



DESCRIPTION

The MS5004 is an ultra-slim high-level signal conditioner (isolator) that converts DC current or voltage signals into commonly used DC signals and provides an isolated single output.

ORDERING CODE

Model MS5004 - /

Input

A: 4 to 20mA DC	3: 0 to 1V DC
B: 2 to 10mA DC	4: 0 to 10V DC
C: 1 to 5mA DC	5: 0 to 5V DC
D: 0 to 20mA DC	6: 1 to 5V DC
E: 4 to 20mA DC *1	4W: ±10V DC
H: 10 to 50mA DC	5W: ±5V DC
Z: Other DC current signals	0: Other DC voltage signals

*1: Shunt resistor 50Ω

Output

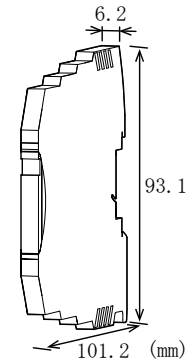
A: 4 to 20mA DC	1: 0 to 10mV DC
D: 0 to 20mA DC	2: 0 to 100mV DC
Z: Other DC current signals	3: 0 to 1V DC
	4: 0 to 10V DC
	5: 0 to 5V DC
	6: 1 to 5V DC
	3W: ±1V DC
	4W: ±10V DC
	5W: ±5V DC
	0: Other DC voltage signals

Connection Type

No code: Screw connection
S: Spring-cage connection

Options

No code: None
H: Polyurethane conformal coating
X: Others (Special order)
 * For non-standard options, ask MTT for availability.



SPECIFICATIONS

POWER SECTION

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

INPUT SECTION

Input Resistance		
Voltage Input (DC)	With or without power: 1MΩ min.	
Current Input (DC)	4 to 20mA (std.)	250Ω
	2 to 10mA	250Ω
	1 to 5 mA	100Ω
	0 to 20mA	250Ω
	10 to 50mA	10Ω
Allowable Input Voltage		
Voltage Input Model	30V DC max., continuous. (Standard for a span up to 10V)	
Current Input Model	40mA DC max., continuous. (Standard for 4 to 20mA)	
Ranges Allowable		
	Current Signal	Voltage Signal
Input Range (DC)	-100 to 100mA	-100 to 100V
Input Span (DC)	100μA*1 to 200mA	200mV*2 to 200V
Input Bias	-100 to 100%	-100 to 100%

Note: For any input range including negative input signals, the input spans for current and voltage signals range from (*1)200μA to 200mA and (*2)400mV to 200V, respectively.

Input Spec. Ex.1: For 3 to 8V input, the input span is 5V and the bias +60%.

Input Spec. Ex. 2: For -5 to 0V input, the input span is 5V and the bias -100%.

ORDERING INFORMATION

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

- (e.g.) MS5004-AA
- MS5004-AA/S
- MS5004-AA/X (Frequency characteristics: 2Hz-3dB)
- MS5004-AA/SX (Frequency characteristics: 2Hz-3dB)

Other Ordering Examples:
 For an input code of "Z": MS5004-ZA (Input: 8 to 20mA)
 For an output code of "0": MS5004-A0 (Output: 2 to 5V)

● OUTPUT SECTION

Allowable Output Load		
Voltage Output (DC)	10V	5kΩ min.
	5V	2.5kΩ min.
	1V	500Ω min.
	10mV	10kΩ min.
	100mV	100kΩ min.
Current Output (DC)	4 to 20mA output	550Ω 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 ±0.1% of span per 10°C change in ambient.
Response Time	85ms 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

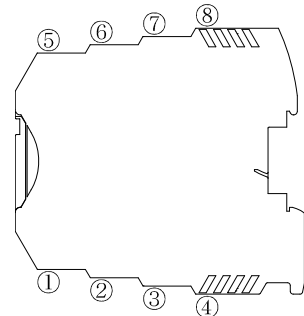
● PHYSICAL

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 ²
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

