

TD1470 Single and Double Arm Bridge Calibration Device



1. Summary

TD1470 is an instrument that can accurately simulate a wide range of DC standard resistance. It can realize the verification and calibration of single-arm bridges, double-arm bridges, high-precision DC resistance meters and digital micro-ohmmeters.

2. Features

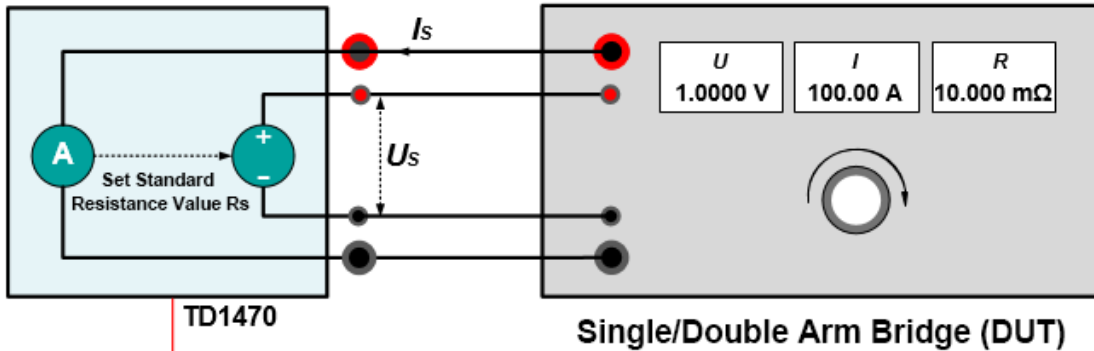
- DC current measurement range: 1 mA ~ 11 A
- Resistance simulation range: 100 $\mu\Omega$ ~ 11 M Ω
- Best measurement uncertainty of resistance: 100 ppm
- Two-wire and four-wire resistance modes
- RS232 interface
- Large-size LCD touch screen

3. Application

- Calibrate single-arm bridge with class 0.05 and below
- Calibrate DC resistance meters of class 0.05 and below
- Calibrate temperature measurement bridges of class 0.05 and below

4. Characteristics

☆ Analog resistance output



Standard Resistance Value $R_s = U_s / I_s$
 Resistance Value $R_x = U_x / I_x$
 Absolute Error $\Delta = R_x - R_s$

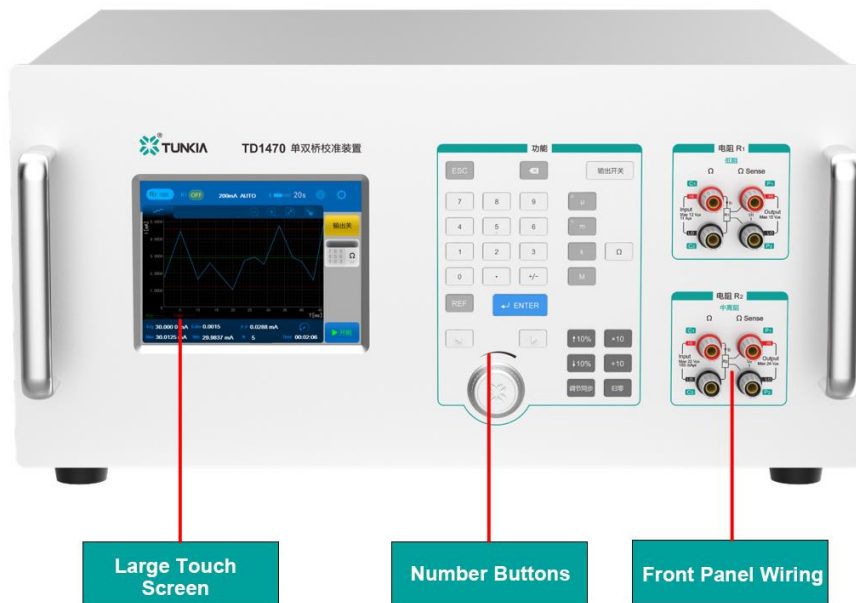


- The four-wire wiring method can effectively eliminate the measurement error caused by the resistance of the test wire, and the measurement accuracy is higher;
- Compared with physical resistor boxes, analog resistors have the following advantages:
 - ①The resistance value is continuously adjustable, with better adjustment fineness and better sensitivity;
 - ②There is no influence from switching error, residual resistance error, contact resistance error, etc., and the measurement data is accurate and reliable;

③When the physical resistor is overloaded, it will cause the resistance to change value, and in severe cases, it may even cause the resistor to be damaged. TD1470 has current overload capability and impact resistance, and has been completely tested for electrostatic protection and electromagnetic compatibility. It has good protection performance and high reliability.

- TD1470 has a self-calibration function to ensure long-term accuracy and stability of the value.

☆ Easy to operate

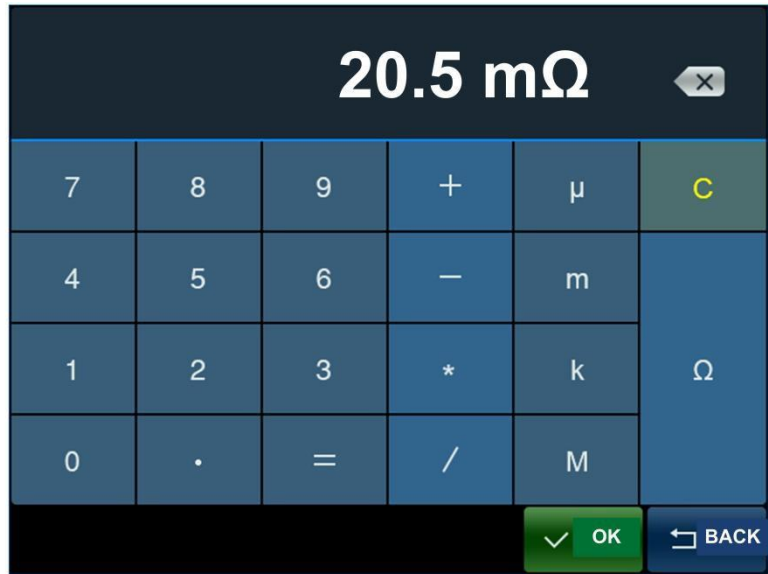


- Large-size LCD screen: full color, high screen brightness, clear picture quality, and supports touch operation.
- Digit buttons: A variety of input methods such as fixed-point output, knob output, and step adjustment can be realized, and the operation is convenient and fast.
- Front panel wiring: It is convenient for users to replace the current and voltage test wires when checking the meter.

★ Multiple output methods



Keypad



Touch Screen "Value Output" Interface

- The instrument has a **"fixed point output"** mode, through the digital button of the control panel or click the touch screen, directly set the required output value, the instrument will automatically switch to the best range output.

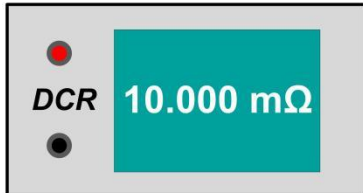
★ Multiple output methods



Percentage Output Button



"Percentage Check Point" on the Touch Screen



Full-scale output

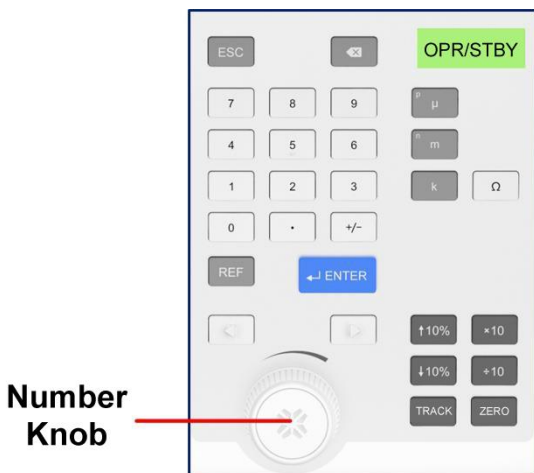


90% of Range output



80% of Range output

- When calibrating a resistance tester, it is usually necessary to select the calibration point according to the proportion of each range of the meter to be checked.
- The user can easily select the calibration point of the inspected meter through the "Percentage Output Button" on the console of this instrument or the "Percentage Check Point" on the touch screen.



