

TD3250 Portable Three-Phase Energy Meter Tester



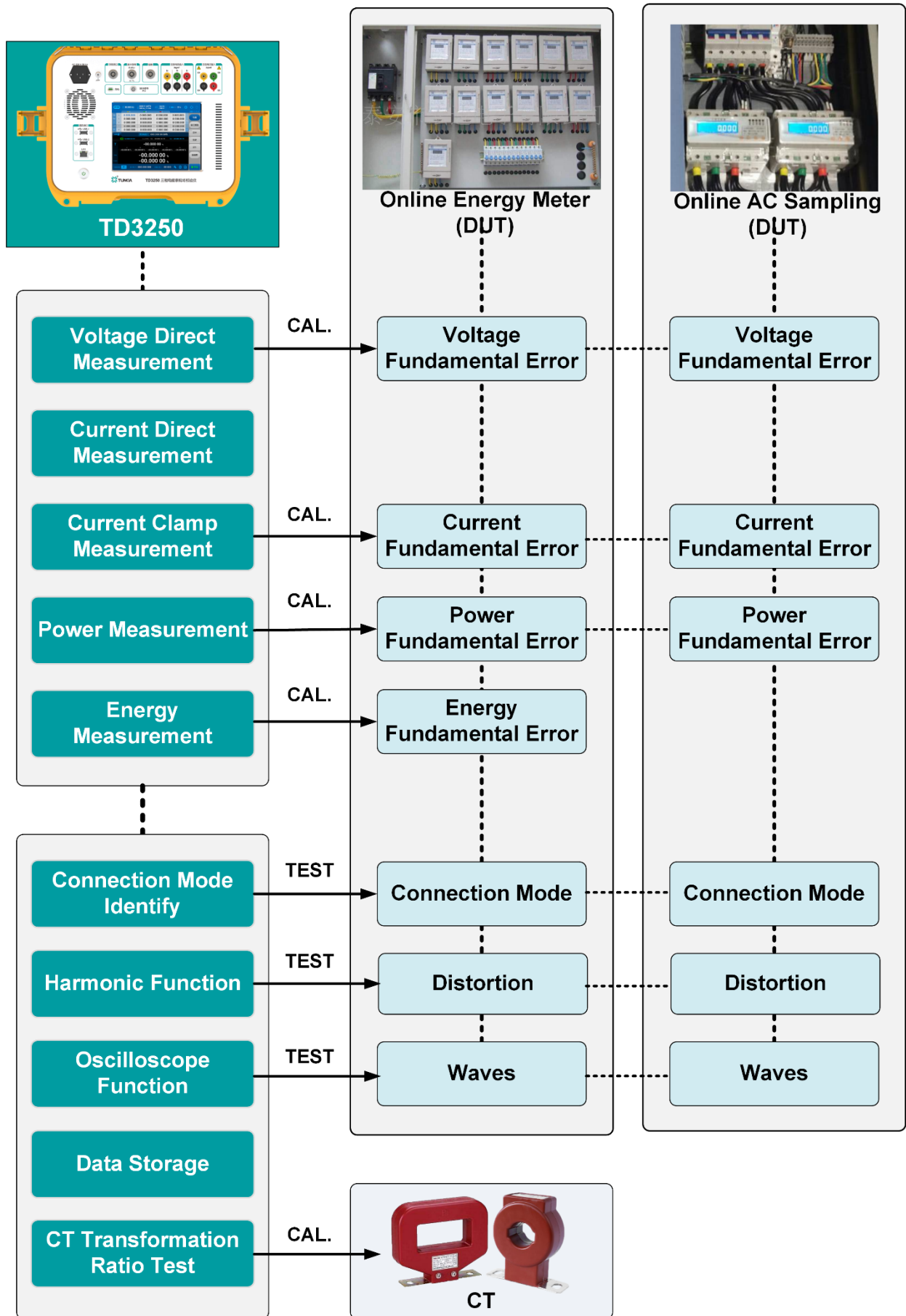
1. Summary

TD3250 is a portable standard meter specially used for three-phase energy meter on-site calibration, AC sampling etc. It integrates the functions of electrical parameter measurement, electric energy meter calibration, connection mode identification, harmonic analysis, waveform display, phasor diagram display, data management.

