Product Specification Sheet Model: MS3107

Terminal Block Type Distributor with Isolated Dual Output

DESCRIPTION

The MS3107 is a terminal block type distributor that powers a two-wire transmitter, converts its 4 to 20mA signals into commonly used DC signals, and provides an isolated dual output. This model can also be used as an isolator.

ORDERING CODE

MS3107 - □ - □ □

Model

Power Supply

A: 100 to 240V AC (50 to 60Hz)
D: 24V DC
P: 110V DC
Q: 12V DC

Input

4 to 20mA DC from 2-wire transmitters

Output 1

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

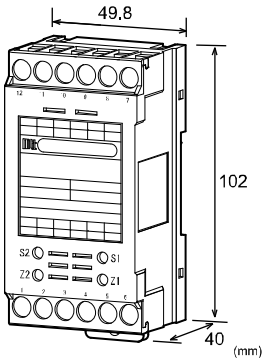
No code: None
/K: Fast response (0 to 90% response time: 10ms max.)
/H: Polyurethane conformal coating
/X: Others (Special order)

* 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.) MS3107-A-A6

Other Ordering Examples:
For an output code of "0": MS3107-A-60 (Output: 2 to 5V)
For an option code of "X": MS3107-A-AA/X (Response frequency: 50Hz)
Note: If you wish to include multiple options in your order, specify the option codes in series (e.g. /KX).



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 12V DC: 12V DC±20%	
Power Sensitivity	Better than ±0.1% of span for each power supply range.	
Power Line Fuse	160mA fuse 315mA fuse (for 12V DC power)	
Maximum Power Consumption	100-240V AC 24V DC 110V DC 12V DC	Approx. 9.0VA Approx. 2.4W Approx. 3.5W Approx. 2.4W

INPUT SECTION

Input Signal	4 to 20mA DC from 2-wire transmitters
Input Resistance	250Ω
Transmitter Power Supply	Output voltage: 25V, typical. (0% input) 18V, typical. (100% input) Maximum current: 25mA, typical.
Limit Current for Short-Circuit Protection	26mA (typ.) * The unit has a built-in short-circuit detection circuit.
Permissible Short-Circuit Duration	Continuous.

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	0 to 10V
Output Span (DC)	4 to 20mA	10mV to 10V
Output Bias	0 to 100%	0 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 4 to 8V output, the output span is 4V and the bias +100%.

●PERFORMANCE

Accuracy Rating	Better than ±0.1% of span (at 25°C±5°C).
Temperature Effect	Better than ±0.2% 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	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

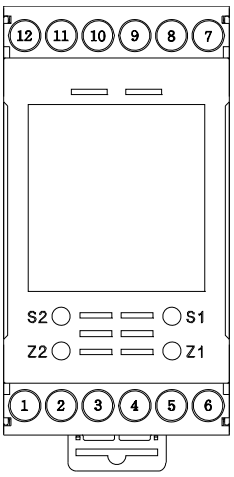
Housing	ABS resin (UL 94V-0)
Screw Terminal	Nickel-plated steel
Printed Circuit Board	Glass fabric, epoxy resin (FR-4: UL 94V-0)

●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.

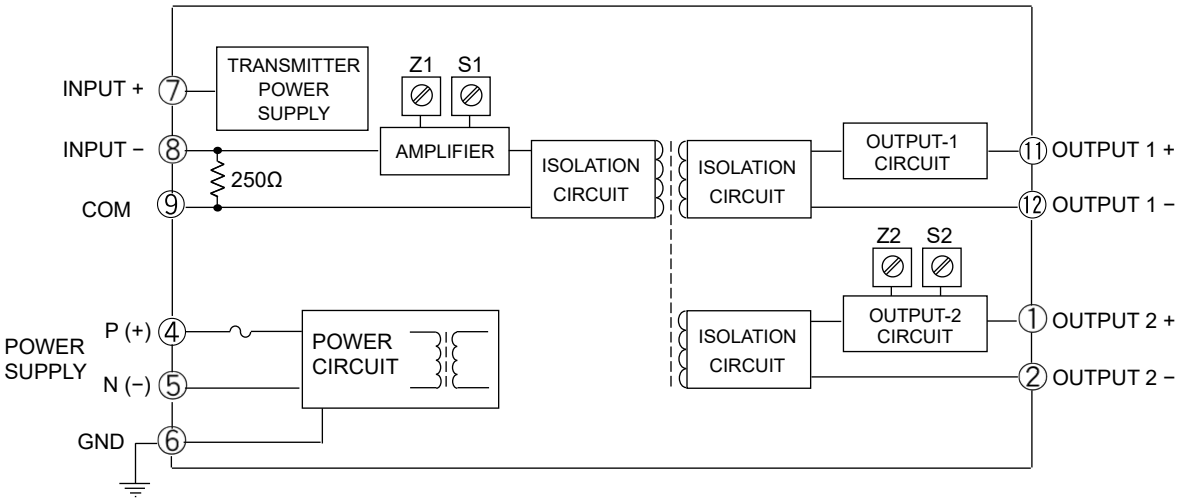
Note: The 12V DC version is not subject to CE approval.

TERMINAL ASSIGNMENTS

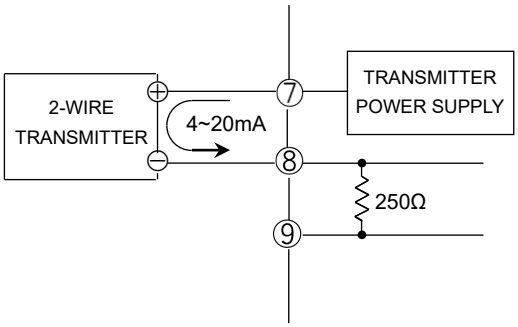


①	+ OUTPUT 2	
②	− OUTPUT 2	
③	N.C.	
④	P (+)	POWER
⑤	N (−)	
⑥	GND	
⑦	+ INPUT	
⑧	− INPUT	
⑨	COM	
⑩	N.C.	
⑪	+ OUTPUT 1	
⑫	− OUTPUT 1	

BLOCK DIAGRAM



When used as a distributor:



When used as an isolator: