

Overview

MS3002 is a terminal block type RTD temperature converter with an isolated single output to convert RTD input signals into various DC signals as selected.

Ordering Format

MS3002-□-□-□

Type _____

Power Supply _____
D:DC 24V Q:DC 12V

*The spec. of DC12V is exempt from CE marking.

Input Signal _____
P 1 : Pt 100 Ω J : JPt 100 Ω
P 5 : Pt 50 Ω N : Ni 508.4 Ω
Y : Others

Output Signal _____
A : 4 ~ 20mA DC 1 : 0 ~ 10mV DC
D : 0 ~ 20mA DC 2 : 0 ~ 100mV DC
Z : Designated DC 3 : 0 ~ 1V DC
4 : 0 ~ 10V DC
5 : 0 ~ 5V DC
6 : 1 ~ 5V DC
1 W : ± 10mV DC
2 W : ±100mV DC
3 W : ± 1V DC
4 W : ±10V DC
5 W : ± 5V DC
0 : Designated VDC

Option

No entry: None.

/K : Fast Response (Faster than 10msec: 0~90%)

/X : Custom Order

*Contact us for custom-order requirement.

Please specify upon ordering

•Product Model Number (Measuring Temperature Range)
(Example) MS3002-D-P1A(0~150°C)

*Specify the temperature range in units of 10°C min.

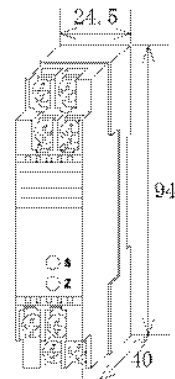
Other items to be specified:

•For input "Y": MS3002-D-YA (Input Cu10 Ω at 0°C 0~100°C)

•For output "0": MS3002-D-P10 (0~150°C/Output 2~5V)

•For option "X": MS3002-D-P1A/X (0~150°C/Response Frequency 50Hz)

•For more than one option: Enter Option Codes in succession (/KX)



Specifications

Power Supply Section

Range of Allowable Voltages	DC24V : DC24V±10% DC12V : DC12V±20%
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Power Sensitivity Within ±0.1% of Span for each power supply voltage.

Power Supply Fuse 250mA Fuse

Maximum Power Consumption

Power Supply	DC24V	DC12V
Single Output	50mA max. / 100mA max.	
Dual Output	20mA max. / 45mA max.	

*The above values apply when the rated supply voltage is used.

Input Section

Exciting Current Approx. 1mA @Pt0~100°C

Input Resistance 200 Ω max. per wire

Range of Products Available

<Standard Specifications> (At 0% input=0°C)

Pt 100 Ω	0~50°C.....0~500°C in increments of 50°C. (E.g.:Pt100 Ω :0~150°C)
JPt100 Ω	0~50°C.....0~500°C in increments of 50°C. (E.g.:JPt100 Ω :0~250°C)
Pt 50 Ω	0~100°C

<Quasi-Standard Specifications>

T/C	Measuring Range (°C)	Input Span	Input Bias
Pt 100 Ω	-200~+850	50 °C min.	Up to 4 times of input span
JPt100 Ω	-200~+500	50 °C min.	
Pt 50 Ω	-200~+600	100 °C min.	
Ni 508.4 Ω	- 50~+250	30 °C min.	

(e.g.) Pt100 Ω (150~200°C)⇒Input span50°C, Bias 150°C (3 times)

☞ The specifications where the measuring temperature range or the bias condition deviates from the above spec. shall be made to special order.

Output Section

Maximum Output Load

Voltage Output (DC)	1V Span min. 10mV 100mV	2mA max. 10k Ω min. 100k Ω min.
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Current Output (DC) 550 Ω max.

Zero Adjustment Range Approx. ±2.5% of Span (Adjustable by Trimmer on front panel)

Span Adjustment Range Approx. ±2.5% of Span (Adjustable by Trimmer on front panel)

Burnout Protection Upscale (Even when A, B or B' is disconnected.)

Output Section

Range of Products Available

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

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

(e.g.1) 4~20mA⇒Output Span 16mA, Bias 25%

(e.g.2) -1~4V⇒Output Span 5V, Bias -20%

Standard Performance

Conversion Accuracy	Within $\pm[0.15\%/F.S.+0.1^{\circ}\text{C}]$ (@25°C±5°C)
Temp. Characteristics	Within $\pm 0.2\%$ of Span with every 10°C variation
Response Time	170msec max. (0~90%)@100% step input
CMRR	100dB min. (500V AC, 50/60Hz)
Signal Isolation	Between Input-Output-Power Supply
Isolation Resistance	100M Ω min. (@500V DC)
Dielectric Strength	Between Input - Output - Power Supply :1500V AC, Shut Down Current 0.5mA for 1 min.
Measures against SWC	Conform to ANSI/IEEE C37.90.1-1989
Operating Environment	Temperature : -5~55°C Humidity : 5~90%RH (Non-Condensing)
Storage Temp.	-10~60°C

Installation / Physical Specifications

Installation	DIN-rail mounting
Wiring	M3.5 screw terminal connection (Screw drop-protection)
Screw Tightening Torque	0.8~1[N·m] Recommendable
Outer Dimension	W24.5×H94.0×D40.0mm
Mass	90g max.

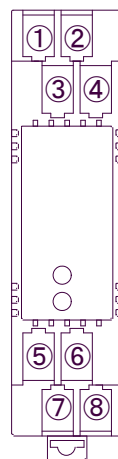
Materials

Housing	ABS Resin (UL-94V-0)
Terminal Screws	Iron/Nickel-plated
P.C.Board	Glass-Epoxy (FR-4:UL-94V-0)
Moisture-proof Coating	HumiSeal Coating :HumiSeal 1A27NS(Polyurethane Resin)

Compatible Standards

Compatible EC Directive	EMC Directive (2004/108/EC) EN61326-1:2006 Class A
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Terminal Arrangement / Signal Assignment



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

Block Diagram

