

TH0360 High Precision DC Resistance Meter Calibrator



1. Summary

TH0360 is an instrument that accurately simulates a wide range of DC standard resistances, enabling single-arm bridges, double-arm bridges, high-precision DC resistance meters, and digital microohmmeters.

2. Features

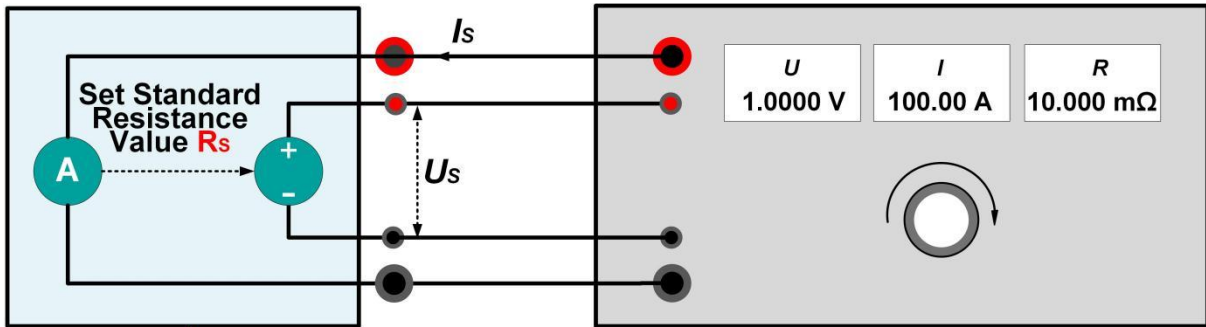
- DC current measurement range: 20 mA~ 22 A
- Optimal measurement uncertainty for current: 40 ppm
- Resistance analog range: 0 Ω ~ 1.1 G Ω
- Optimal measurement uncertainty for resistance: 20 ppm
- Two-wire and four-wire resistance modes
- RS232 interface
- LCD touch screen

3. Applications

- Calibrate a Class 0.01 and below single-arm bridge
- Calibrate DC resistance meters of class 0.01 and below
- Calibrate a 6-digit half-digit multimeter
- Calibrate DC current sources below class 0.01
- Calibrate temperature measurement bridges of 0.01 and below

4. Characteristics

☆ Analog resistance output



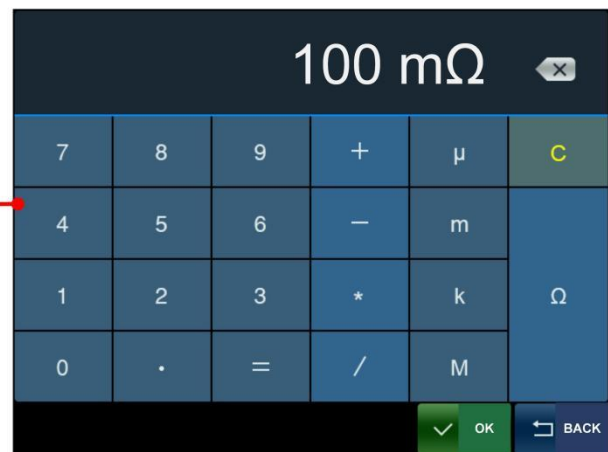
TH0360

Single or Double Arm Bridge (**DUT**)

Standard Resistance Value $R_s = U_s / I_s$

Tested resistance value $R_x = U_x / I_x$

Absolute Error $\Delta = R_x - R_s$

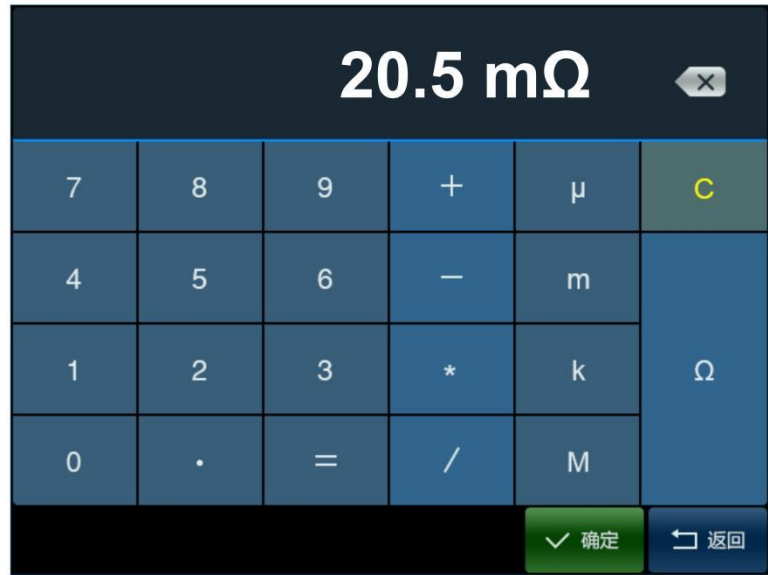


- Higher measurement accuracy with the four-wire wiring method.
- Self-calibration.

