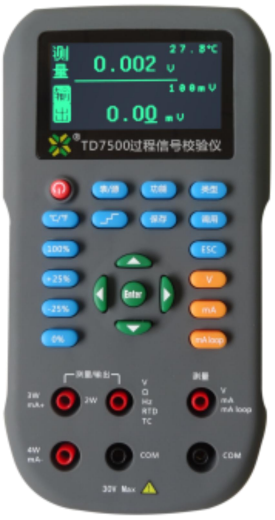
TD7500 Process Signal Calibrator



1. Summary

TD7500 is a handheld thermal instrument and process signal measurement calibration instrument, with an accuracy of class ***0.05***, which can calibrate class *0.1* and below industrial sensors, transmitters, recorders and other thermal process instruments. **TD7500** can calibrate Thermal Engineering Secondary Instruments

2. Features

- DC voltage output/measurement: 10 mV~11 V;
- DC current output/measurement: 0.2 mA~24 mA
- DC resistance simulation: 4 Ω~4.8 kΩ;
- DC resistance measurement (2-wire/4-wire): 4 Ω~4.4 kΩ;
- Simulation and measurement of 6 types of thermal resistance (RTD) and 8 types of thermocouples (TC).
- Auxiliary power: 24 V Loop mode power.
- Voltage/current accuracy: 0.05 level

3. Application

DC Voltage/Current Standard Source	Calibration		Thermal Engineering Secondary Instruments
DC Voltage/Current Standard Meter	Calibration		Secondary Signals of Sensors, Transmitters, and Thermocouples
DC Resistance Simulation / RTD Simulation	Calibration		RTD Secondary Instruments
DC Resistance Measurement / RTD Measurement	Calibration		RTD Secondary Signals
Square Wave Pulse Source	Calibration		Pulse Measuring Instruments
Square Wave Pulse Measurements	Calibration		Process Pulse Signal

4. Specifications

4.1 DC Power Output/Measurement

Electricity	Range	Resolution	Measurement Uncertainty (k=2). (ppm*RD+μV/μA)[1]	Maximum Load Voltage/Current	Input Resistance
Voltage	100 mV	10 μV	200 + 25 μV	8 mA	1 MΩ
	1 V	100 μV	200 + 250 μV	8 mA	1 MΩ
	10 V	1 mV	200 + 2000 μV	8 mA	1 MΩ
Current	20mA	1 μA	200 +4 μA	12 V	<15Ω
Note [1]: RD is the reading value, the same below.					

- Voltage output/measurement range: 10 mV~11 V
- Current output/measurement range: 0.2 mA~24 mA

4.2 DC Resistance Output/Measurement

Type	Range	Resolution	Measurement Uncertainty (k=2). (ppm*RD+Z)	Input Current/Excitation Current
Output	400 Ω	10 mΩ	50 + 0.1 Ω	1 mA~10 mA
	4000 Ω	0.1 Ω	50 + 1 Ω	100 μA~1 mA
Measurement	4000 Ω	0.1 Ω	1 H	0.2 mA

- Resistance Output Range: 4 Ω~4.8 kΩ
- Resistance Measurement Range: 4 Ω~4.4 kΩ
- Resistance Measurement Method: two-wire or four-wire

4.3 Pulse Signal Output/Measurement

Regulation/Measurement Range	Resolution	Measurement Uncertainty (k=2).
1 Hz~1000 Hz	1Hz	0.05%
1 kHz~10 kHz	0.1kHz	0.05%
1.0 CPM～2000.0 CPM	1CPM	0.05%

- Output Waveform Signal: square wave signal 5 V_{pk}
- Input Waveform Signal: square wave signal> 1 V_{pk}

4.4 RTD Output/Measurement

Type	Resistance Range (Oh)	Temperature Range (°C)	Measurement Uncertainty (k=2, ±°C)		Annual Output Uncertainty (k=2, ±°C)
			Four-wire	Two/three-wire	
PT100	18.5～391	-200～+850	0.35	0.5	0.35
PT200	37～782	-200～+250	0.2	0.3	0.2
		+250～+850	1.0	1.5	1.0
PT500	92～1955	-200～+120	0.2	0.3	0.2
		+120～+850	0.4	0.8	0.4
PT1000	185～3910	-200～+100	0.2	0.4	0.2
		+100～+850	0.3	0.5	0.3
CU50	39.2～82.2	-50～+150	0.5	0.8	0.5
CU100	78～165	-50～+150	0.25	0.5	0.25

- Cold Junction Temperature Compensation: range: -25°C~+55°C; Resolution: 0.1°C; Measurement uncertainty: 0.3°C
- Display Digits: 5 digits decimal, can be displayed and output by Ω, °C, °F

4.5 Thermocouple Output/Measurement TC

Type	Name	Voltage Range (mV)	Temperature Range(°C)	Measurement Uncertainty (k=2, ±°C)
S	Platinum rhodium 10-platinum rhodium	-0.3～18.7	-50～0	2.0
			0～+1750	2.4
R	Platinum rhodium 13-platinum	-0.3～21.1	-50～0	1.9
			0～+1750	2.4
B	Platinum rhodium 30-platinum rhodium 6	0.77～13.9	400～+800	2.1
			800～+1800	1.8
K	Nichrome - Ni-Si	-5.9～54.9	-200～0	0.9
			0～+1370	1.2

N	Nichrome silicon - nickel silicon	-4.02～47.6	-200～0	1.4
			0～+1750	1.0
And	Nickel-chromium -copper-nickel	-8.85～76.4	-200～0	0.8
			0～+1000	0.9
J	Iron-copper-nick el	-7.93～69.6	-200～0	0.9
			0～+1200	0.7
T	Copper-copper-nickel	-5.65～20.9	-200～0	1.1
			0～+400	0.9

- Display Digits: 5 digits decimal, can be displayed and output by Ω, °C, °F

5. General Specifications

Power Supply	4 x 1.5V AA batteries;
Maximum Power Consumption	10 VA
Temperature Performance	Working temperature: -20°C~50°C; Storage temperature: -20 °C ~ 70 °C
Humidity Performance	Operating humidity: < 80% @ 30°C, < 70% @ 40°C, < 40% @ 50°C Storage humidity: (20%~80%) R· H, no condensation
Altitude	< 3000 m
Quality	Approx 0.5 kg
Size	120 mm(W) ×60 mm(D) × 220 mm(H)