

**DESCRIPTION**

The MS3021 is a terminal block type PT transmitter that calculates the rms values of AC voltage signals from a PT, converts them into commonly used DC signals, and provides an isolated single output.

**ORDERING CODE**

**Model** \_\_\_\_\_ **MS3021** - □ - □ □

**Power Supply** \_\_\_\_\_

**D:** 24V DC                      **P:** 12V DC

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

**Input (AC Voltage Signal)** \_\_\_\_\_

**1:** 0 to 110V AC, 50/60Hz  
**2:** 0 to 150V AC, 50/60Hz  
**3:** 0 to 300V AC, 50/60Hz  
**0:** Other AC voltage signal, 50/60Hz

**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

**/X:** Special order

\* For non-standard options, ask MTT for availability.

**ORDERING INFORMATION**

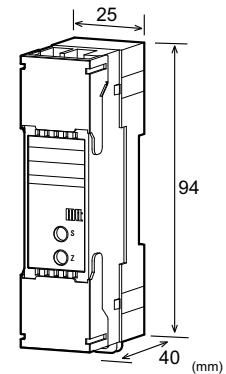
To place an order, please use the ordering code format as shown above.

(e.g.) MS3021-D-26

**Other Ordering Examples:**

For an output code of "0": MS3021-D-10 (Output: 2 to 5V)

For an option code of "X": MS3021-D-1A/X (0-90% response time: 100ms max.)


**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	50mA max.                      70mA max.
Voltage Output	20mA max.                      25mA max.
Note: The above figures are in the condition of the rated voltage supplied.	

**INPUT SECTION**

<b>Input Resistance</b>	1MΩ min. with or without power.
<b>Allowable Input Voltage</b>	Continuous: 120% of the rated input value Instantaneous: 1.5 times the rated input value (within 5 seconds)
<b>Crest Factor</b>	3 max.
<b>Ranges Available</b>	Within the range between 0-10mV AC and 0-300V AC.

**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.)

**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 $\pm 0.25\%$ of span with at least 10% input. (at $25^{\circ}\text{C} \pm 5^{\circ}\text{C}$ )
Temperature Effect	Better than $\pm 0.2\%$ of span per $10^{\circ}\text{C}$ change in ambient.
Response Time	400ms 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	100M $\Omega$ min. (@ 500V DC) between input, output, and power.
Dielectric Strength	Input / Output / Power: 1500V AC for 1 minute (Cutoff current: 0.5mA)
Surge Withstand Capability	Tested as per ANSI/IEEE C37.90.1-1989.
Operating Environment	Ambient temperature: $-5$ to $55^{\circ}\text{C}$ Humidity: 5 to 90% RH (non-condensing)
Storage Temperature	$-10$ to $60^{\circ}\text{C}$

**PHYSICAL**

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

**MATERIALS**

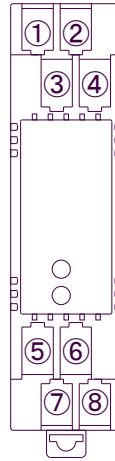
Housing	ABS resin (UL 94V-0)
Screw Terminal	Nickel-plated steel
Printed Circuit Board	Glass fabric epoxy resin (FR-4: UL 94V-0)
Anti-Humidity Coating	HumiSeal <sup>®</sup> 1A27NS (Polyurethane)

\* HumiSeal<sup>®</sup> is a registered trademark of Chase Corporation.

**STANDARDS CONFORMITY**

EC Directive Conformity	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	L INPUT
④	N INPUT
⑤	OUTPUT +
⑥	OUTPUT -
⑦	+ POWER
⑧	- POWER

**BLOCK DIAGRAM**

