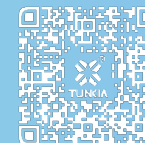


# ELECTRICAL MULTI-FUNCTION CALIBRATORS



# TH1950 HIGH PRECISION MULTI-FUNCTION CALIBRATOR

## Calibrate 7.5/8.5 digit multimeters

- TH1950 is a new generation of **top-level multi-function calibrator** with a wider calibration range and higher calibration accuracy. It can output AC and DC voltage and current signals with excellent performance and has built-in high-stability standard resistors.
- It can calibrate various series of digital multimeters and other precision electrical measuring instruments, and is widely used in power grids, scientific research, integrated circuit development, high-precision sensor testing and other fields.

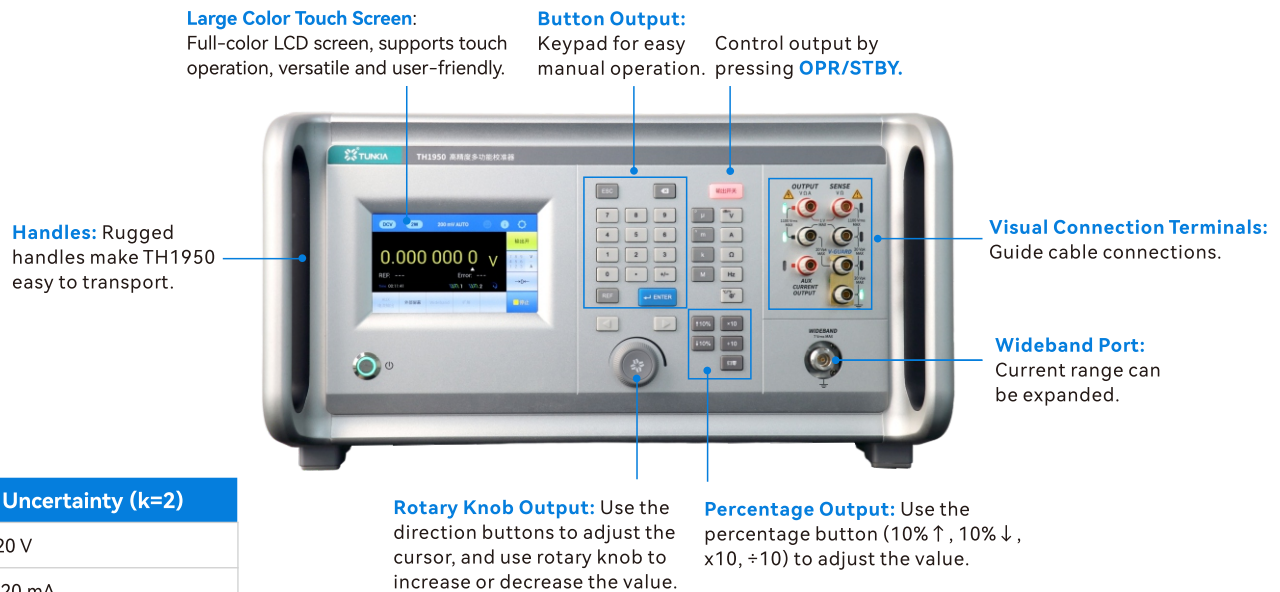
### Features

- High-precision multi-function signal output
- Calibrate **7.5/8.5 digit** multimeters
- Supports AC and DC current expansion output to 120 A (with TA1000)
- Excellent output stability, DCV 24h short-term stability  $\leq 1$  ppm
- Excellent interaction performance
- Supports various value output methods such as touch screen output, button output and rotary knob output

