

DESCRIPTION

The MS3002 is a terminal block type RTD temperature transmitter that converts input signals from an RTD into commonly used DC signals and provides an isolated single output.

ORDERING CODE

Model _____ **MS3002** - □ - □ □

Power Supply _____

D: 24V DC **P:** 12V DC

* The 12V DC version is not subject to CE approval.

Input _____

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

Output _____

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

Options

No code: None
/K: Fast response (0 to 90% response time: 10ms max.)
/X: Others (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 measuring temperature range.
 (e.g.) MS3002-D-P1A (0 to 150°C)

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

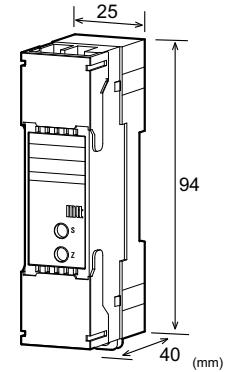
Other Ordering Examples:

For an input code of "Y": MS3002-D-YA (Input: Cu 10Ω at 0°C / 0 to 100°C)

For an output code of "0": MS3002-D-P10 (0 to 150°C / Output: 2 to 5V)

For an option code of "X": MS3002-D-P1A/X (0 to 150°C / Response frequency 50Hz)

Note: If you wish to include multiple options in your order, specify the option codes in series (e.g. /KX).


SPECIFICATIONS
POWER SECTION

Power Requirements	24V DC: 24V DC±10%
	12V DC: 12V DC±20%
Power Sensitivity	Better than ±0.1% of span for each power supply range.
Power Line Fuse	250mA fuse is installed (standard).
Power Consumption	
Power	24V DC 12V DC
Current Output	50mA max. 100mA max.
Voltage Output	20mA max. 45mA max.
Note: The above figures are in the condition of the rated voltage supplied.	

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)	1V span and up 10mV 100mV	2mA max. 10kΩ min. 100kΩ min. 550Ω max.
Current Output (DC)		
Zero Adjustment	Approx. ±2.5% of span. (Adjustable by the front-accessible trimmer.)	
Span Adjustment	Approx. ±2.5% 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 + 0.1°C] (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	Input / Output / Power: 1500V AC for 1 minute (Cutoff current: 0.5mA)
Surge Withstand Capability	Tested as per ANSI/IEEE C37.90.1-1989.
Operating Environment	Ambient temperature: -5 to 55°C Humidity: 5 to 90% RH (non-condensing)
Storage Temperature	-10 to 60°C

● **PHYSICAL**

Installation	DIN rail mounting
Wiring	M3.5 screw terminal connection (with drop-out prevention screws)
Screwing Torque	0.8 to 1.0 [Nm] * Recommended
External Dimensions	W25.0 × H94.0 × D40.0mm
Weight	90g max.

● **MATERIALS**

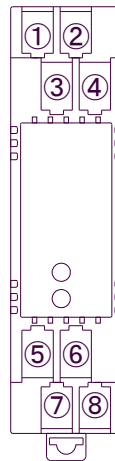
Housing	ABS resin (UL 94V-0)
Screw Terminal	Nickel-plated steel
Printed Circuit Board	Glass fabric epoxy resin (FR-4: UL 94V-0)
Anti-Humidity Coating	HumiSeal® 1A27NS (Polyurethane)

* HumiSeal® is a registered trademark of Chase Corporation.

● **STANDARDS CONFORMITY**

EC Directive Conformity	EMC Directive (2014/30/EU) EN61326-1: 2013
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TERMINAL ASSIGNMENT



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

BLOCK DIAGRAM