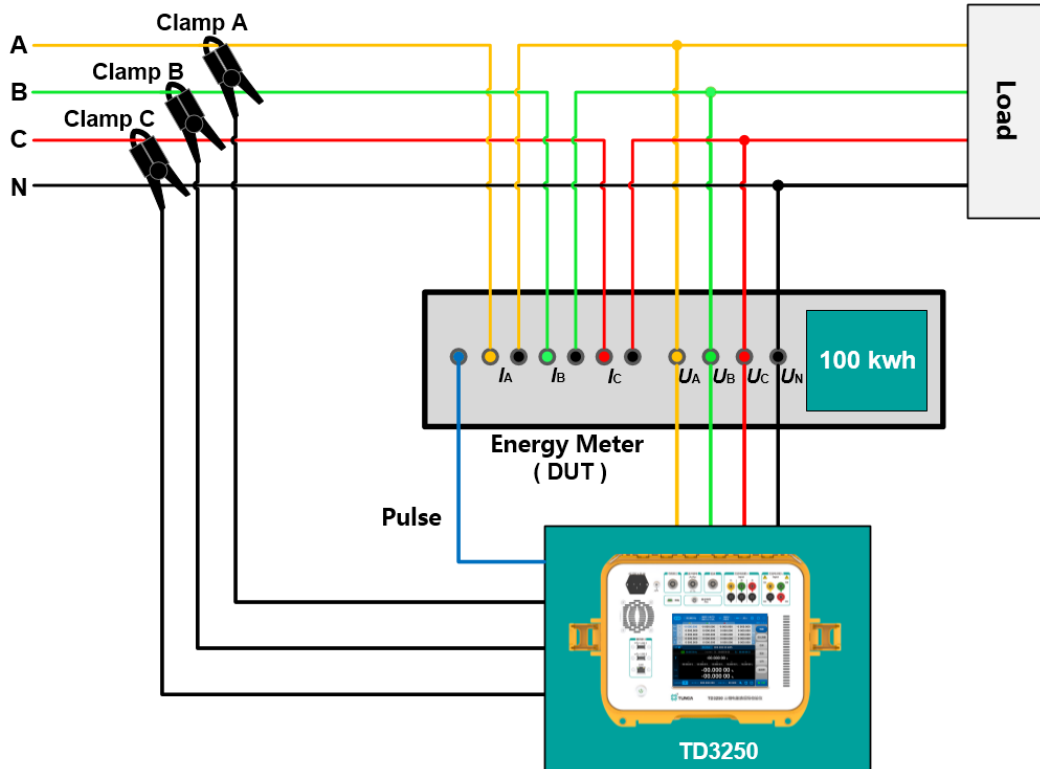
2. Features

- Accuracy: Class 0.02 or 0.05.
- 3PH voltage measurement: 0~576 V.
- 3PH current measurement (direct) : 50 mA~ 12 A.
- 3PH current measurement (clamp) : 100 mA~ 1kA.
- Support electric energy pulse optical/electrical pulse input.
- LCD touch screen.
- Support AC 100 V~264 V wide range supply.
- Support large capacity lithium battery.
- Internal memory, and quickly record test data.
- USB and RS232 interfaces.
- Compact, lightweight, and easy to carry