### Specifications

| Specifications | Range   | 1-Year Optimal Uncertainty (k=2)                                    |
|----------------|---|---|
| DC Voltage     | 220 mV ~ 1100 V                                   | 3.5 ppm + 4 $\mu$ V @20 V   |
| DC Current     | 0 ~ 2.2 A   | 35 ppm + 40 nA @20 mA   |
| AC Voltage     | 220 mV ~ 1100 V, 10 Hz ~ 1 MHz                    | 42 ppm + 50 $\mu$ V @20 V, 40 Hz~20 kHz                             |
| AC Current     | 9 $\mu$ A ~ 2.2 A, 10 Hz ~ 10 kHz                 | 103 ppm + 2.5 $\mu$ A @200 mA, 40 Hz~1 kHz                          |
| Resistance     | 0 ~100 M $\Omega$                                 | 6.5 ppm @1 k $\Omega$ /1.9 k $\Omega$ /10 k $\Omega$ /19 k $\Omega$ |
| Frequency      | 10 Hz ~ 1 MHz                                     | 0.005%  |
| Interfaces     | RS 232 $\times$ 1, USB $\times$ 1, LAN $\times$ 1 |   |
| Touch Screen   | 5-inch  |   |
| Size           | 432 mm(W) x 517 mm(D) x 222 mm(H)                 |   |

### Front Panel



### Expand Current



TH1950



TA1000

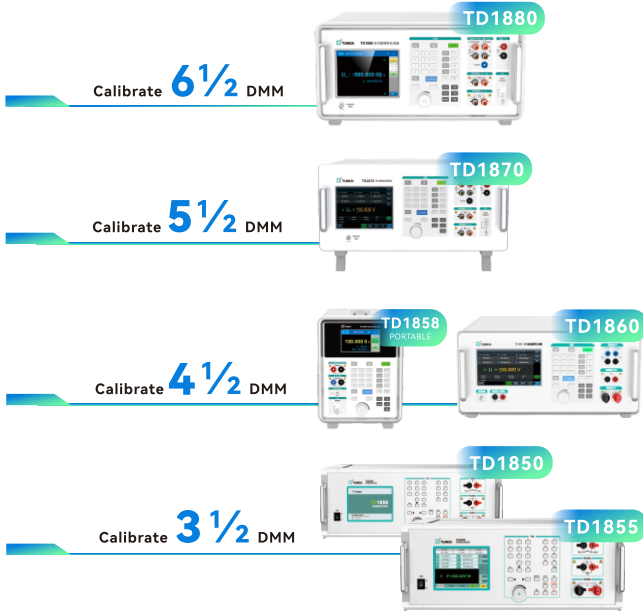
- Accuracy: 100 ppm
- Operating frequency: DC ~ 10 kHz
- Output current: 120 A (max)
- Short-term stability: 0.001%

TH1950 High-precision Multi-function Calibrator can be used with TA1000 Transconductance Current Standard Source to **expand the output current range up to 120 A**.

# TD18 SERIES PRECISION MULTIFUNCTION CALIBRATOR

Suitable for calibrating digital multimeter and other precision electrical measuring instruments

- TD18 series are multi-functional calibrators with wide range, high precision, and with built-in ultra precision AC/DC voltage and current sources.
- It can output excellent DC voltage, DC current, DC power, AC voltage, AC current, AC power, phase, frequency, etc.
- It has functions such as simulating resistors, capacitors, thermocouples, thermal resistors, and pulse outputs.
- TD18 series multi-function calibrators can calibrate 6.5 digit digital multimeters and other precision electrical measuring instruments.



| Function                            | TD1850 | TD1855 | TD1858 | TD1860 | TD1870 | TD1880 |
|-------------------------------------|--------|--------|--------|--------|--------|--------|
| DC Voltage Output                   | ★      | ★      | ★      | ★      | ★      | ★      |
| DC Current Output                   | ★      | ★      | ★      | ★      | ★      | ★      |
| DC Resistor Output                  | ★      | ★      | ★      | ★      | ★      | ★      |
| AC Voltage Output                   | ★      | ★      | ★      | ★      | ★      | ★      |
| AC Current Output                   | ★      | ★      | ★      | ★      | ★      | ★      |
| AC/DC Power Output                  | —      | ★      | —      | ★      | ★      | ★      |
| Pulse Frequency Output              | ★      | ★      | ★      | ★      | ★      | ★      |
| DC Small Signal Measurement         | ☆      | ☆      | —      | ☆      | ☆      | ☆      |
| Clamp Coil                          | ☆      | ☆      | ☆      | ☆      | ☆      | ☆      |
| Capacitive Output                   | —      | —      | —      | —      | —      | ☆      |
| Thermal Resistor Output             | —      | —      | —      | —      | ☆      | ☆      |
| Thermocouple Output and Measurement | —      | —      | ☆      | —      | ☆      | ☆      |
| Calibration Simulation Meter        | ★      | ★      | ★      | ★      | ★      | ★      |
| Remote Control Adjustment Box       | ☆      | ☆      | —      | ☆      | —      | —      |

★: Standard function ☆: Optional function —: Not support

| Specifications   | TD1850             | TD1855             | TD1858                  | TD1860               | TD1870           | TD1880          |
|--|--------------------|--------------------|-------------------------|----------------------|------------------|-----------------|
| DMM  | 3.5                | 3.5                | 4.5                     | 4.5                  | 5.5              | 6.5             |
| DC Voltage   | 1100 V, 500 ppm    | 1100 V, 500 ppm    | +1020, -10.4 V, 110 ppm | ±1100 V, 85 ppm      | ±1020 V, 52 ppm  | ±1020 V, 11 ppm |
| DC Current   | 22 A/33 A, 500 ppm | 22 A/33 A, 500 ppm | ±10.2 A, 300 ppm        | ±22 A/±33 A, 150 ppm | ±20.5 A, 70 ppm  | ±20.5 A, 87 ppm |
| DC Resistance  | 220 MΩ, 500 ppm    | 220 MΩ, 500 ppm    | 220 MΩ, 500 ppm         | 220 MΩ, 170 ppm      | 1100 MΩ, 75 ppm  | 1100 MΩ, 35 ppm |
| AC Voltage   | 1100 V, 500 ppm    | 1100 V, 500 ppm    | 1020 V, 500 ppm         | 1100 V, 500 ppm      | 1020 V, 200 ppm  | 1020 V, 117 ppm |
| AC Current   | 22 A/33 A, 500 ppm | 22 A/33 A, 500 ppm | 10.4 A, 1000 ppm        | 22 A/33 A, 500 ppm   | 20.5 A, 200 ppm  | 20.5 A, 250 ppm |
| Sine Wave Frequency  | 1100 Hz, 100 ppm   | 1100 Hz, 100 ppm   | 20 kHz, 100 ppm         | 1500 Hz, 100 ppm     | 500 kHz, 100 ppm | 500 kHz, 50 ppm |
| Touch Screen   | 5.6-inch           | 5.6-inch           | 4.3-inch                | 7.0-inch             | 7.0-inch         | 6.4-inch        |
| Weight   | about 18 kg        | about 19.5 kg      | about 9.5 kg            | about 25 kg          | about 25 kg      | about 24 kg     |
| Size (excluding handles and feet)<br>(W * D * H, unit: mm) | 475*400*190        | 475*400*190        | 210*365*266             | 450*505*203          | 444*510*205      | 440*462*206     |

# TD1880

## PRECISION MULTI-FUNCTION CALIBRATOR

- TD1880 is a multi-function calibrator with wide range and high accuracy, which is applied for calibrating **6.5 digit** or less digital multimeters.
- It integrates AC/DC voltage and current standard source, and can output excellent DC/AC voltage, DC/AC current, DC/AC power, phase, frequency, and analog resistance and capacitance etc.