☆ Multiple output methods



Keypad



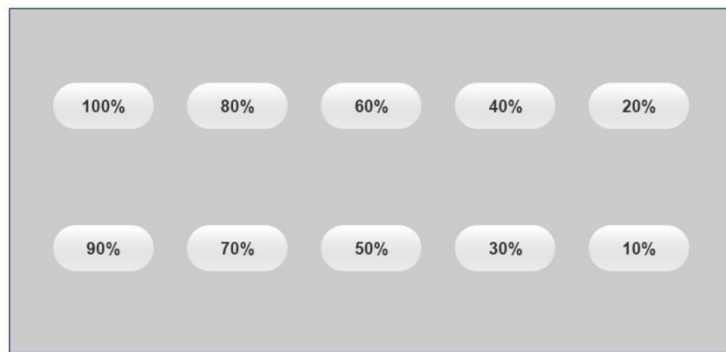
Touch Screen Output

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

☆ Multiple output methods



Setting %



"Percentage Check Point" on the touch screen



100% output



90% Output



80% Output

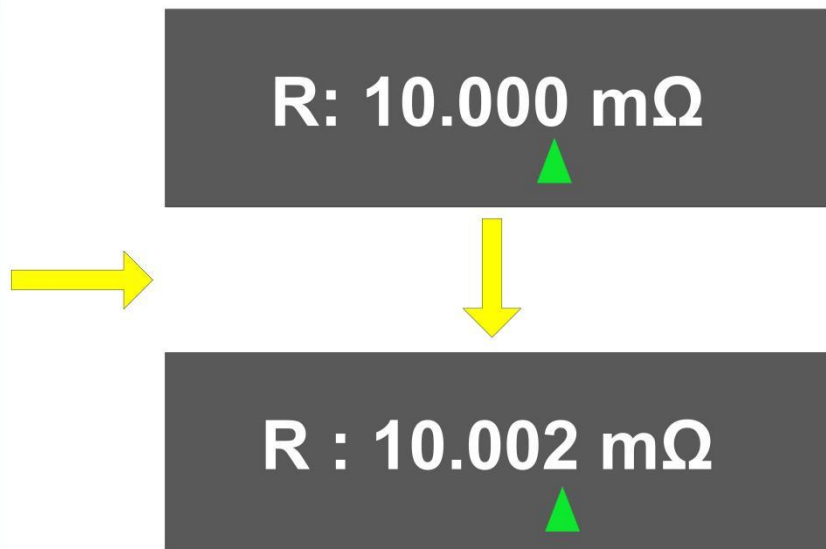
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- When calibrating a resistance tester, it is usually necessary to select the calibration point according to the proportion of each range of the meter to be checked.
- The user can easily select the calibration point of the inspected meter through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



