Product Specification Sheet Model: MS5002

Ultra-Slim RTD Temperature Transmitter with Isolated Single Output (European Style Screw Terminal Block)

DESCRIPTION

The MS5002 is an ultra-slim RTD temperature transmitter that converts input signals from an RTD into commonly used DC signals and provides an isolated single output.

ORDERING CODE

MS5002 - □ □

Model

Input

P1: Pt 100Ω
P5: Pt 50Ω
J: JPt 100Ω
N: Ni 508.4Ω
Y: Other than those above.

Output

A: 4 to 20mA DC
D: 0 to 20mA DC
Z: Other DC current signal
1: 0 to 10mV DC
2: 0 to 100mV DC
3: 0 to 1V DC
4: 0 to 10V DC
5: 0 to 5V DC
6: 1 to 5V DC
3W: ±1V DC
4W: ±10V DC
5W: ±5V DC
0: Other DC voltage signal

Options

No code: None
/X: Special order

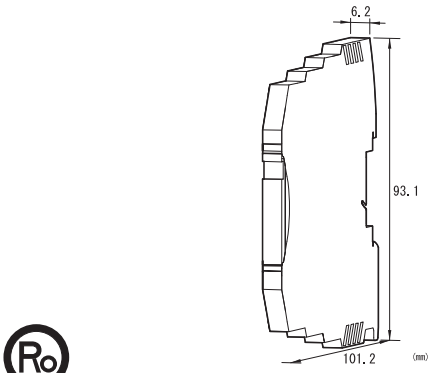
* For non-standard options, ask MTT for availability.

ORDERING INFORMATION

To place an order, please use the ordering code format as shown above. Also specify a desired temperature range.
(e.g.) MS5002-P1A (0 to 150°C)

* Note that the temperature range should be specified in steps of at least 10 degrees Celsius.

Other Ordering Examples:
For an input code of "Y": MS5002-YA (Cu 10Ω at 0°C / 0 to 100°C)
For an output code of "0": MS5002-P10 (0 to 150°C / Output: 2 to 5V)



SPECIFICATIONS

POWER SECTION

Power Requirement	24V DC±10%
Power Sensitivity	Better than ±0.1% of span.
Power Line Fuse	125mA fuse is installed (standard).
Current Rating	
Voltage Output	35mA max. (30mA max. for 100% input)
Current Output	50mA max. (45mA max. for 100% input)

INPUT SECTION

Excitation Current	Approx. 1mA with Pt for 0 to 100°C
Lead Wire Resistance	200Ω max. per wire

Ranges Available

<Standard specifications> (Temp at 0% input = 0°C)

Pt 100Ω	Specify between 0-50°C and 0-500°C in steps of 50°C (e.g. Pt 100Ω, 0 to 150°C).
JPt 100Ω	Specify between 0-50°C and 0-500°C in steps of 50°C (e.g. JPt 100Ω, 0 to 250°C).
Pt 50Ω	0 to 100°C

<Quasi-standard specifications>

RTD	Temperature Range (°C)	Input Span	Input Bias
Pt 100Ω	-200 to +850	50°C min.	Up to 4x the input span.
JPt 100Ω	-200 to +500	50°C min.	
Pt 50Ω	-200 to +600	100°C min.	
Ni 508.4Ω	-50 to +250	30°C min.	

Input Spec Ex.: For Pt 100Ω (150 to 200°C), the input span is 50°C and the bias 150°C (3x the span).
Note: Any specification out of the temperature range or bias requirement listed above is handled as a special order.

OUTPUT SECTION

Allowable Output Load

Voltage Output (DC)	10V	5kΩ min.
	5V	2.5kΩ min.
	1V	500Ω min.
	10mV	10kΩ min.
	100mV	100kΩ min.
Current Output (DC)	4 to 20mA output	550Ω max.

Zero Adjustment	Approx. ±5% of span. (Adjustable by the front-accessible trimmer.)
Span Adjustment	Approx. ±5% of span. (Adjustable by the front-accessible trimmer.)
Burnout Protection	Upscale (even if any of the three wires, A, B, and B' is opened)

Ranges Available

	Current Signal	Voltage Signal
Output Range (DC)	0 to 20mA	-10 to 10V
Output Span (DC)	4 to 20mA	10mV to 20V
Output Bias	0 to 100%	-100 to 100%

* For current output signals, the accuracy of any current output smaller than 0.1mA is not guaranteed.

Output Spec Ex. 1: For 4 to 20mA output, the output span is 16mA and the bias +25%.

Output Spec Ex. 2: For -1 to 4V output, the output span is 5V and the bias -20%.

●PERFORMANCE

Accuracy Rating	Better than ±0.15% of span (at 25°C±5°C).
Temperature Effect	Better than ±0.2% of span per 10°C change in ambient.
Response Time	170ms max. (0 to 90%) with a step input at 100%.
CMRR	100dB min. (500V AC, 50/60Hz)
Isolation	3-way isolation between input, output, and power.
Insulation Resistance	100MΩ min. (@ 500V DC) between input, output, and power.
Dielectric Strength	1500V AC for 1 minute between input, output, and power. (Cutoff current: 0.5mA)
Operating Environment	Ambient temperature: -20 to 65°C Humidity: 5 to 90% RH (non-condensing)
Storage Temperature	-25 to 70°C

●PHYSICAL

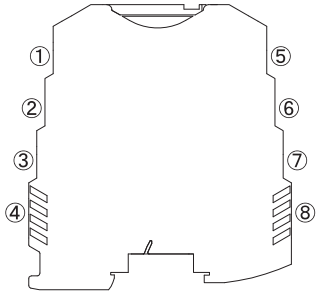
Installation	DIN rail mounting
Wiring	European style screw terminal block connection (M3)
Wire Size	0.2 to 2.5 mm^2
Screwing Torque	0.5 to 0.6 [Nm] * Recommended
External Dimensions	W93.1 × H101.2 × D6.2mm
Weight	60g max.

●MATERIALS

Housing	PBT resin (UL 94V-0)
Screw Terminal	Tin-plated copper alloy
Printed Circuit Board	Glass fabric epoxy resin (FR-4: UL 94V-0)
Anti-Humidity Coating	HumiSeal® 1A27NSLU (Polyurethane)

* HumiSeal® is a registered trademark of Chase Corporation.

TERMINAL ASSIGNMENT



①	A RTD	
②	B RTD	
③	B' RTD	
④	N.C.	
⑤	+ OUTPUT	
⑥	- OUTPUT	
⑦	+	POWER
⑧	-	

BLOCK DIAGRAM