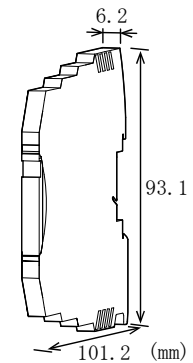


**DESCRIPTION**

The MS5003 is an ultra-slim millivolt (mV) isolator that converts mV input signals from sensors or other devices into commonly used DC signals and provides an isolated single output.

**ORDERING CODE**

<b>Model</b>	<b>MS5003</b> - □ □ / □ □
<b>Input</b>	
<b>1:</b> 0 to 10mV DC	<b>1W:</b> ±10mV DC
<b>2:</b> 0 to 100mV DC	<b>2W:</b> ±100mV DC
	<b>0:</b> Other DC voltage signals
<b>Output</b>	
<b>A:</b> 4 to 20mA DC	<b>1:</b> 0 to 10mV DC
<b>D:</b> 0 to 20mA DC	<b>2:</b> 0 to 100mV DC
<b>Z:</b> Other DC current signals	<b>3:</b> 0 to 1V DC
	<b>4:</b> 0 to 10V DC
	<b>5:</b> 0 to 5V DC
	<b>6:</b> 1 to 5V DC
	<b>3W:</b> ±1V DC
	<b>4W:</b> ±10V DC
	<b>5W:</b> ±5V DC
	<b>0:</b> Other DC voltage signals
<b>Connection Type</b>	
<b>No code:</b> Screw connection	
<b>S:</b> Spring-cage connection	
<b>Options</b>	
<b>No code:</b> None	
<b>H:</b> Polyurethane conformal coating	
<b>X:</b> Others (Special order)	
* For non-standard options, ask MTT for availability.	



**SPECIFICATIONS**

● **POWER SECTION**

<b>Power Requirement</b>	24V DC±10%
<b>Power Sensitivity</b>	Better than ±0.1% of span.
<b>Power Line Fuse</b>	125mA fuse is installed (standard).
<b>Current Consumption</b>	
<b>Voltage Output</b>	13mA max. (at 24V DC) (Approx. 9mA for 100% input)
<b>Current Output</b>	30mA max. (at 24V DC) (Approx. 25mA for 100% input)

● **INPUT SECTION**

<b>Input Resistance</b>	With or without power: 1MΩ min.
<b>Allowable Input Voltage</b>	30V DC max., continuous.
<b>Range Available</b>	
<b>Input Range (DC)</b>	-200mV to 200mV
<b>Input Span (DC)</b>	5mV* to 400mV
<b>Input Bias</b>	-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**

<b>Allowable Output Load</b>	
<b>Voltage Output (DC)</b>	10V                      5kΩ min. 5V                        2.5kΩ min. 1V                        500Ω min. 10mV                    10kΩ min. 100mV                  100kΩ min.
<b>Current Output (DC)</b>	4 to 20mA output    550Ω max.
<b>Zero Adjustment</b>	Approx. ±5% of span. (Adjustable by the front-accessible trimmer.)
<b>Span Adjustment</b>	Approx. ±5% of span. (Adjustable by the front-accessible trimmer.)

**ORDERING INFORMATION**

To place an order, please use the ordering code format as shown above.

- (e.g.) MS5003-26
- MS5003-26/S
- MS5003-26/X (Frequency characteristics: 1Hz-3dB)
- MS5003-26/SX (Frequency characteristics: 1Hz-3dB)

Other Ordering Examples:  
 For an input code of "0": MS5003-0A (Input: 0 to 150mV)  
 For an output code of "Z": MS5003-2Z (Output: 8 to 20mA)

**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 ±0.1% 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	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

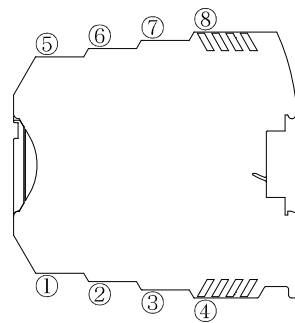
**PHYSICAL**

Installation	DIN rail mounting
Wiring	Screw connection or spring-cage connection Recommended tightening torque for screw connection: 0.5 to 0.6 Nm
Wire Size	0.2 to 2.5 mm <sup>2</sup>
External Dimensions	W93.1 × H101.2 × D6.2 mm
Weight	60g max.

**MATERIAL**

Housing	PBT resin (UL 94V-0)
Screw Terminal	Tin-plated copper alloy
Printed Circuit Board	Glass fabric, epoxy resin (FR-4: UL 94V-0)

**TERMINAL ASSIGNMENTS**



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

**BLOCK DIAGRAM**