3. Application

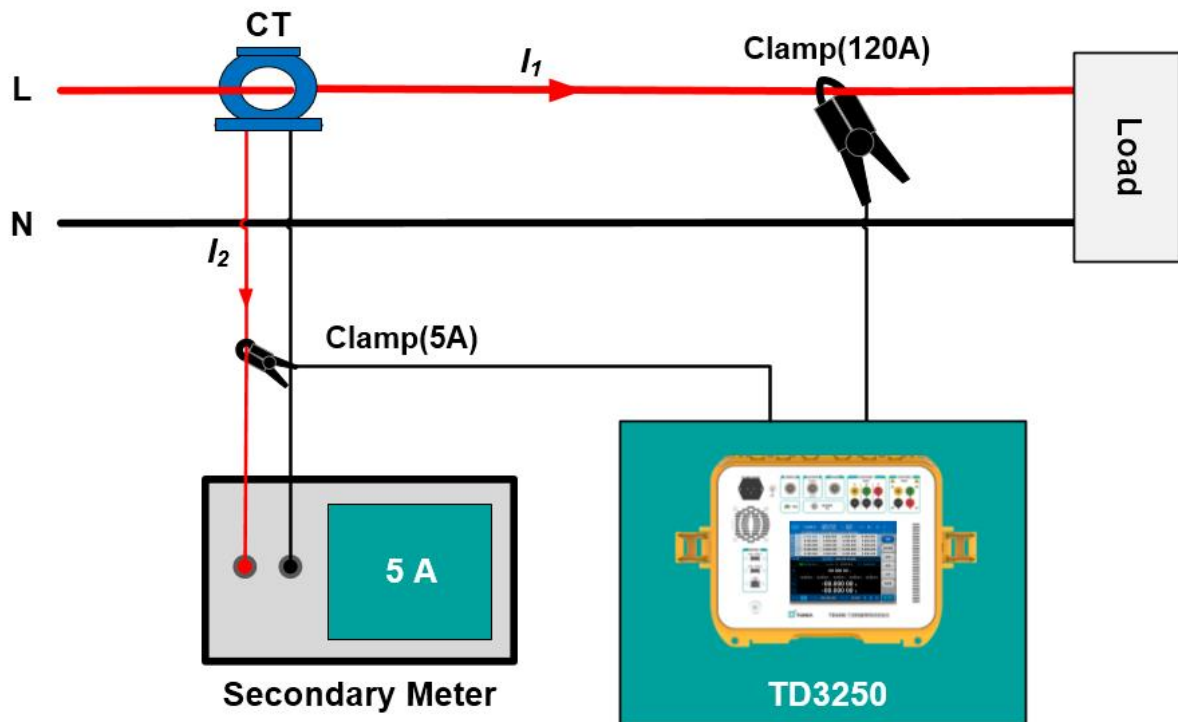


☆ Calibration for Energy Meter Online



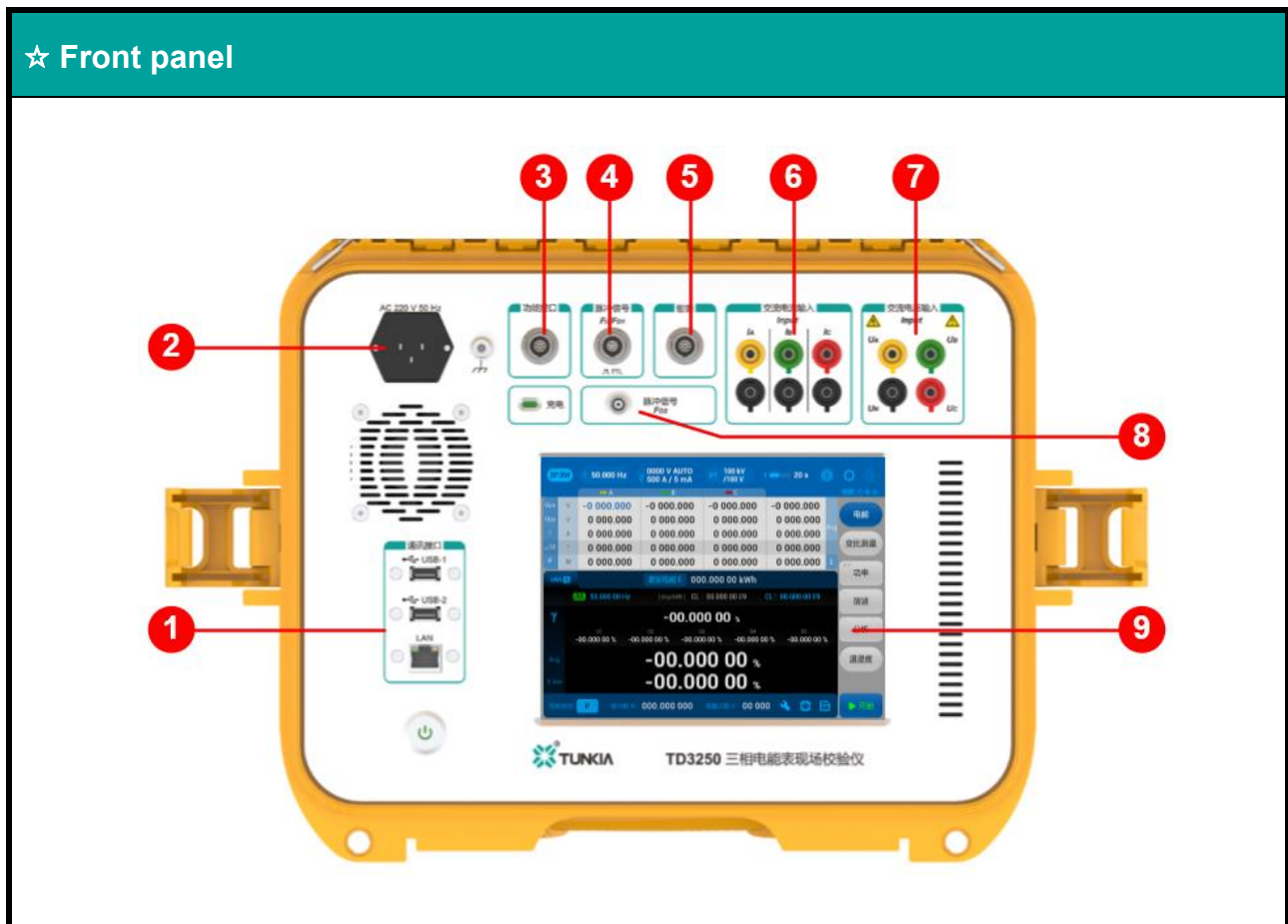
- TD3250 supports direct measurement of three-phase voltage in the range of 10 V ~ 576 V, direct measurement of three-phase current from 0.05 A ~ 12 A, and clamp-based measurement of three-phase current from 0.1 A ~ 1 kA. For energy metering, it includes an electric pulse input interface, paired with a portable optical sensor.
- **Application 1 (Direct Measurement of Current):** applicable to the calibration of single-phase / three-phase voltage source, current source, power source, etc. in the laboratory or on site.
- **Application 2 (Use Clamp for Current):** When testing the current of an energy meter on-site, it is usually necessary to wait for a power outage to disconnect the circuit, then either insert a standard ammeter into the loop for testing or remove the meter and test it in the laboratory using a standard source method. However, by using a clamp meter for current measurement, there is no need to disconnect the circuit. Simply clamp the current-carrying wire into the jaws, and real-time measurement can be performed online. This method allows for quicker and more convenient on-site testing, meeting the requirements for routine inspection of instrument operating conditions.

☆ CT Transformation Ratio Calibration



- CT transformation ratio test: use large current clamp for primary signal of CT, and with small current clamp for secondary signal of CT; Calculate the transformation ratio of CT and the phase relationship of primary/secondary current. Help judge if the CT runs well.
- Note: Standard configuration for 5 A clamp, which can be used for the secondary side, If user need other clamps should indicate the optional specification in the order.

