

**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 signals, 50/60Hz

**Output 1** \_\_\_\_\_  
**A:** 4 to 20mA DC                      **1:** 0 to 10mV DC  
**D:** 0 to 20mA DC                      **2:** 0 to 100mV 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  
   **3W:** ±1V DC  
   **4W:** ±10V DC  
   **5W:** ±5V DC  
   **0:** Other DC voltage signals

**Output 2** \_\_\_\_\_  
**The codes are the same as for Output 1.**

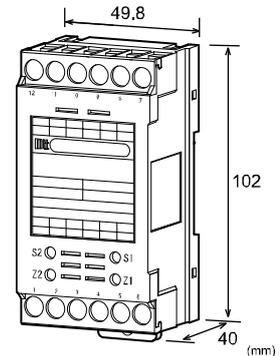
Note 1: When a voltage output is selected for Output 1, a current output cannot be selected for Output 2.  
Note 2: When the code A (4 to 20mA) is selected for both of the two outputs, the output load will be 550Ω maximum for Output 1 and 350Ω maximum for Output 2.

**Options** \_\_\_\_\_  
**No code:** None  
**/H:** Polyurethane conformal coating  
**/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.) 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	24V DC	110V DC
	Approx. 6.5VA	Approx. 1.6W	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**

<b>Allowable Output Load</b>		
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	4-way isolation between input, output 1, output 2, and power.
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-proof screws)
Screwing Torque	0.8 to 1.0 [Nm] * Recommended
External Dimensions	W49.8 × H102.0 × D40.0 mm (including DIN rail)
Weight	140g max.

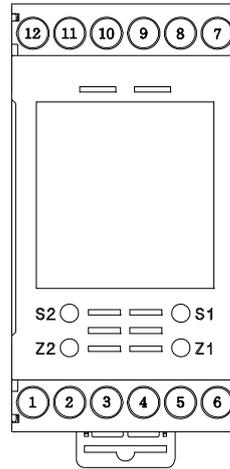
**MATERIAL**

Housing	ABS resin (UL 94V-0)
Screw Terminal	Nickel-plated steel
Printed Circuit Board	Glass fabric, epoxy resin (FR-4: UL 94V-0)

**STANDARDS CONFORMITY**

EC Directive Conformity	EMC Directive (2014/30/EU) EN61326-1:2013 Low Voltage Directive (2014/35/EU) IEC61010-1 EN61010-1:2010/A1:2019 Installation Category II Pollution Degree 2 Maximum operating voltage 300V Reinforced insulation between [input/output/GND] and power.
-------------------------	---

**TERMINAL ASSIGNMENTS**



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

**BLOCK DIAGRAM**

