

**DESCRIPTION**

The MS3004 is a terminal block type 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** \_\_\_\_\_ **MS3004** - □ - □ □

**Power Supply** \_\_\_\_\_  
**D:** 24V DC      **P:** 12V DC

\* The 12V DC version is not subject to CE approval.

**Input** \_\_\_\_\_

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

\*1: Shunt resistor 50Ω

**Output** \_\_\_\_\_

<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 signal	<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>1W:</b> ±10mV DC
	<b>2W:</b> ±100mV DC
	<b>3W:</b> ±1V DC
	<b>4W:</b> ±10V DC
	<b>5W:</b> ±5V DC
	<b>0:</b> Other DC voltage signal

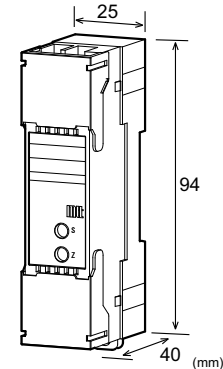
**Options** \_\_\_\_\_

**No code:** None  
**/K:** Fast response (0 to 90% response time: 10ms max.)  
**/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 above.  
 (e.g.) MS3004-D-A6

Other Ordering Examples:  
 For an input code of "Z": MS3004-D-ZA (Input: 8 to 20mA)  
 For an output code of "0": MS3004-D-A0 (Output: 2 to 5V)  
 For an option code of "X": MS3004-D-66/X (0-90% response time: 5ms max.)  
 Note: If you wish to include multiple options in your order, specify the option codes in series (e.g. /KX).


**SPECIFICATIONS**
**POWER SECTION**

<b>Power Requirements</b>	24V DC: 24V DC±10%
	12V DC: 12V DC±20%
<b>Power Sensitivity</b>	Better than ±0.1% of span for each power supply range.
<b>Power Line Fuse</b>	250mA fuse is installed (standard).
<b>Power Consumption</b>	
Power	24V DC      12V DC
Current Output	40mA max.      70mA max.
Voltage Output	16mA max.      25mA max.
Note: The above figures are in the condition of the rated voltage supplied.	

**INPUT SECTION**

<b>Input Resistance</b>	
Voltage Input (DC)	1MΩ min. with or without power.
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
<b>Allowable Input Voltage</b>	
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 Available**

	Current Signal	Voltage Signal
Input Range (DC)	-100 to 100mA	-300 to 300V
Input Span (DC)	100μA*1 to 200mA	200mV*2 to 600V
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 600V, 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**

<b>Allowable Output Load</b>		
Voltage Output (DC)	1V span and up	2mA max.
	10mV	10kΩ min.
	100mV	100kΩ min.
Current Output (DC)		550Ω max.
<b>Zero Adjustment</b>	Approx. ±2.5% of span. (Adjustable by the front-accessible trimmer.)	
<b>Span Adjustment</b>	Approx. ±2.5% of span. (Adjustable by the front-accessible trimmer.)	
<b>Ranges Available</b>		
	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**

<b>Accuracy Rating</b>	Better than ±0.1% of span (at 25°C±5°C).
<b>Temperature Effect</b>	Better than ±0.2% of span per 10°C change in ambient.
<b>Response Time</b>	85ms max. (0 to 90%) with a step input at 100%.
<b>CMRR</b>	100dB min. (500V AC, 50/60Hz)
<b>Isolation</b>	3-way isolation between input, output, and power.
<b>Insulation Resistance</b>	100MΩ min. (@ 500V DC) between input, output, and power.
<b>Dielectric Strength</b>	Input / Output / Power: 1500V AC for 1 minute (Cutoff current: 0.5mA)
<b>Surge Withstand Capability</b>	Tested as per ANSI/IEEE C37.90.1-1989.
<b>Operating Environment</b>	Ambient temperature: -5 to 55°C Humidity: 5 to 90% RH (non-condensing)
<b>Storage Temperature</b>	-10 to 60°C

● **PHYSICAL**

<b>Installation</b>	DIN rail mounting
<b>Wiring</b>	M3.5 screw terminal connection (with drop-out prevention screws)
<b>Screwing Torque</b>	0.8 to 1.0 [Nm] * Recommended
<b>External Dimensions</b>	W25.0 × H94.0 × D40.0mm
<b>Weight</b>	90g max.

● **MATERIALS**

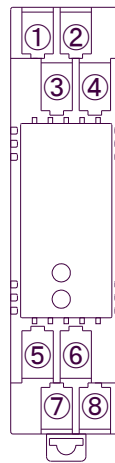
<b>Housing</b>	ABS resin (UL 94V-0)
<b>Screw Terminal</b>	Nickel-plated steel
<b>Printed Circuit Board</b>	Glass fabric epoxy resin (FR-4: UL 94V-0)
<b>Anti-Humidity Coating</b>	HumiSeal® 1A27NS (Polyurethane)

\* HumiSeal® is a registered trademark of Chase Corporation.

● **STANDARDS CONFORMITY**

<b>EC Directive Conformity</b>	EMC Directive (2014/30/EU) EN61326-1: 2013 Low Voltage Directive (2014/35/EU) IEC61010-1/EN61010-1: 2010 Installation Category II Pollution Degree 2
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**TERMINAL ASSIGNMENT**



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

BLOCK DIAGRAM

