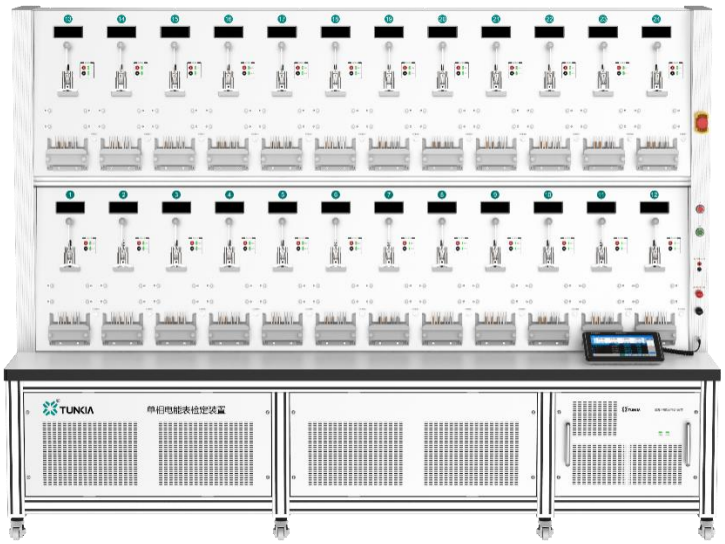
TD3500 Single-phase Energy Meters Verification Device



1. Summary

TD3500 is applied for verification of single-phase energy meters. It mainly consists of single-phase precision standard power source, verification platform, measurement and control platform, PC(optional) and verification software. TD3500 supports simultaneous verification of **6 ~ 24** single-phase electricity/mechanical energy meters with the same voltage/current range, different meter constant.

2. Verification Items

- Test of no-load
- Starting current test
- Intrinsic error
- Meter constant
- Daily reckoning error

3. Features

3.1 Basic Features

- **Maximum output capacity:** 264 V / 120 A.
- **Fundamental frequency:** 45 Hz ~ 100 Hz.
- **Accuracy:** class 0.05 or 0.1.
- **Minimum current output:** As low as 1 mA.
- **Auto range:** Automatic range switching and load matching.
- **Energy measurement:** Positive / negative active and reactive energy.
- **Daily reckoning error test:** Built in standard clock tester.
- **Automatic patrol inspection:** Support automatic patrol inspection.
- **Connection:** Equipped with special pressure gauge holder.
- **Communication:** DUT through RS-485 port.
- **Energy pulse:** Electric and optical pulse sampling ports.
- **Multiple-position test:** Optional 6,12,16,24 positions.
- **Mobile control unit:** LCD touch screen for value output.
- **Professional verification software:** Support semi-automatic or fully automatic verification of the DUT, data management and certificate export. The software has the function of single point multiple tests, the test interval can be set, and the error curve can be drawn automatically.

3.2 Optional Features

- **Harmonic output:** Loadable 2^{nd} ~21^{st} harmonic @50 Hz / 60 Hz, harmonic content and phase are adjustable.
- **Standard meter:** Optional standard meter with Accuracy class 0.05 / 0.02.

4. Specifications

4.1 Three Phase Voltage Output

Range	Resolution	Short-term Stability (% / min)		Accuracy ±(ppm of reading + ppm of range) [1]		Distortion Factor (%)
		Class 0.05	Class 0.1	Class 0.05	Class 0.1	
220 V	1 mV	0.01	0.02	200 + 50	300 + 200	< 0.3
Note [1] : (ppm = parts per million) (e.g., 10ppm = 0.001%).						

- Output range: 0 V～264 V, 6-digits display, Load capacity: 15VA/ (phase · position)
- Protective function: Short-circuit protection, Overload protection

4.2 Three Phase Current Output

Range	Resolution	Short-term Stability (% / min)		Accuracy ±(ppm of reading + ppm of range)		Distortion Factor (%)
		Class 0.05	Class 0.1	Class 0.05	Class 0.1	
10 mA	0.1 μA	0.02	0.04	300 + 200	500 + 300	< 0.5
20 mA	0.1 μA	0.02	0.04	300 + 200	500 + 300	< 0.5
50 mA	0.1 μA	0.02	0.04	200 + 50	300 + 200	< 0.5
100 mA	1 μA	0.01	0.02	200 + 50	300 + 200	< 0.5
200 mA	1 μA	0.01	0.02	200 + 50	300 + 200	< 0.5
500 mA	1 μA	0.01	0.02	200 + 50	300 + 200	< 0.5
1 A	10 μA	0.01	0.02	200 + 50	300 + 200	< 0.5
2 A	10 μA	0.01	0.02	200 + 50	300 + 200	< 0.5
5 A	10 μA	0.01	0.02	200 + 50	300 + 200	< 0.5
10 A	100 μA	0.01	0.02	200 + 50	300 + 200	< 0.5
20 A	100 μA	0.01	0.02	200 + 50	300 + 200	< 0.5
50 A	100 μA	0.01	0.02	200 + 50	300 + 200	< 0.5
100 A	1 mA	0.01	0.02	200 + 50	300 + 200	< 0.5

- Output range: 1 mA～120 A, 6-digits display, load capacity: 30VA/ (phase · position)
- Protective function: Open-circuit protection, Overload protection

4.3 Frequency / Phase

Accuracy		Class 0.05	Class 0.1
Frequency	Measuring Range	45 Hz～100 Hz	45 Hz～100 Hz
	Minimum Resolution	0.000 01 Hz	0.000 01 Hz
	Accuracy	±0.005%*RD	±0.005%*RD
Phase （I ≥ 50mA）	Measuring Range	0～360°	0～360°
	Minimum Resolution	0.000 1°	0.000 1°
	Accuracy	±0.012°	±0.024°

