Product Specification Sheet Model: MS3121

Terminal Block Type PT Transmitter with Isolated Dual Output

DESCRIPTION

The MS3121 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 dual output.

ORDERING CODE

MS3121 - □ - □ □ □

Model

Power Supply

A: 100 to 240V AC (50 to 60Hz)
D: 24V DC **P**: 110V DC

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 1

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

Output 2

The codes are the same as for Output 1.

Note 1: When a voltage output is selected for Output 1, a current output cannot be selected for Output 2.
Note 2: When the code A (4 to 20mA) is selected for both of the two outputs, the output load will be 550Ω maximum for Output 1 and 350Ω maximum for Output 2.

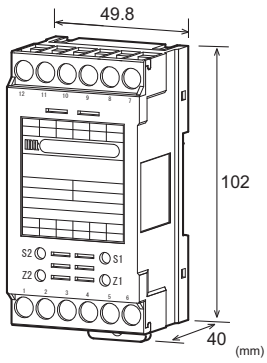
Options

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.) MS3121-A-2A6

Other Ordering Examples:
For an input code of "0": MS3121-A-0AA (Input: 0 to 200V AC)
For an output code of "0": MS3121-A-160 (Output: 2 to 5V)
For an option code of "X": MS3121-A-1AA/X (0-90% response time: 100ms max.)



SPECIFICATIONS

POWER SECTION

Power Requirements	100 to 240V AC: 85 to 264V AC (47 to 63Hz) 24V DC: 24V DC±10% 110V DC: 90 to 121V DC		
Power Sensitivity	Better than ±0.1% of span for each power supply range.		
Power Line Fuse	160mA fuse		
Maximum Power Consumption			
Power	100-240V AC Approx. 6.5VA	24V DC Approx. 1.6W	110V DC Approx. 2.5W

INPUT SECTION

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

OUTPUT SECTION

Allowable Output Load		
Voltage Output (DC)	1V span and up	2mA max.
	10mV	10kΩ min.
	100mV	100kΩ min.
Current Output (DC)	4-20mA single output	750Ω max.
	4-20mA dual output	Output 1: 550Ω max. Output 2: 350Ω 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 ±0.25% of span with at least 10% input (at 25°C±5°C).
Temperature Effect	Better than ±0.2% of span per 10°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	5-way isolation between input, output 1, output 2, power, and ground.
Insulation Resistance	100MΩ min. (@ 500V DC) between input, output 1, output 2, power, and ground.
Dielectric Strength	Input / [Output 1,Output 2] / [Power, Ground]: 2000V AC for 1 minute (Cutoff current: 0.5mA) Power / Ground: 2000V AC for 1 minute (Cutoff current: 5mA) Output 1 / Output 2: 500V 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°C Humidity: 5 to 90% RH (non-condensing)
Storage Temperature	-10 to 60°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	W49.8 × H102.0 × D40.0mm
Weight	140g max.

●MATERIALS

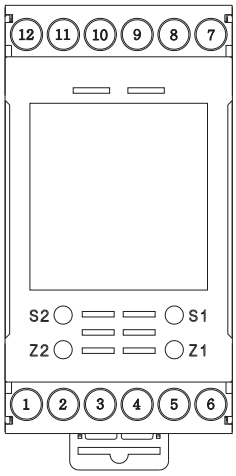
Housing	ABS resin (UL 94V-0)
Screw Terminal	Nickel-plated steel
Printed Circuit Board	Glass fabric epoxy resin (FR-4: UL 94V-0)
Anti-Humidity Coating	HumiSeal® 1A27NS (Polyurethane)

* HumiSeal® 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 Maximum operating voltage 300V Reinforced insulation between [input/output/GND] and power.

TERMINAL ASSIGNMENT



①	+ OUTPUT 2	
②	- OUTPUT 2	
③	N.C.	
④	P (+)	POWER
⑤	N (-)	
⑥	GND	
⑦	L INPUT	
⑧	N INPUT	
⑨	N.C.	
⑩	N.C.	
⑪	+ OUTPUT 1	
⑫	- OUTPUT 1	

BLOCK DIAGRAM