Number Knob



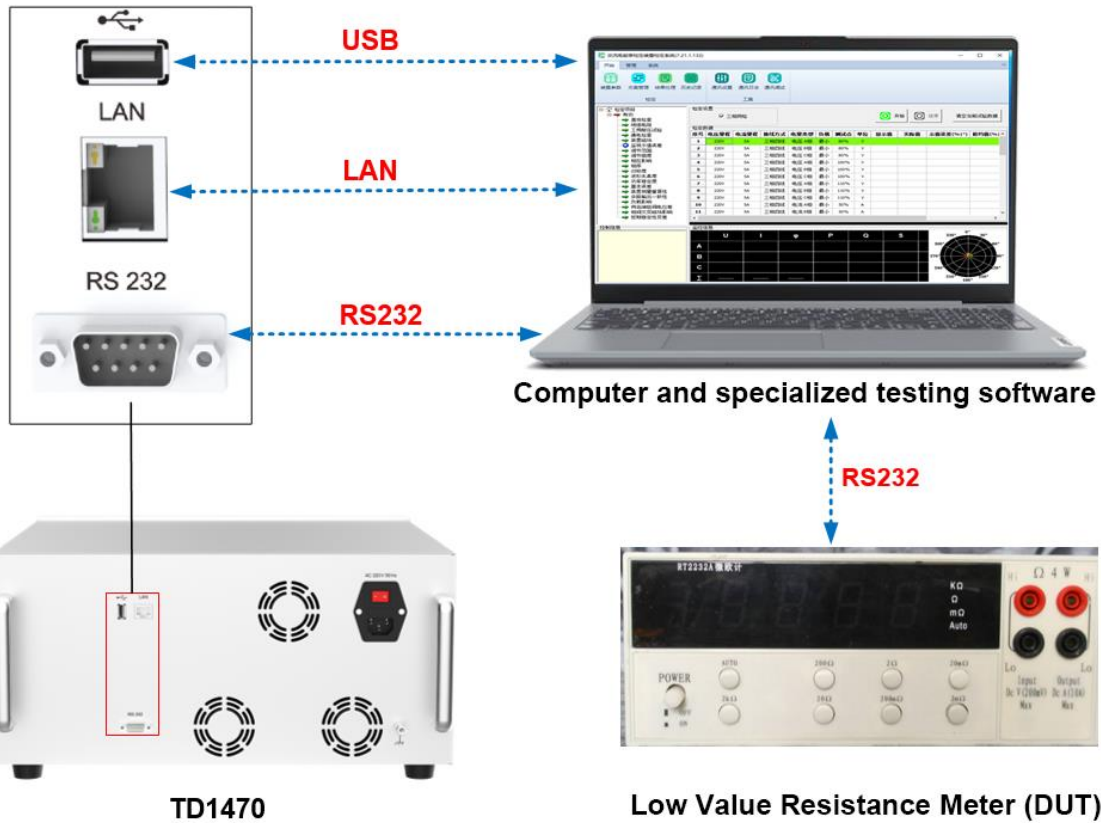
- The operating area is equipped with a "Rotary Encoder" that increases or decreases the output by rotating it clockwise or counterclockwise.

☆ Statistical analysis of test data



S/N	Function
1	Integration period: The integration period can be set in the range of 0.5 s ~ 20 s (default 1 s);
2	Statistical analysis: Real-time recording and statistical test data, including current Max, Min, Avg, Span, Stab, S. dev, Time, test times N, etc.

★ Rich communication interface and special test software



- RS232, USB, LAN interfaces.

5. Specifications

5.1 Low Value Resistor Simulation

Range	Fineness Adjustment	Measurement Uncertainty (k=2, ppm*RD+μΩ) ^[1]			Input Current ^[2]
		24h (23 ± 1)°C	90days (23 ± 5)°C	1year (23 ± 5)°C	
1 mΩ	10 nΩ	50 + 0.5	75 + 0.5	100 + 0.5	1 A~10 A
10 mΩ	100 nΩ	50 + 1	75 + 1	100 + 1	0.5 A~5 A
100 mΩ	1 μΩ	50 + 3	75 + 3	100 + 3	0.3 A~5 A
1 Ω	10 μΩ	50 + 15	75 + 15	100 + 15	0.05 A~5 A
10 Ω	100 μΩ	50 + 150	75 + 150	100 + 150	10 mA~300 mA
100 Ω	1 mΩ	50 + 1500	75 + 1500	100 + 1500	1 mA~30 mA

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

[2] When the current and resistance exceed the range, the resistance value will bring additional error

- Resistance Simulation Range: (10%~110%)*RG, 6-digit display
- Wiring Method: 4-wire
- Current Input Range: 1 mA ~ 11 A
- Range Switching: manual/automatic shifting

5.2 Medium and High Value Resistance Simulation

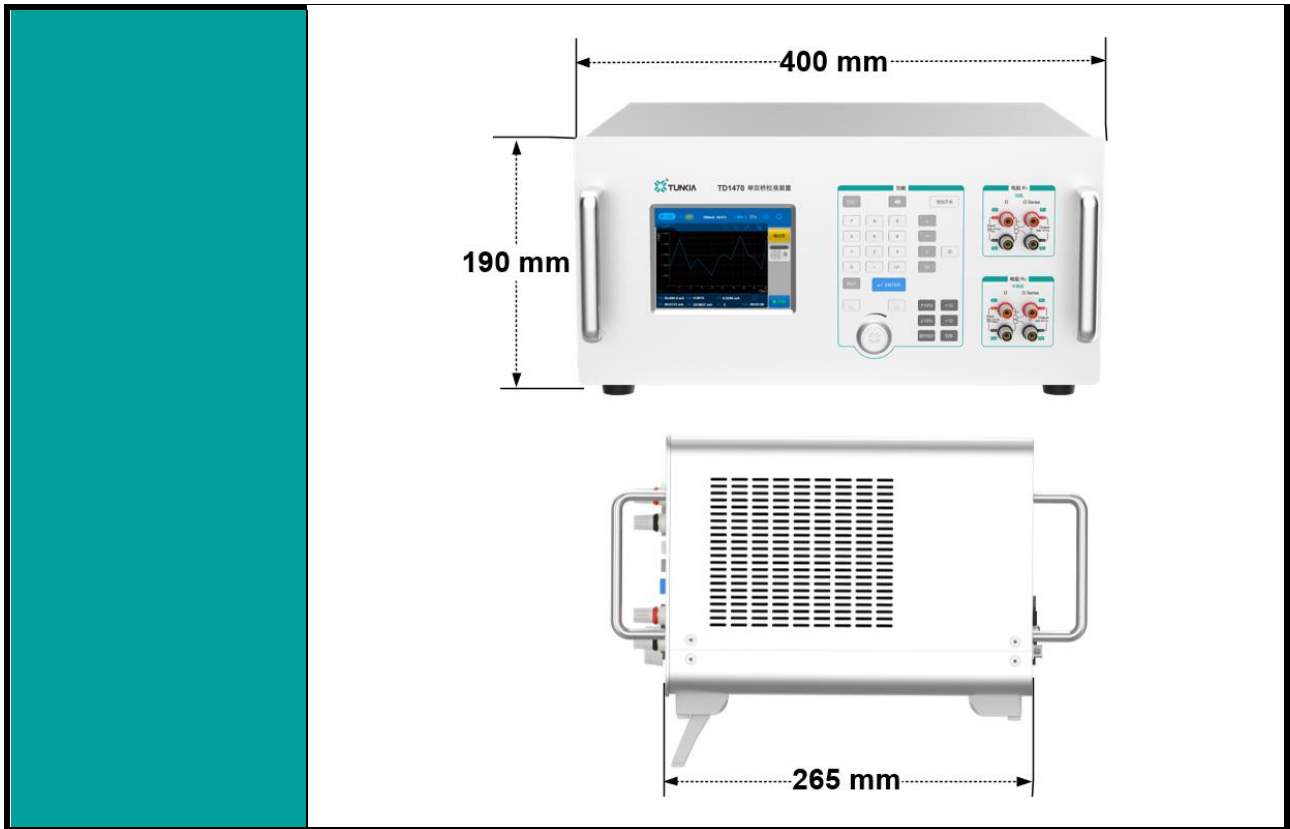
Range	Fineness Adjustment	Measurement Uncertainty (k=2, ppm*RD+Ω)			Input Current
		24h (23±1)°C	90days (23±5)°C	1year (23±5)°C	
100 Ω	1 mΩ	50 + 0.002	75 + 0.002	100 + 0.002	1 mA~80 mA
1 kΩ	10 mΩ	45 + 0.01	50 + 0.01	90 + 0.01	1 mA~12 mA
10 kΩ	100 mΩ	45 + 0.1	50 + 0.1	90 + 0.1	100 μA~2 mA
100 kΩ	1 Ω	45 + 1.0	50 + 1.0	90 + 1.0	10 μA~0.2 mA
1 MΩ	10 Ω	50 + 10	75 + 10	100 + 10	1 μA~20 μA
10 MΩ	100 Ω	100 + 100	150 + 100	200 + 100	250 nA~2 μA