Rotary Knob

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

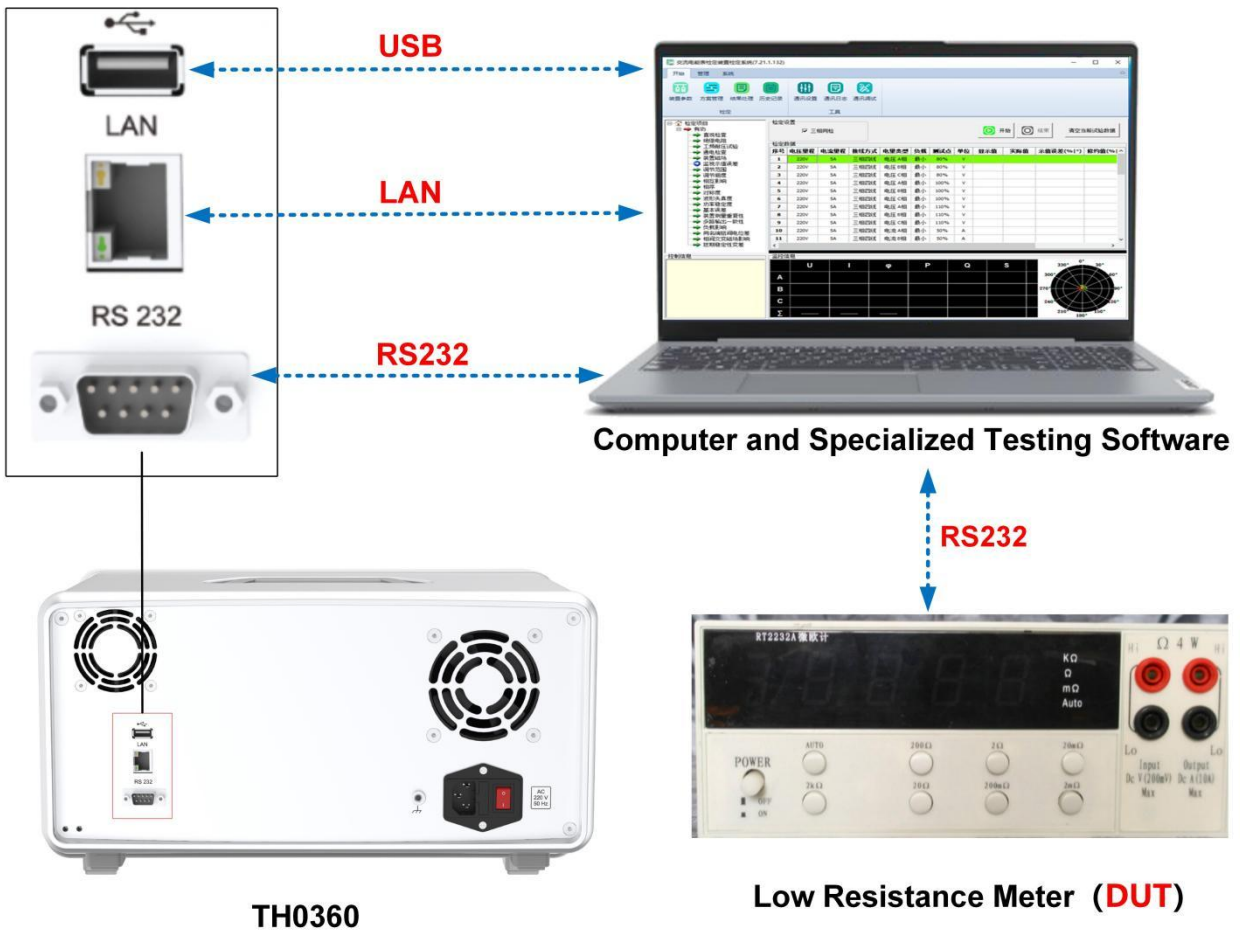


☆ Statistical analysis of test data



S/N	Function
1	Integration period: The integration period can be set in the range of 0.5 s ~ 20 s (default 1 s), which is convenient for users to set sampling data according to actual needs;
2	Statistical analysis: real-time recording and statistical test data, including current average Avg, mean square deviation S.dev, peak-to-peak P-P, and maximum value Max, minimum min, test number N, time time, etc., easy for users to read intuitively;

☆ Rich communication interface and special test software



- RS232, USB, LAN interfaces.

5. Specifications

5.1 DC current measurement

Current range	Resolution	Measurement uncertainty (k=2, ppm*RD + ppm*RG) ^[1] .			Temperature coefficient (ppm*RD/°C) @ (15~30)°C
		24 hours (23 ± 1) °C	90 days (23 ± 5) °C	1 year (23 ± 5) °C	
200 mA	10 nA	18 + 6	24 + 8	30 + 10	0.5
1 A	100 nA	18 + 6	24 + 8	30 + 10	0.5
5 A	1 μA	18 + 6	24 + 8	30 + 10	0.5
20 A	10 μA	18 + 6	24 + 8	30 + 10	0.5

Note [1]: RD is the reading value and RG is the range value

- Measuring range: 20 m A ~ 22 A
- Display digits: 6 digits display
- Range switching: manual/automatic switching