TD1880



TD1880

### Specifications

|                             |  |
|-----------------------------|--|
| DUT                         | 6.5 digit multimeter   |
| DC Voltage                  | ± (0 ~ 1020 V)   |
| DC Current                  | ± (0 ~ 20.5 A)   |
| AC Voltage                  | 1 mV ~ 1020 V  |
| AC Current                  | 29 μA ~ 20.5 A   |
| Sine Wave Frequency         | 10 Hz ~ 500 kHz  |
| Simulated DC Resistance     | 0 ~ 1100 MΩ  |
| DC Power (virtual load)     | 0 ~ 20.91 kW   |
| AC Power (45 Hz~65 Hz, λ=1) | 0.09 mW ~ 20.91 kW   |
| Pulse Frequency             | 1 Hz ~ 2 MHz   |
| Capacitance (optional)      | 1.1 nF ~ 30 mF   |
| Thermocouple (optional)     | B, E, J, K, N, R, S, T   |
| RTD Output (optional)       | Pt385, 100Ω; Pt385, 200Ω; Pt385, 500Ω; Pt385, 1000Ω; Cu50; Cu100 |
| Clamp Meter Calibration     | Optional function  |
| Communication Interfaces    | RS 232 × 1, USB × 1, LAN × 1                                     |
| Touch Screen                | 6.4-inch   |
| Size                        | 440 mm(W) × 462 mm(D) × 206 mm(H)                                |
| Weight                      | 24 kg  |

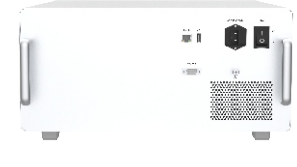
# TD1870

## MULTI-FUNCTION CALIBRATOR

- TD1870 is a multi-function calibrator with wide range and high accuracy, integrates AC/DC voltage and current standard source, can output excellent DC/AC voltage, DC/AC current, DC/AC power, phase, frequency, and analog resistance etc.
- It's applied for calibrating **5.5 digit** or less digital multimeters.



TD1870



TD1870

### Specifications

|                                    |   |
|------------------------------------|---|
| DUT                                | 5.5 digit multimeter  |
| DC Voltage                         | ± (0 ~ 1020 V)  |
| DC Current                         | ± (0 ~ 20.5 A)  |
| AC Voltage                         | 1mV ~ 1020 V  |
| AC Current                         | 29 μA ~ 20.5 A  |
| Sine Wave Frequency                | 10 Hz ~ 500 kHz   |
| Simulated DC Resistance            | 0 ~ 1100 MΩ   |
| Pulse Frequency                    | 1 Hz ~ 2 MHz  |
| Other Functions                    | Phase output  |
|                                    | AC/DC power output  |
|                                    | Thermocouple output (optional) (B, E, J, K, N, R, S, T)   |
|                                    | Thermal resistance output (optional) (Pt385, 100Ω; Pt385, 200Ω; Pt385, 500Ω; Pt385, 1000Ω; Cu50; Cu100) |
| Clamp meter calibration (optional) |   |
| Communication Interfaces           | RS 232×1, USB×1, LAN×1  |
| Touch Screen                       | 7.0-inch  |
| Size                               | 444 mm(W) × 510 mm(D) × 205 mm(H)   |
| Weight                             | 25 kg   |



## TD1860 & TD1858 MULTI-FUNCTION CALIBRATOR

- TD1860 and TD1858 are multifunction calibrators with wide range and high accuracy, applying for calibrating **4.5 digit multimeters**.
- With portable size and light weight, TD1858 is very suitable for on-site calibration.