4. Appearance

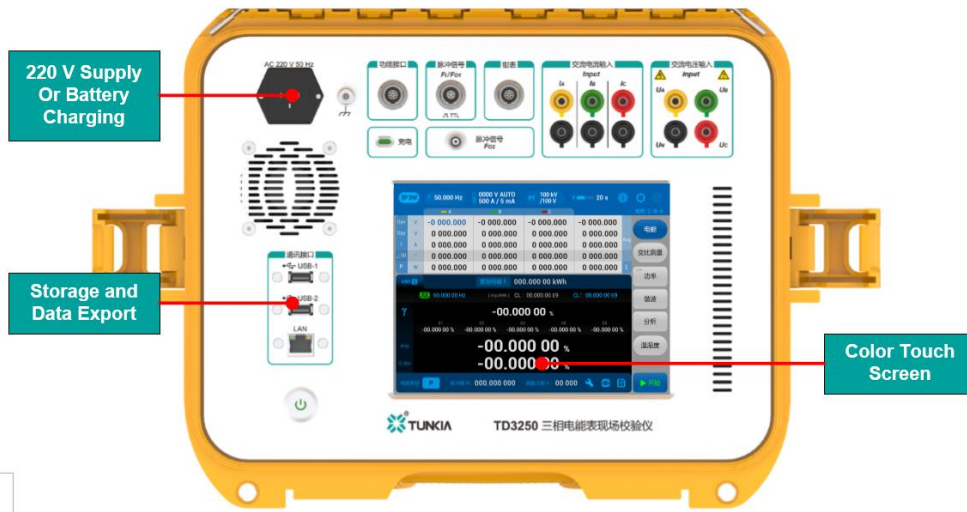


S/N	Function
1	LAN/USB communication terminals are used to connect to a computer for data transfer via management software.
2	The instrument power supply socket can be used for mains power supply or to charge the lithium battery.
3	Reserved functional interface for expanding additional environmental measurement capabilities and more.
4	Pulse signal input terminal, compatible with optical sensors for energy metering.
5	Clamp current terminal, enabling clamp meter measurement of currents ranging from 0.1 A to 1 kA.
6	Three-phase voltage terminal: Allows for a wide voltage measurement range of 10 V to 576 V with a single connection.
7	Three-phase current terminal: Directly measures currents from 0.05 A to 12 A.

8	Pulse signal output terminal: Generates standard energy pulses for higher-level calibration and verification.
9	LCD touch color screen with multi-power display, fully touch-operated, greatly enhancing the instrument's ease of use.

5.Characteristics

☆ Convenient Operation



- **Large LCD screen:** Color LCD with high brightness, supports touch operation, offering comprehensive functionality that is simple and convenient to use..
- **Front panel wiring:** convenient for the user to replace the test lead.
- **220 V mains** power supply or **the lithium battery** mode available.
- Built-in **large-capacity memory** for quickly recording test data of the equipment being tested on-site, capable of storing up to thousands of entries. After calibration is complete, the data can be transferred to the accompanying computer management software.
- **Solution advantages:** This combined operation method effectively enhances ease of use, making it suitable for a variety of application scenarios.



- The volume is equivalent to the conventional tool box, weighs about 8 kg.

☆ Connection Mode Identify and Graphical Display



S/N	Function
1	Accurately measure/display the amplitude and phase of voltage and current of each phase.
2	Accurately measure the phase between voltage and current of each phase, and visually display them in the form of phasor diagram.
3	Automatically identify the actual results of voltage and current, including phase sequence display.
4	The trend chart display function of the measuring channel can display the trend change of the measured electricity quantity with time.
5	Users can customize single or multiple power waveforms for display.

☆ Harmonic Function



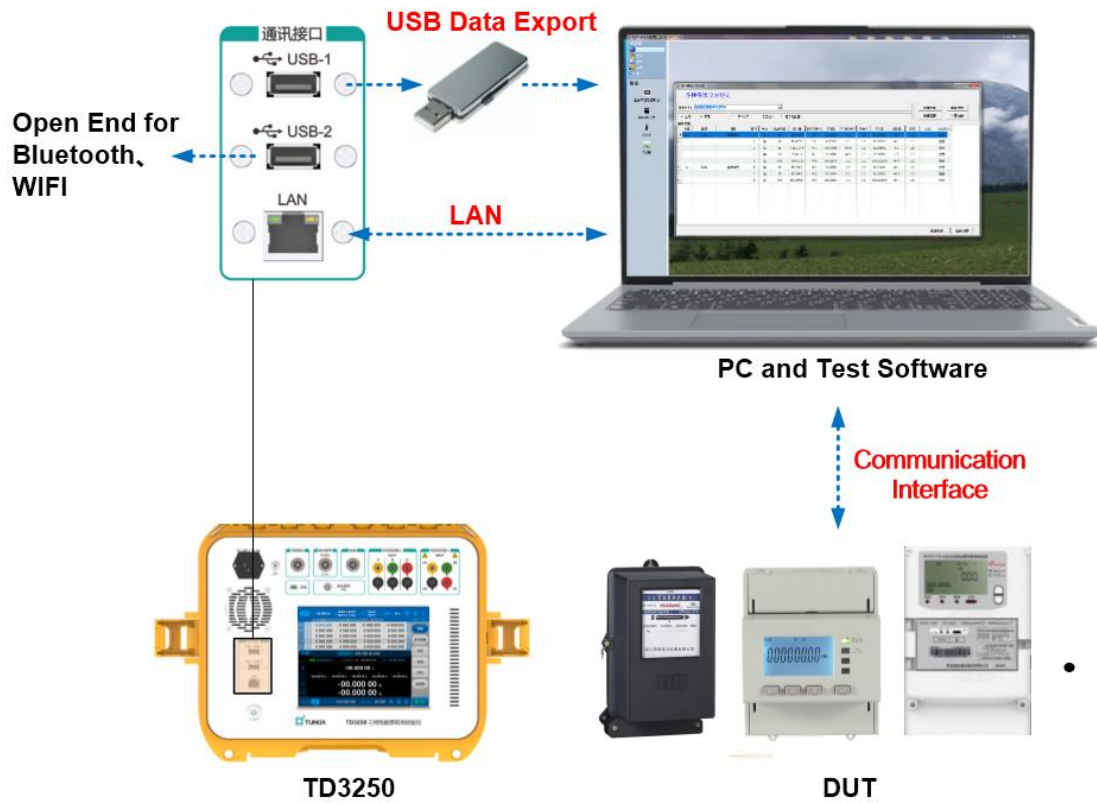
序号	功能说明
1	It can measure 2 nd ~63 rd harmonics and display the amplitude or content.
2	Display the phase value of each harmonic.
3	Display the waveform after harmonic superposition.
4	Display the phase of each harmonic. The spectrum of each harmonic is displayed visually in the form of histogram (fundamental wave is 100%).

