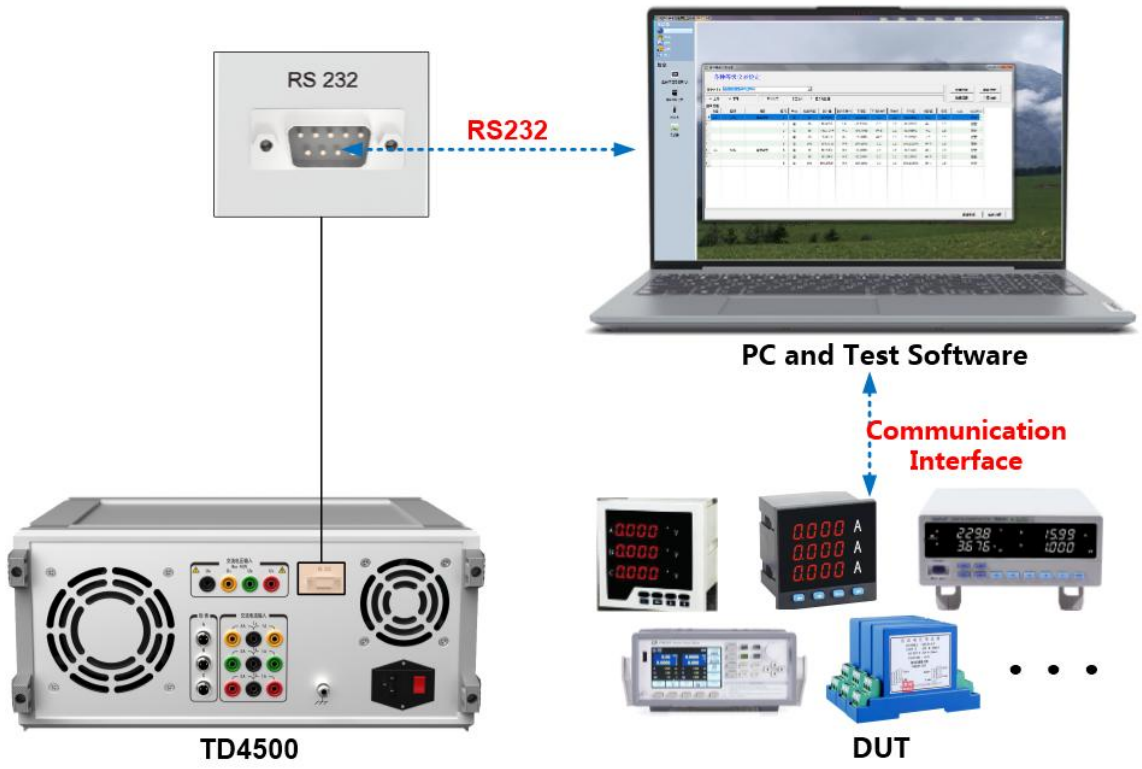
S/N	Function declaration
1	Oscilloscope function，user can observe voltage and current waves.
2	Precise display phase for voltage and current.
3	Trend variation display.

☆ Harmonics Function



S/N	Function declaration
1	Set amplitude of harmonic.
2	Set phase of harmonic（fundamental wave）。
3	Choose 2nd～21st harmonics channel output.
4	Oscilloscope function, user can observe voltage and current waves.
5	Display frequency spectrum of harmonic by histogram.(fundament wave is 100%)

☆ Test software（option）



- RS232 communication interface，software customizable.

5. Specifications

5.1 Three-Phase Voltage / Current Output

Voltage Range	Resolution	Stability (%/min)		Accuracy ±(ppm of reading + ppm of range) [1]		Max Burden (mA)
		Class 0.05	Class 0.02	Class 0.05	Class 0.02	
57.7 V	0.1 mV	0.01	0.005	300 + 200	120 + 80	250
100 V	1 mV	0.01	0.005	300 + 200	120 + 80	150
220 V	1 mV	0.01	0.005	300 + 200	120 + 80	60
380 V	1 mV	0.01	0.005	300 + 200	120 + 80	40
Note [1] : (ppm = parts per million) (e.g.，10ppm = 0.001%).						

Current Range	Resolution	Stability (%/min)		Accuracy ±(ppm of reading + ppm of range) [1]		Max Burden (V)
		Class 0.05	Class 0.02	Class 0.05	Class 0.02	
1 A	10 μA	0.01	0.005	300 + 200	120 + 80	12
5 A	10 μA	0.01	0.005	300 + 200	120 + 80	3

- Three-phase voltage output：6 V～456 V，Degree of distortion：<0.2%
- Three-phase current output：0.1 A～6.25 A，Degree of distortion：<0.2%
- Voltage short circuit, current open-circuit and overload protection

