Product Specification Sheet Model: MS5004

Ultra-Slim High-Level Signal Conditioner (Isolator) with Isolated Single Output (European Style Screw Terminal Block)

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
B: 2 to 10mA DC
C: 1 to 5mA DC
D: 0 to 20mA DC
E: 4 to 20mA DC *1
H: 10 to 50mA DC
Z: Other DC current signal

3: 0 to 1V DC
4: 0 to 10V DC
5: 0 to 5V DC
6: 1 to 5V DC
4W: ±10V DC
5W: ±5V DC
0: Other DC voltage signal

*1: Shunt resistor 50Ω

Output

A: 4 to 20mA DC
D: 0 to 20mA DC
Z: Other DC current signal

1: 0 to 10mV DC
2: 0 to 100mV DC
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 signal

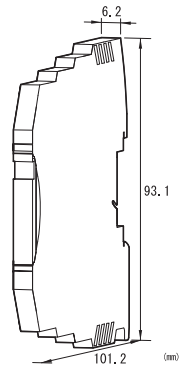
Options

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

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)
For an option code of "X": MS5004-66/X (0-90% response time: 50ms max.)



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 Rating	
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

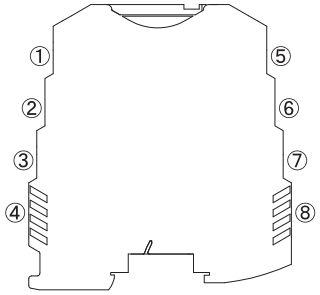
Installation	DIN rail mounting
Wiring	European style screw terminal block connection (M3)
Wire Size	0.2 to 2.5 mm^2
Screwing Torque	0.5 to 0.6 [Nm] * Recommended
External Dimensions	W93.1 × H101.2 × D6.2mm
Weight	60g max.

●MATERIALS

Housing	PBT resin (UL 94V-0)
Screw Terminal	Tin-plated copper alloy
Printed Circuit Board	Glass fabric epoxy resin (FR-4: UL 94V-0)
Anti-Humidity Coating	HumiSeal® 1A27NSLU (Polyurethane)

* HumiSeal® is a registered trademark of Chase Corporation.

TERMINAL ASSIGNMENT



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

BLOCK DIAGRAM