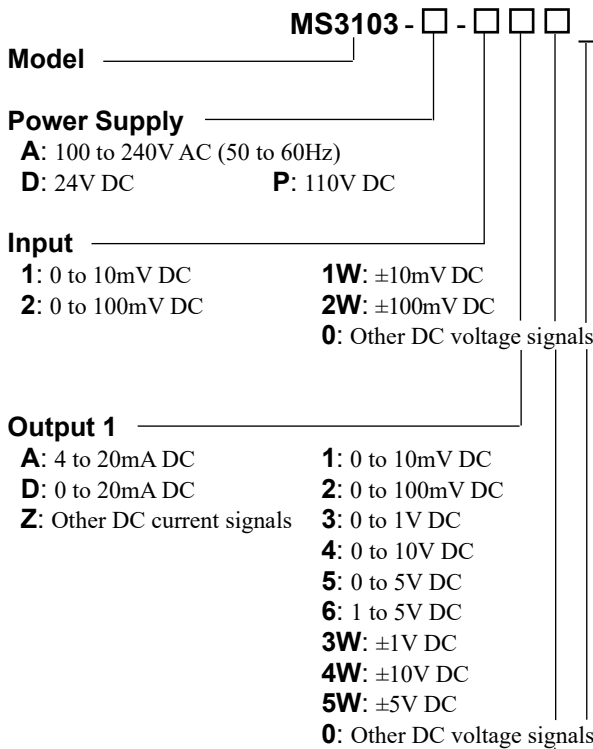


DESCRIPTION

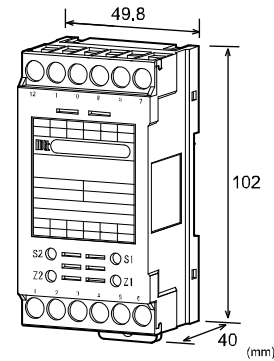
The MS3103 is a terminal block type millivolt (mV) isolator that converts mV input signals from sensors or other devices into commonly used DC signals and provides an isolated dual output.

ORDERING CODE



Note 1: When a voltage output is selected for Output 1, a current output cannot be selected for Output 2.
Note 2: When the code A (4 to 20mA) is selected for both of the two outputs, the output load will be 550Ω maximum for Output 1 and 350Ω maximum for Output 2.

Options _____
No code: None
/K: Fast response (0 to 90% response time: 10ms max.)
/H: Polyurethane conformal coating
/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 on the left.
(e.g.) MS3103-A-2A6

Other Ordering Examples:
For an input code of "0": MS3103-A-0AA (Input: 0 to 75mV)
For an output code of "Z": MS3103-A-2Z6 (Output: 8 to 20mA)
For an option code of "X": MS3103-A-2A6/X (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	100 to 240V AC: 85 to 264V AC (47 to 63Hz)		
	24V DC: 24V DC±10%		
	110V DC: 90 to 121V DC		
Power Sensitivity	Better than ±0.1% of span for each power supply range.		
Power Line Fuse	160mA fuse		
Maximum Power Consumption			
Power	100-240V AC	24V DC	110V DC
	Approx.	Approx.	Approx.
	6.5VA	1.6W	2.5W

INPUT SECTION

Input Resistance	With or without power: 1MΩ min.	
Allowable Input Voltage	30V DC max., continuous.	
Range Available		
Input Range (DC)	-200mV to 200mV	
Input Span (DC)	5mV* to 400mV	
Input Bias	-100 to 100%	
Note: For any input range including negative input signals, the input span ranges from *10mV to 400mV.		
Input Spec Ex. 1: For 50 to 150mV input, the input span is 100mV and the bias +50%.		
Input Spec Ex. 2: For -10 to 30mV input, the input span is 40mV and the bias -25%.		

● **OUTPUT SECTION**

Allowable Output Load		
Voltage Output (DC)	1V span and up 10mV 100mV	2mA max. 10kΩ min. 100kΩ min.
Current Output (DC)	4-20mA single output 4-20mA dual output	750Ω max. Output 1: 550Ω max. Output 2: 350Ω 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.)	
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 ±0.1% of span (at 25°C±5°C).
Temperature Effect	Better than ±0.2% of span per 10°C change in ambient.
Response Time	160ms max. (0 to 90%) with a step input at 100%.
CMRR	100dB min. (500V AC, 50/60Hz)
Isolation	4-way isolation between input, output 1, output 2, and power.
Insulation Resistance	100MΩ min. (@ 500V DC) between input, output 1, output 2, power, and ground.
Dielectric Strength	Input / [Output 1, Output 2] / [Power, Ground]: 2000V AC for 1 minute (Cutoff current: 0.5mA) Power / Ground: 2000V AC for 1 minute (Cutoff current: 5mA) Output 1 / Output 2: 500V 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-proof screws)
Screwing Torque	0.8 to 1.0 [Nm] * Recommended
External Dimensions	W49.8 × H102.0 × D40.0 mm (including DIN rail)
Weight	140g max.

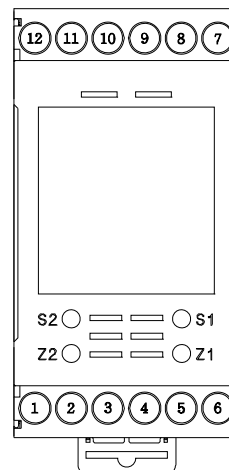
● **MATERIAL**

Housing	ABS resin (UL 94V-0)
Screw Terminal	Nickel-plated steel
Printed Circuit Board	Glass fabric, epoxy resin (FR-4: UL 94V-0)

● **STANDARDS CONFORMITY**

EC Directive Conformity	EMC Directive (2014/30/EU) EN61326-1:2013 Low Voltage Directive (2014/35/EU) IEC61010-1 EN61010-1:2010/A1:2019 Installation Category II Pollution Degree 2 Maximum operating voltage 300V Reinforced insulation between [input/output/GND] and power.
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TERMINAL ASSIGNMENTS



①	+ OUTPUT 2
②	- OUTPUT 2
③	N.C.
④	P (+)
⑤	N (-)
⑥	GND
⑦	+ INPUT
⑧	- INPUT
⑨	N.C.
⑩	N.C.
⑪	+ OUTPUT 1
⑫	- OUTPUT 1

BLOCK DIAGRAM