- Resistance Simulation Range: (10%~110%)*RG, 6-digit display

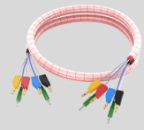

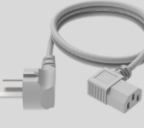

- Wiring Method: 4-wires /2-wires
- Current Input Range: 250 nA ~ 80 mA
- Range Switching: manual/automatic shifting



6. General Specifications

Power Supply	AC (220 ± 22) V, (50 ± 2) Hz;
Warm-up Time	Not less than 1 hour, and the warm-up time again after shutting down in the middle should not be less than 2 times the shutdown time;
Maximum Power Consumption	150 VA
Temperature Performance	Working temperature: 18 °C ~ 28 °C; Storage temperature: -10 °C ~ 50 °C;
Humidity Performance	Working humidity: (20 % ~ 80%) R·H, non-condensing; Storage humidity: < 85% R·H, no condensation;
Altitude	< 3000 m
Weight	Approx 10 kg
Communication Interface	RS 232、USB、IP
Dimension	400 mm (W) × 265 mm (D) × 190 mm (H) (without feet and handles)



7. Accessories List

NO.	Picture	Name	Specification	Quantity	Remark
1		High Value Resistance Test Leads	6 in 1, 0.8m-Φ4 gun stock -Φ4 gun stock	1	Standard Accessory
2		Universal Serial Cable	1.8m / USB to RS232(DB9 socket)	1	Standard Accessory
3		Power Cable	AC 220V、10A	1	Standard Accessory
4		Packaging Box	Aluminum Alloy Box	1	Standard Accessory

NO.	Picture	Name	Specification	Quantity	Remark
1		Calibration Software	Card USB	1	Optional Accessory
2		Packaging Box	Pelican	1	Optional Accessory

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

8. Relevant Product



TH0360 High Precision DC Resistance Meter Calibrator

- DC current measurement range: 20 mA ~ 22 A
- Best current measurement uncertainty: 40 ppm
- Resistance simulation range: 0 Ω ~ 1.1 GΩ
- Best measurement uncertainty of resistance: 20 ppm



TH0350 DC Bridges Calibrator

- DC current measurement range: 1 mA ~ 11 A
- Resistance simulation range: 100 μΩ ~ 11 MΩ
- Best measurement uncertainty of resistance: 50 ppm