5.2 Frequency / Phase / Harmonic

Symmetry	Voltage superior to 0.2%；Current superior to 0.5%；Phase superior to 0.5°
Frequency	Range：45 Hz～70 Hz； Adjustment fineness：0.001 Hz； **Accuracy**：±0.02 Hz (class 0.05), ±0.01 Hz(class 0.02)
Phase	Range：0.000 0°～359.999 9°； Adjustment fineness：0.001°； **Accuracy**：±0.02° (class 0.05), ±0.01°(class 0.02)
Harmonic	2^{nd}～21^{st} harmonic； Amplitude 0～25% adjustable； Phase 0～359.99°adjustable

5.3 Three-Phase Power Output

Current Range	Stability (%/min)		Accuracy (± %*FS)[2]	
	Class 0.05	Class 0.02	Class 0.05	Class 0.02
Active power $\lvert cos\varphi\rvert \geq 0.5$	0.01	0.005	0.05	0.02
Reactive power $\lvert sin\varphi\rvert \geq 0.5$	0.02	0.01	0.1	0.05
Apparent power	0.02	0.01	0.1	0.05
Power factor	0.02	0.01	0.1	0.05
Note [2] :FS= voltage range ×current range				

- Power factor setting range：-1.000 000…0.000 000…1.000 000

5.4 Three-Phase Voltage / Current Input

Type	Range	Resolution	Accuracy ±(ppm of reading + ppm of range) [1]	
			Direct Input	Clamp Current Input [3]
AC Voltage ***ACV***	57.7 V	0.1 mV	300 + 200	——
	100 V	1 mV	300 + 200	——
	220 V	1 mV	300 + 200	——
	380 V	1 mV	300 + 200	——
AC Current ***ACI***	1 A	10 μA	300 + 200	——
	5 A	10 μA	300 + 200	0.2%*RG
Note [3]：Clamp is option，if it be need, it must remark in order contract，**Same as below**。				

- Voltage input：6 V～456 V，Current input：0.1 A～6 A
- Frequency：45 Hz～70 Hz，Accuracy：± 0.01 Hz
- Phase：0.000°～359.999°，Accuracy：± 0.02°

5.5 Three-Phase Power Input

Type	Accuracy	
	Direct Input	Clamp Current Input
Active power	± 0.05%*FS	± 0.2%*FS
Reactive power	± 0.1%*FS	± 0.5%*FS
Apparent power	± 0.1%*FS	± 0.5%*FS
Power factor	± 0.1%	± 0.5%

5.6 DC Voltage / Current Output

Voltage Range	Resolution	Stability (%/min)		Accuracy ±(ppm of reading + ppm of range) [1]		Max Burden (mA)
		Class 0.05	Class 0.02	Class 0.05	Class 0.02	
75 mV	0.1 μV	0.005	0.005	300 + 200	120 + 80	10
1 V	10 μV	0.005	0.005	300 + 200	120 + 80	10
10 V	0.1 mV	0.005	0.005	300 + 200	120 + 80	10
30 V	0.1 mV	0.005	0.005	300 + 200	120 + 80	500
100 V	1 mV	0.005	0.005	300 + 200	120 + 80	150
300 V	1 mV	0.005	0.005	300 + 200	120 + 80	50

Current Range	Resolution	Stability (%/min)		Accuracy ±(ppm of reading + ppm of range) [1]		Max Burden (V)
		Class 0.05	Class 0.02	Class 0.05	Class 0.02	
1 mA	10 nA	0.01	0.005	300 + 200	120 + 80	10
5 mA	10 nA	0.01	0.005	300 + 200	120 + 80	10
20 mA	100 nA	0.01	0.005	300 + 200	120 + 80	10

- DC voltage output：10 mV～330 V，ripple factor：< 1%；
- DC current output：0.1 mA～22 mA，ripple factor：< 1%
- Voltage short circuit, current open-circuit and overload protection

5.7 DC Meter（Transmitter）

Range	Measurement Range	Accuracy	Measurement Range of Ripple	Accuracy of Ripple
1 V	± (0～1.2) V	± 0.01%*RG	0～30 mV	± 1 mV
10 V	± (0～12) V	± 0.01%*RG	0～300 mV	± 10 mV
2 mA	±(0～2.4) mA	± 0.01%*RG	0～60 μA	± 2 μA
20 mA	± (0～24) mA	± 0.01%*RG	0～600 μA	± 20 μA

- Response time：measurement range：0～1000 ms，accuracy：± 40 ms

5.8 U4 Voltage Output（option）

- Voltage range：100 V、380 V
- Output range：(0～110)%*RG
- Accuracy of measurement (k = 2)：± 0.05%*RG
- Max output power：10 VA
- Frequency range：45 Hz～55 Hz
- The function is used to test Synchrometer 。

6. General Specifications

Power Supply	AC (220 ± 22) V，(50 ± 2) Hz
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，non-condensing
Interface	RS232

7. Ordering Information

TD4500 – □ – □

Class	
Code	**Note**
200	**Class 0.02**
500	**Class 0.05**

Synchrometer Test	
Code	**Note**
Empty	**-**
S	**√**

e.g. : *TD4500-500-S* note for class 0.05, with synchrometer test function.