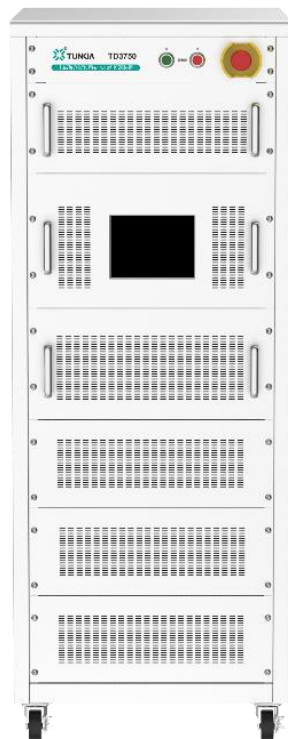


TD3750 AC Power Detection Device for Electromagnetic Compatibility Testing



* For reference only. Configuration and details may vary depending on the application scenario..

1. Summary

TD3750 is a device used to test the electromagnetic compatibility (EMC) of single-phase or three-phase AC energy meters, mainly composed of a three-phase standard power source, a filter module, system software, etc. The device has a measurement uncertainty of **class 0.05** and can be used in conjunction with relevant EMC influence quantity generation devices to complete relevant energy meter EMC tests.

2. Features

- **High reliability:** Maximum output 456 V / 60 A, continuous operation at the load point ($1.1U_{max}$, I_{max}) for 1000h can ensure the stability of the value output.
- **Single-phase and three-phase compatibility:** Supports single-phase meter test for single meter position, and supports three-phase meter test for three meter positions.
- **Filter network:** The device has voltage signal, current signal, and pulse signal filter networks, which can effectively filter interference signals in Class A acceptance tests and conduct real-time tests on

the metering performance of the meter under test.

- Supports multiple energy metering methods such as forward and reverse active energy, four-quadrant reactive energy, etc.
- The software has comprehensive data management functions, convenient data retrieval, and automatic backup functions.
- The software can output statistical reports such as verification certificates and test reports; supports document saving and printing in multiple formats.

3. Test Items

For **Class A** acceptance tests, the metering performance of the DUT can be verified in the EMC impact test. The detailed test items are as follows:

- Electrical fast transient pulse group
- Damped oscillating wave
- RF electromagnetic field radiation (with current)
- RF field induced conducted interference
- Differential mode current interference test (only supports single meter position test)

For **Class B** acceptance test, the metering performance of the DUT can be verified after the EMC influence is removed. The detailed items are as follows:

- Electrostatic discharge
- Radiated RF electromagnetic field
- Surge
- Radiated RF electromagnetic field (no current)

4. Specification

4.1 Three-phase Voltage Output

Range	Resolution	Short-term Stability (% / min)	Measurement Uncertainty ($k=2$) (ppm*RD+ppm*RG) ^[1]	Distortion (%)
60 V	0.1 mV	0.01	200 + 50	< 0.3
120 V	1 mV	0.01	200 + 50	< 0.3
240 V	1 mV	0.01	200 + 50	< 0.3
380 V	1 mV	0.01	200 + 50	< 0.3

Note [1]: RD is the reading value, RG is the range value, the same below

- Output range: 6 V ~ 456 V, 6-digit display, load capacity: 15 VA / (phase·meter position)
- Symmetry: voltage $\leq 0.2\%$, phase $\leq 0.5^\circ$
- Protection function: short circuit protection, overload protection

4.2 Three-phase Current Output

Range	Resolution	Short-term Stability (% / min)	Measurement Uncertainty ($k=2$) (ppm*RD+ppm*RG)	Distortion (%)
100 mA	1 μ A	0.01	200 + 50	< 0.5
200 mA	1 μ A	0.01	200 + 50	< 0.5
500 mA	1 μ A	0.01	200 + 50	< 0.5
1 A	10 μ A	0.01	200 + 50	< 0.5
2 A	10 μ A	0.01	200 + 50	< 0.5
5 A	10 μ A	0.01	200 + 50	< 0.5
10 A	100 μ A	0.01	200 + 50	< 0.5
20 A	100 μ A	0.01	200 + 50	< 0.5
50 A	100 μ A	0.01	200 + 50	< 0.5

- Output range: 10 mA ~ 60 A, 6-digit display, load capacity: 30 VA / (phase·meter position)
- Symmetry: current $\leq 0.5\%$, phase $\leq 0.5^\circ$
- Protection function: open circuit protection, overload protection

4.3 Frequency/Phase

Frequency	Measuring range	45 Hz ~ 65 Hz
	Minimum resolution	0.000 01 Hz
	Measurement uncertainty (k=2)	0.005%*RD
Phase (I ≥ 50mA)	Measuring range	0 ~ 360°
	Minimum resolution	0.000 1°
	Measurement uncertainty (k=2)	0.012°

4.4 Power/Energy

Voltage Range	Current Range	Power Factor	Measurement Uncertainty(k=2)
30 V ≤ U ≤ 480 V	50 mA ≤ I ≤ 60 A	0.5L~1~0.5C	0.05%*RD
	10 mA ≤ I < 50 mA	1	0.05%*RD
		0.5L~1~0.5C	0.08%*RD
	5 mA ≤ I < 10 mA	1	0.08%*RD
		0.5L~1~0.5C	0.15%*RD

- Output power stability: 0.02% / 2min;
- Power/energy measurement range: combination of AC voltage range and AC current range;
- Power factor measurement range: -1.000 00...0.000 00...1.000 00;
- 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;
- Energy error display: automatic, with a resolution of 0.0001%.

5. General Specification

Power Supply	Single-phase AC (220 ± 22) V, (50 ± 2) Hz
Power Consumption	About 1500 VA
Warm-up Time	30-min
Temperature Performance	Working temperature: 5°C~45°C; Storage temperature: -10°C~55°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
Communication Interface	RS232
Dimensions	550 mm(W) × 700 mm(D) × 1472 mm(H)