5.2 Low value resistance simulation

Test the current	Resistance range	Adjust fineness	Measurement uncertainty (k=2)
5 A ≤ I ≤ 22 A	0 ≤ R ≤ 50 mΩ	10 pH	25 ppm*RD + KI ^[2] *4.0 nΩ
	50 μΩ < R ≤ 500 μΩ	0.1 nΩ	25 ppm*RD + KI*5.0 nΩ
	500 μΩ < R ≤ 5 mΩ	1 nΩ	25 ppm*RD + KI*10 nΩ
	5 mΩ < R ≤ 50 mΩ	10 nΩ	25 ppm*RD
	50 mΩ < R ≤ 500 mΩ	0.1 mΩ	25 ppm*RD
1 A ≤ I ≤ 5.5 A	0 ≤ R ≤ 200 mΩ	0.1 nΩ	25 ppm*RD + KI*16 nΩ
	200 μΩ < R ≤ 2 mΩ	1 nΩ	25 ppm*RD + KI*20 nΩ
	2 mΩ < R ≤ 20 mΩ	10 nΩ	25 ppm*RD + KI*50 nΩ
	20 mΩ < R ≤ 200 mΩ	100 nΩ	25 ppm*RD
	200 mΩ < R ≤ 2 Ω	1 mΩ	25 ppm*RD
0.2 A ≤ I ≤ 1.1 A	0 ≤ R ≤ 1 mΩ	1 nΩ	25 ppm*RD + KI*80 nΩ
	1 mΩ < R ≤ 10 mΩ	10 nΩ	25 ppm*RD + KI*100 nΩ
	10 mΩ < R ≤ 100 mΩ	100 nΩ	25 ppm*RD + KI*200 nΩ
	100 mΩ < R ≤ 1 Ω	1 mΩ	25 ppm*RD
	1 Ω < R ≤ 10 Ω	10 mΩ	25 ppm*RD
50 mA ≤ I ≤ 220 mA	0 ≤ R ≤ 5 mΩ	1 nΩ	25 ppm*RD + KI*0.4 μΩ
	5 mΩ < R ≤ 50 mΩ	10 nΩ	25 ppm*RD + KI*0.5 μΩ
	50 mΩ < R ≤ 500 mΩ	100 nΩ	25 ppm*RD + KI*1.0 μΩ
	500 mΩ < R ≤ 5 Ω	1 mΩ	25 ppm*RD
	5 Ω < R ≤ 50 Ω	10 mΩ	25 ppm*RD

Note [2]: KI is the current coefficient, KI = RG/I, where RG is the current range value and I is the

- Resistance simulation range: 0 Ω ~ 50 Ω
- Wiring mode: four-wire system
- Current input range: 50 mA ~ 22 A
- Range switching: manual/automatic switching

5.3 Medium and high value resistor simulation

Range	Adjust fineness	Measurement uncertainty ($k=2, \text{ppm} \cdot \text{RD} + \Omega$)			Input current
		24 hours (23 ± 1)°C	90 days (23 ± 5)°C	1 year (23 ± 5)°C	
10 Ω	100 m Ω	20 + 0.001	32 + 0.001	40 + 0.001	1 mA ~ 150 mA
30 Ω	150 m Ω	15 + 0.002	24 + 0.002	30 + 0.002	1 mA ~ 150 mA
100 Ω	500 m Ω	12 + 0.002	20 + 0.002	25 + 0.002	1 mA ~ 80 mA
300 Ω	1.5 m Ω	12 + 0.003	20 + 0.003	25 + 0.003	1 mA ~ 60 mA
1 k Ω	5 m Ω	12 + 0.01	18 + 0.01	20 + 0.01	1 mA ~ 12 mA
3 k Ω	15 m Ω	12 + 0.03	18 + 0.03	20 + 0.03	0.1 mA ~ 4 mA
10 k Ω	50 m Ω	12 + 0.1	18 + 0.1	20 + 0.1	0.1 mA ~ 2 mA
30 k Ω	150 m Ω	12 + 0.3	18 + 0.3	20 + 0.3	10 μA ~ 400 μA
100 k Ω	500 m Ω	15 + 1	24 + 1	30 + 1	10 μA ~ 200 μA
300 k Ω	1.5 Ω	17 + 3	28 + 3	35 + 3	1 μA ~ 40 μA
1 M Ω	5 Ω	17 + 10	28 + 10	35 + 10	1 μA ~ 20 μA
3 M Ω	15 Ω	30 + 30	48 + 30	60 + 30	0.25 μA ~ 4 μA
10 M Ω	50 Ω	65 + 100	110 + 100	130 + 100	0.25 μA ~ 2 μA
30 MH	150 Ω	125 + 2.5k	150 + 2.5k	200 + 2.5k	25 nA ~ 400 nA
100 M Ω	1 k Ω	250 + 3k	400 + 3k	500 + 3k	25 nA ~ 200 nA
300 M Ω	1.5 k Ω	1200 + 0.1M	1500 + 0.1M	2000 + 0.1M	2.5 nA ~ 70 nA
1 G Ω	5 k Ω	6000 + 0.5M	7000 + 0.5M	8000 + 0.5M	1 nA ~ 20 nA

- Resistance analog range: 1 Ω ~ 1.1 G Ω
- Wiring mode: four-wire system or two-wire system
- Current input range: 1 nA ~ 150 mA
- Range switching: manual/automatic switching

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	Operating humidity:(20 % ~ 80%) R H, no condensation; Storage humidity: < 85% R· H, no condensation;
Altitude	< 3000 m
Quality	Approx. 13 kg
Interfaces	RS 232、USB、IP
Size	400 mm (W) × 300 mm (D) × 190 mm (H) (without feet and handles).
	