☆ Data Management



- The equipment can store and manage the test data on site.
- The selected data can be saved to the mobile USB flash disk.

☆ Professional Test Software



- Optional computer-specific testing software can organize and generate test reports from data exported via USB drive, improving testing efficiency.
- Software functionality can be customized according to customer needs, with support for future software upgrades to accommodate new testing requirements.

6. Specifications

6.1 Three phase voltage/current measurement

Type	Measurement Mode	Range	Resolution	Accuracy	
				$\pm(\text{ppm of reading} + \text{ppm of range})$ ^[1]	
				Class 0.05	Class 0.02
ACV	Direct Measurement	120 V	1 mV	300 + 200	120 + 80
		240 V	1 mV	300 + 200	120 + 80
		480 V	1 mV	300 + 200	120 + 80
ACI	Direct Measurement	1 A	10 μ A	300 + 200	120 + 80
		10 A	100 μ A	300 + 200	120 + 80
	Clamp Measurement	1 A ^[2]	10 μ A	0.2%*RG	0.1%*RG
		5 A	10 μ A	0.2%*RG	0.1%*RG
		10 A ^[2]	100 μ A	0.2%*RG	0.1%*RG
		20 A ^[2]	100 μ A	0.2%*RG	0.1%*RG
100 A ^[2]	1 mA	< 50 A: 0.2%*RG; ≥ 50 A: 0.5%*RG	< 50 A: 0.1%*RG; ≥ 50 A: 0.2%*RG		

Note [1]: (ppm = parts per million) (e.g., 10ppm = 0.001%).

Note [2]: The 5A clamp meter is standard, while other models are optional. Optional clamp meters include 200 A and 1 kA models.

- Voltage input: 10 V~576 V, 6-digits decimal display.
- Current input (direct measurement): 0.05 A~12 A, 6-digits display.
- Current input (clamp measurement): 0.1 A~1 kA, 6-digits display.

6.2 Frequency/Phase

Frequency	Range	45.000 Hz~65.000 Hz	
	Resolution	0.001 Hz	
	Accuracy (k=2)	± 0.01 Hz	
Phase	Range	0.000°~359.999°	
	Resolution	0.001°	
	Accuracy (k=2)	Direct Measurement:	± 0.05°
		Clamp Measurement:	± 0.2°

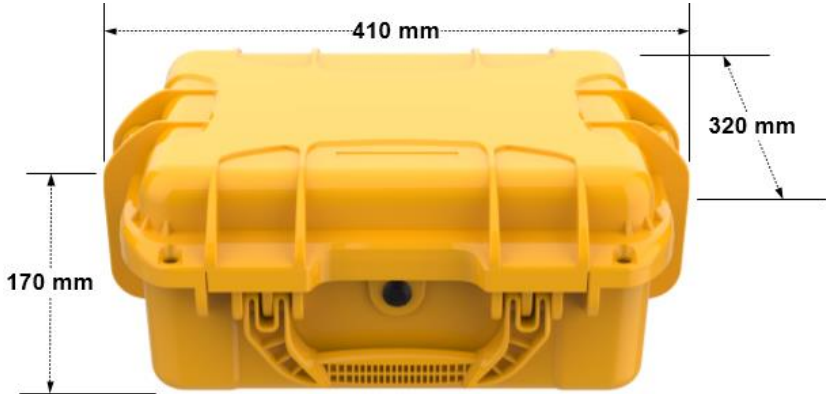
6.3 Three Phase Power / Energy Measurement

