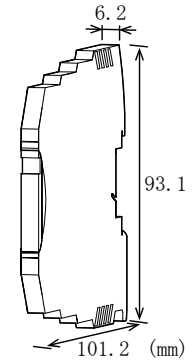




DESCRIPTION

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

MS5004 - □ □ / □ □

Model

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
- /X:** Special order
- * For non-standard options, ask MTT for availability.

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)

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%.		

● **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**

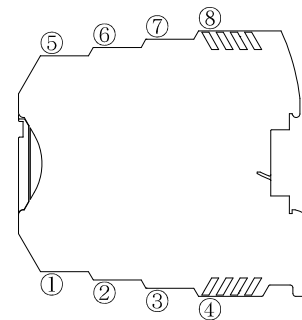
Installation	DIN rail mounting
Wiring	Screw connection or spring-cage connection Recommended tightening torque for screw connection: 0.5 to 0.6 Nm
Wire Size	0.2 to 2.5 mm ²
External Dimensions	W93.1 × H101.2 × D6.2 mm
Weight	60g max.

● **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)
Conformal Coating	HumiSeal® 1A27NSLU (Polyurethane)

* HumiSeal® is a registered trademark of Chase Corporation.

TERMINAL ASSIGNMENTS



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

BLOCK DIAGRAM