4.4 Power/ Energy

Current Range	Power Factor	Accuracy ±(% of reading)	
		Class 0.05	Class 0.1
50 mA ≤ I ≤ 120 A	0.5L~1~0.5C	0.05%*RD	0.1%*RD
10 mA ≤ I < 50 mA	1	0.05%*RD	0.1%*RD
	0.5L~1~0.5C	0.08%*RD	0.15%*RD
1 mA ≤ I < 10 mA	1	0.08%*RD	0.15%*RD
	0.5L~1~0.5C	0.15%*RD	0.3%*RD

- Stability of output power: 0.02% / 2min (Class 0.05)，0.05% / 2min (Class 0.1);
- Measuring range of P/E: Combination of AC voltage and AC current range;
- Measuring range of power factor: -1.000 00…0.000 00…1.000 00;
- Standard electric energy pulse output: High frequency pulse output port outputs 60KHz at full range, low frequency pulse output port outputs 6Hz at full range;
- Standard electric energy pulse input: Frequency ≤ 200 kHz, voltage: 0…3.3 V…24 V;
- Electric energy error display: Auto, resolution is 0.0001%.

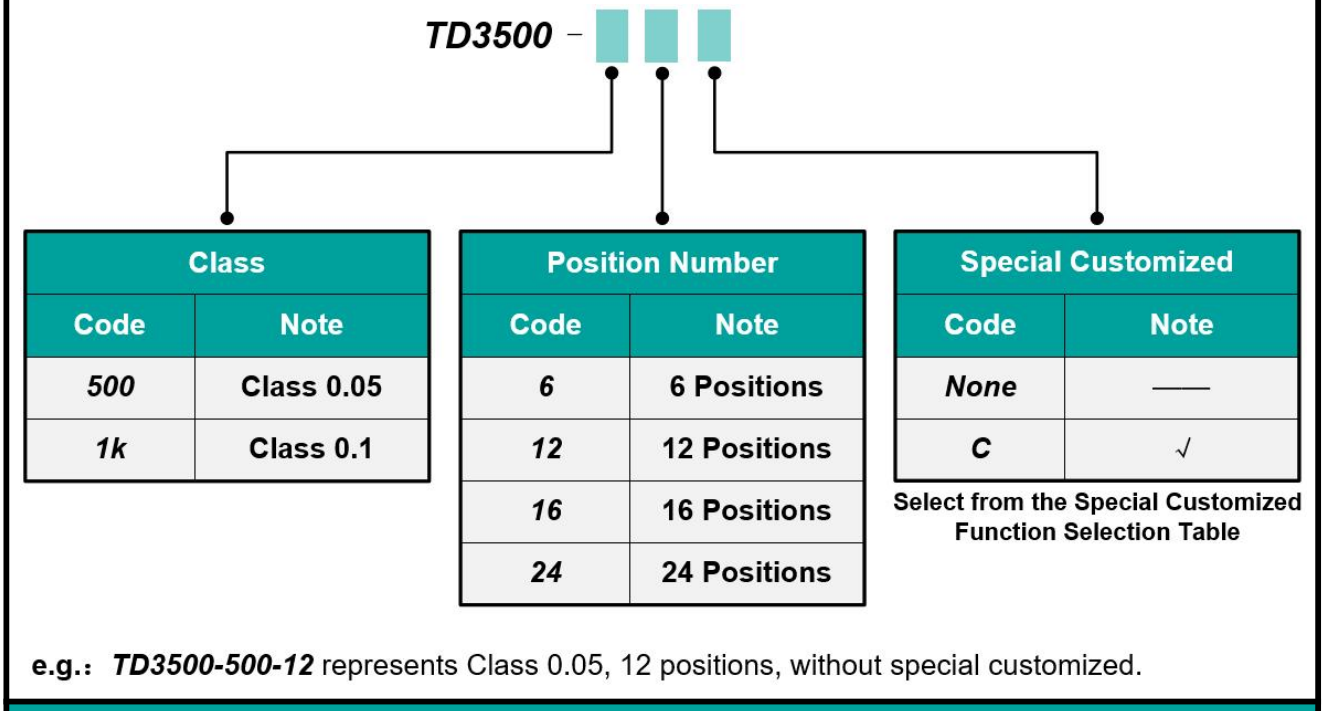
4.5 Clock

- Daily reckoning error limit: ±0.05 s/d

5. General Specifications

Power supply	Single phase AC(220±22)V, (50±2)Hz				
Warm up time	30min				
Temperature performance	Operating temperature: 5°C~45°C; Storage temperature: -10°C~55°C.				
Humidity performance	Operating humidity: < 80% @ 30°C， < 70% @ 40°C, < 40% @ 50°C; Storage humidity: (20%~80%) R·H, no condensation.				
Communication interface	RS232, RS485, LAN				
Dimensions of test bench（L*W *table H / total H, mm）	Position number	6 positions	12 positions	16 positions	24 positions
	Manual wiring	1350*750*750/1415	——	——	——
	Crimp wiring	1350*750*750/1415	1240*750*600/1782	1590*750*600/1782	2290*750*600/1782
Dimensions of computer desk（L*W*H, mm）	No standard meter	1000*800*750			
	Standard meter	1500*800*750			

6. Ordering Information



Class	
Code	Note
500	Class 0.05
1k	Class 0.1

Position Number	
Code	Note
6	6 Positions
12	12 Positions
16	16 Positions
24	24 Positions

Special Customized	
Code	Note
None	——
C	√

Select from the Special Customized Function Selection Table

e.g.: ***TD3500-500-12*** represents Class 0.05, 12 positions, without special customized.

Special Customized Function Selection Table		
Tick	**Option function**	**Description**
	Harmonic output	2nd~21th
	Standard meter	Class 0.05
	Other requirements	