Power/Energy Parameters	Accuracy (k=2)			
	Direct Measurement		Clamp Measurement	
	Class 0.05	Class 0.02	Class 0.05	Class 0.02
Active P/E $\cos \varphi \geq 0.5$	± 0.05%*FS ^[3]	± 0.02%*FS ^[3]	± 0.2%*FS ^[3]	± 0.1%*FS ^[3]
Reactive P/E $\sin \varphi \geq 0.5$	± 0.1%*FS ^[3]	± 0.05%*FS ^[3]	± 0.5%*FS ^[3]	± 0.2%*FS ^[3]
Apparent power	± 0.1%*FS ^[3]	± 0.05%*FS ^[3]	± 0.5%*FS ^[3]	± 0.2%*FS ^[3]
Power factor	± 0.0005	± 0.0005	± 0.002	± 0.002


Note [3]: FS=voltage range value × current range value.

- Power factor measurement range: -1.000 0... 0.000 0... 1.000 0.
- Standard electric energy pulse output: high frequency full range value corresponds to 60 kHz, low frequency full range value corresponds to 6 Hz.
- Standard electric energy pulse input: frequency ≤ 200 kHz, voltage: 0... 3.3 V... 24 V.

7. General Specifications



Power Supply	Mains power: AC (100 ~ 264) V, (50 ± 2) Hz; Lithium battery power: Supports continuous operation for 8 hours.
Maximum power	30 VA
Temperature Performance	Working temperature: -20°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
Altitude	<3000 m
Weight	About 8kg
Interface	USB, LAN
Dimensions	410 mm(W) × 320 mm(D) × 170 mm(H)
	


8. Ordering Information


TD3250 - 	Class	
	Code	Note
	500	Class 0.05
	200	Class 0.02

e.g.: **TD3250-200** represents class 0.02.

9. Accessories List

S/N	Image	Name	Specification	Quantity	Remark
1		Voltage Test Lead	3m / 1.6mm ² / Φ 4- Φ 4 banana plug	1 red, 1 green, 1 yellow, 1 black	Standard Accessories
2		Current Test Lead	3m / 1.6mm ² / Φ 4- Φ 4 banana plug	3 red, 3 green, 3 yellow, 1 black	Standard Accessories
3		Pin	Φ 2*18mm hole / Φ 4 socket	2 green, 2 yellow, 6 red, 8 black	Standard Accessories
4		U-shaped terminal	Φ 8 thin terminal / Φ 4 socket	2 green, 2 yellow, 6 red, 8 black	Standard Accessories
5		Crocodile Clip	Fully insulated / Φ 4 socket	2 green, 2 yellow, 6 red, 8 black	Standard Accessories
6		Energy Pulse Output Wire	BNC Male Connector -- Crocodile Clip	1 piece	Standard Accessories
7		Energy Pulse Test Lead	12M-4P Aviation Plug -- Crocodile Clip	1 piece	Standard Accessories
8		Adsorption Photodetector	TP-17C	1 set	Standard Accessories
9		Clamp Meter	5A / 5mA	3 pieces	Standard Accessories
10		Power Cable	AC 220V、10A	1 piece	Standard Accessories
11		Glass Fuse	F2A、250V	3 pieces	Standard Accessories

12		Specialized Test Software	Card USB Drive	1 set	Standard Accessories
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S/N	Image	Name	Specification	Quantity	Remark
1		Clamp Meter (not 5A / 5mA specification)	Optional Clamp Specifications: Clamp 1A / 5mA Specification Clamp 10A / 5mA Specification Clamp 20A / 5mA Specification Clamp 100A / 5mA Specification Clamp 200A / 5mA Specification Clamp 1000A / 5mA Specification	3 pieces	Optional Accessories

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