

INTRODUCTION

The Metravi M-01S mV Thermocouple & RTD Source Calibrator features a basic accuracy of 0.05% and a 5 digits display for measured value. With a resolution of 0.1°C and the output unit can be converted between °C and °F.

Features 8 types of analogue output (R/S/K/E/J/T/B/N) for thermocouple. DCV output provides extra range for temperature output. The phase compensation of output make it possible for instrument to drive a load with capacitance up to 2000µf, matching for applications with the filter of large capacitance at the input terminal.

Features 7 types of thermistor outputs (Cu50, PT100, PT200, PT500, PT1000). Resistor output provides extra range of temperature output. The response time of current input is less than 5ms. It can be used as the signal source of instruments with pulse input (such as DCS, PLC temperature detector) and secondary instruments.

Temperature compensation with high accuracy at the cold terminal is designed for the thermocouple output. Also comes with adjustable output gain, is easy in operation, has built-in self-tests with closed-case calibration (no internal calibration adjustment).



FEATURES

- Analogue output.
- DC voltage DCV, resistance OHM, thermocouple TC, thermal resistance RTD Source.
- Output temperature value and the corresponding temperature signal are displayed simultaneously.
- Built-in high-precision temperature sensor for high-precision cold-end compensation.
- Thermocouple cold-end compensation can be set, including manual compensation, automatic compensation, compensation access disconnection, etc.
- Auto power-off.
- The segment code is displayed on the LCD with a white backlight.
- LED flashlight.
- Powered by 3 AA battery cells. The battery compartment door is convenient for battery replacement. Low-battery indication.
- Compact, firm, reliable, suitable for field use.

SIMULATE 5 KINDS OF THERMAL RESISTANCE

Can output 5 RTD signals



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TECHNICAL SPECIFICATIONS

Output function	Range	Output range	Resolution	Accuracy		Remarks
DC Voltage DCV	100mV	-10.000mV~110.00mV	0.01mV	0.05%+0.03mV		Maximum output current: 1mA
	1V	-0.1000V~1.1000V	0.0001V	0.05%+0.3mV		Maximum output current: 5mA
Resistance Ohms Ω	400Ω	0~400.0Ω	0.1Ω	0.05%+0.2Ω		The excitation current is ±0.1~±5mA. Maximum output voltage 2V. When the excitation current is ±0.1~0.5mA, additional error of 0.1Ω is added. The accuracy does not include lead resistance.
	4KΩ	0~4.000KΩ	1Ω	0.05%+2Ω		
Thermocouple TC	R	0°C~1767°C	1°C	0~100C	1.5°C	Use ITS-90 temperature scale. The accuracy does not include the error of cold junction compensation. The accuracy does not include sensor inaccuracy. The accuracy does not include the influence of thermoelectric potential. R: Platinum Rhodium 13- Platinum S: Platinum Rhodium 10- Platinum K: Nickel chromium - nickel silicon E: Nickel chromium - copper nickel (constantan) J: Iron - copper nickel (constantan) T: Copper - nickel (constantan) N: Nickel chromium silicon nickel silicon B: Platinum Rhodium 30 - Platinum A: Tungsten rhenium 5- Tungsten rhenium 20 C: Tungsten rhenium 5- Tungsten rhenium 26 D: Tungsten rhenium 3- Tungsten rhenium 25
	S	0°C~1767°C		10~1767°C	1.2°C	
	K	-200.0°C~1372.0°C	0.1°C	-200.0~-100.0°C	0.6°C	
				-100.0~400.0°C	0.5°C	
				400.0~1200.0°C	0.7°C	
				1200.0~1372.0°C	0.9°C	
	E	-200.0°C~1000.0°C	0.1°C	-200.0~-100.0°C	0.6°C	
				-100.0~600.0°C	0.5°C	
	J	-200.0°C~1200.0°C	0.1°C	-200.0~-100.0°C	0.6°C	
				-100.0~800.0°C	0.5°C	
	T	-250.0°C~400.0°C	0.1°C	800.0~1200.0°C	0.7°C	
				-250.0~400.0°C	0.6°C	
N	-200.0°C~1300.0°C	0.1°C	-200.0~-100.0°C	1.0°C		
			-100.0~900.0°C	0.7°C		
B	600°C~1820°C	1°C	900.0~1300.0°C	0.8°C		
			600~800°C	1.5°C		
A	0°C~2500°C	1°C	800~1820°C	1.1°C		
			0~1600°C	2.0°C		
C	0°C~2310°C	1°C	1600~2000°C	2.2°C		
			2000~2500°C	2.4°C		
D	0°C~2310°C	1°C	0~1600°C	2.0°C		
			1600~2000°C	2.2°C		
Thermal Resistance RTD	Pt100 385	-200.0°C~800.0°C	0.1°C	2000~2310°C	2.4°C	
				0~100°C	2.6°C	
				100~270°C	2.4°C	
	Pt200 385	-200.0°C~630.0°C	0.1°C	270~1200°C	2.2°C	
				100~300.0°C	0.8°C	
				300.0~630.0°C	1.0°C	
	Pt500 385	-200.0°C~630.0°C	0.1°C	300.0~630.0°C	0.9°C	
				-200.0~100.0°C	0.4°C	
				100.0~300.0°C	0.5°C	
	Pt1000 385	-200.0°C~630.0°C	0.1°C	300.0~630.0°C	0.7°C	
				-200.0~100.0°C	0.2°C	
				100.0~300.0°C	0.5°C	
Cu50	-50.0°C~150.0°C	0.1°C	300.0~630.0°C	0.7°C		
			0.6°C			

