Standard Specifications Type: MS3003 MS3000

Terminal Block Type mV Signal Conditioner with an Isolated Single Output

Overview

MS3003 is a terminal block type mV signal conditioner with an isolated single output to convert mV signals of various types of sensors into various DC signals as selected.

Ordering Format

MS3003 -□-□□

Type

Power Supply

D : DC 24V Q : DC 12V

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

Input Signal

1 : 0 ～ 10mV DC
2 : 0 ～ 100mV DC
1W : ± 10mV DC
2W : ±100mV DC
0 : Designated VDC

Output Signal

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

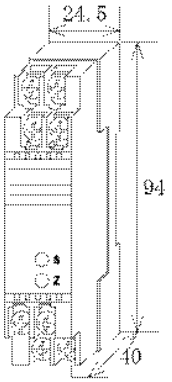
Option

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
(Example) MS3003-D-2A

Other items to be specified:
・For input "0": MS3003-D-0A (0～75mV)
・For output "Z": MS3003-D-2Z (Output 8～20mA)
・For option "X": MS3003-D-2A/X (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%
Power Sensitivity	Within ±0.1% of Span for each power supply voltage.
Power Supply Fuse	250mA Fuse

Maximum Power Consumption

Power Supply	DC24V	DC12V
Current Output	40mA max.	70mA max.
Voltage Output	12mA max.	25mA max.

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

Input Section

Input Resistance	1MΩ min. with/without excitation
Input Voltage Allowable	30V DC max. continuous

Range of Products Available

Input Range(DC)	-200mV～200mV
Input Span(DC)	5mV*1～400mV
Input Bias	-100～100%

*When negative input is contained, the span becomes*1 10mV～.
(e.g.1) 50～150mV⇒Input span 100mV, Bias 50%
(e.g.2) -10～30mV⇒Input span 40mV, Bias -25%

Output Section

Maximum Output Load

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

Range or Products Available

	Current Signal	Voltage Signal
Output Range (DC)	0～20mA	-10～10V
Output Span(DC)	4～20mA	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 Specifications Type: MS3003 Terminal Block Type mV Signal Conditioner with an Isolated Single Output

●Standard Performance

Conversion Accuracy	Within ±0.1%/F.S. (@25℃±5℃)
Temp. Characteristics	Within ±0.2% of Span with every 10℃ variation
Response Time	160msec max.(0～90%)@100% step input
CMRR	100dB min.(500V AC, 50/60Hz)
Signal Isolation	Between Input -Output - Power Supply
Isolation Resistance	100MΩ min.(@500V DC) Between Input -Output - Power Supply
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℃ Humidity : 5～90%RH(Non-Condensing)
Storage Temp.	-10～60℃

●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.

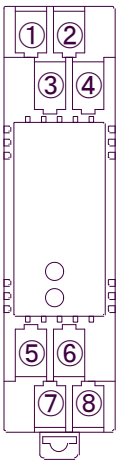
●Materials

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

Terminal Arrangement / Signal Assignment



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

Block Diagram