TD1860



TD1858

### Specifications

| Model                    | TD1860                             | TD1858  |
|--------------------------|------------------------------------|---|
| DUT                      | 4.5 digit multimeter               |   |
| DC Voltage               | ± (10 mV ~ 1100 V)                 | +(10 mV ~ 1020 V, -(10 mV ~ 10.4 V)                         |
| DC Current               | ± (3 μA ~ 22 A) (33 A optional)    | ± (10 μA ~ 10.2 A)  |
| AC Voltage               | 3 mV ~ 1100 V                      | 10 mV ~ 1020 V  |
| AC Current               | 30 μA ~ 22 A (33 A optional)       | 10 μA ~ 10.4 A  |
| Simulated DC Resistance  | 0 Ω ~ 220 MΩ                       | 1 Ω ~ 220 MΩ  |
| Sine Wave Frequency      | 45 Hz ~ 1500 Hz                    | 10 Hz ~ 20 kHz  |
| Other Functions          | 2 MHz pulse frequency output       | 2 MHz pulse frequency output                                |
|                          | Phase output; AC/DC power output   | Thermocouple outputs (optional)<br>(J, K, T, R, S, B, N, E) |
|                          | Transmitter calibration (optional) | Clamp meter calibration (optional)                          |
|                          | Clamp meter calibration (optional) |   |
| Communication Interfaces | RS 232                             | RS 232 × 1, LAN × 1, USB × 1                                |
| Touch Screen             | 7.0-inch                           | 4.3-inch  |
| Size                     | 450 mm(W) × 505 mm(D) × 203 mm(H)  | 210 mm(W) × 365 mm(D) × 266 mm(H)                           |
| Weight                   | 25 kg                              | 9.5 kg  |

## TD1855 & TD1850 MULTI-FUNCTION CALIBRATOR

- TD1855 and TD1850 are multifunction calibrators that integrates AC/DC voltage source, AC/DC current source, DC resistance source, etc. The accuracy is of 0.05%.
- They are applied for calibrating **3.5 digit multimeter**, voltmeter, ammeter, ohmmeter, power meter.



TD1855



TD1850

### Specifications

| Model                    | TD1855                             | TD1850                             |
|--------------------------|------------------------------------|------------------------------------|
| DUT                      | 3.5 digit multimeter               |                                    |
| DC Voltage               | 20 mV ~ 1100 V                     | 20 mV ~ 1100 V                     |
| DC Current               | 2 μA ~ 22 A (33 A optional)        | 2 μA ~ 22 A (33 A optional)        |
| AC Voltage               | 20 mV ~ 1100 V                     | 20 mV ~ 1100 V                     |
| AC Current               | 200 μA ~ 22 A (33 A optional)      | 200 μA ~ 22 A (33 A optional)      |
| Simulated DC Resistance  | 10 Ω ~ 220 MΩ                      | 10 Ω ~ 220 MΩ.                     |
| Sine Wave Frequency      | 45 Hz ~ 1100 Hz                    | 45 Hz ~ 1100 Hz                    |
| Other Functions          | 2 MHz pulse frequency output       | 2 MHz pulse frequency output       |
|                          | Phase output; AC/DC power output   | Remote adjustment box (optional)   |
|                          | Transmitter calibration (optional) | Transmitter calibration (optional) |
|                          | Clamp meter calibration (optional) | Clamp meter calibration (optional) |
| Communication Interfaces | RS 232                             | RS 232                             |
| Touch Screen             | 5.6-inch                           | 5.6-inch                           |
| Size                     | 475 mm(W) × 400 mm(D) × 190 mm(H)  | 475 mm(W) × 400 mm(D) × 190 mm(H)  |
| Weight                   | 19.5 kg                            | 18 kg                              |



TUNKIA Co., Ltd. stands at the forefront of global manufacturing in high-end instruments catering to electrical and magnetic measurement and calibration. Our technological legacy traces back to 1985, with a steadfast commitment to allocate 25% of our annual revenue to cutting-edge research and development. The TUNKIA Research Institute, housing a team of 120 engineers, actively engages with diverse technical challenges. TUNKIA has been invited by esteemed international standards associations, including IEC and IEEE, to contribute to the formulation and revision of three international standards and over 30 national standards and regulations. We have introduced 22 major series and over 300 models of instruments, serving more than 30,000 clients worldwide.

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