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Other characteristics for technical specifications as per Table above:

Uncertainty includes standard uncertainty, hysteresis, nonlinearity, repeatability, and typical long-term stability over the period mentioned (K = 2).

Maximum applied voltage at input end: about 30Vpk; Maximum applied current at input end: about 25mA.

Load characteristics: capacitive load $\geq 0.01\mu\text{F}$ (DCV/OHM/TC/RTD/FREQ); Inductive load $\geq 0.01\mu\text{H}$ 100uH (DCA). Output load affects DCmV (0.001% full scale + 1nV)/mA; DCV (0.001% full scale + 1nV)/mA .

The temperature range of internal temperature compensated sensor RJC is -10 to 50°C. The temperature measurement accuracy at 18 to 28°C is $\pm 0.5^\circ\text{C}$, and the temperature measurement accuracy at other temperature is $\pm 1^\circ\text{C}$. Cold end compensation time is 10S/times.

Temperature coefficient: $0.1 \times \text{basic accuracy}/^\circ\text{C}$ (temperature range < 18°C or > 28°C).

GENERAL SPECIFICATIONS

- Operating temperature and humidity : 0 to 50°C; $\leq 80\%RH$ without condensation; 40 to 50°C $\leq 70\%RH$
- Storage temperature and humidity : -25 to 60°C; $\leq 90\%RH$ without condensation
- Electrical safety : EN61010-1:2001, CE
- Withstand voltage : AC3540V (50/60Hz) / 5 seconds between terminal and housing
- Insulation impedance : DC1000V/100MΩ or more between terminal and housing
- Electromagnetic compatibility (EMC) : EN61326-1:2006
- Performance : criterion 2 is met, i.e. the function and performance are temporarily reduced or lost, but can be recovered by themselves.
- Protection : IP40, 1m drop-tested
- Vibration and fall : IEC 60068-2-64:2008, IEC 60068-2-32:2008
- Quality standard : developed, designed and manufactured in accordance with TUV ISO-9001
- Calibration period : To ensure the accuracy of the Table, the calibration period is 1 year
- Preheating time : Startup preheating time is more than 30 minutes.
- Display : 5 digits, segment code LCD with white backlight
- Power Supply : 3 x AA alkaline batteries
- Accessories : 1 pair Industrial test leads, User Manual, 3 units AA alkaline battery, Thermocouple Adapter
- Dimension and weight : 9.84 x 3.94 x 7.87 inches, 600gms approx.



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