Product Specification Sheet Model: MS3020

Terminal Block Type CT Transmitter with Isolated Single Output

DESCRIPTION

The MS3020 is a terminal block type CT transmitter that calculates the rms values of AC current signals from a CT, converts them into commonly used DC signals, and provides an isolated single output.

ORDERING CODE

MS3020 - ☐ - ☐☐

Model

Power Supply

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

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

Input (AC Current Signal)

1: 0 to1A AC, 50/60Hz
5: 0 to5A AC, 50/60Hz

Output

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

Options

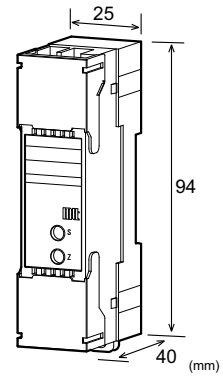
No code: None
/X: Special order

* 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.) MS3020-D-5A

Other Ordering Examples:
For an output code of "0": MS3020-D-10 (Output: 2 to 5V)
For an option code of "X": MS3020-D-1A/X (0-90% response time: 100ms max.)



SPECIFICATIONS

POWER SECTION

Power Requirements	24V DC: 24V DC±10% 12V DC: 12V DC±20%	
Power Sensitivity	Better than ±0.1% of span for each power supply range.	
Power Line Fuse	250mA fuse is installed (standard).	
Power Consumption		
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

Input Resistance	5A AC input: 2mΩ (Shunt resistor) 1A AC input: 10mΩ (Shunt resistor)
Allowable Input Current	Continuous: 120% of the rated input value Instantaneous: 10 times the rated input value (within 3 seconds)
Crest Factor	3 max.

OUTPUT SECTION

Allowable Output Load		
Voltage Output (DC)	1V span and up	2mA max.
	10mV	10kΩ min.
	100mV	100kΩ min.
Current Output (DC)		550Ω max.
Zero Adjustment	Approx. 2.5% of span. (Adjustable by the front-accessible trimmer.)	
Span Adjustment	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 ±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	3-way isolation between input, output, and power.
Insulation Resistance	100MΩ 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°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) The supplied shunt resistor should be connected to the terminal block.
Screwing Torque	0.8 to 1.0 [Nm] * Recommended
External Dimensions	W25.0 × H94.0 × D40.0mm (not including the shunt resistor)
Weight	Main unit: 90g max. Shunt resistor: 5g max.

●MATERIALS

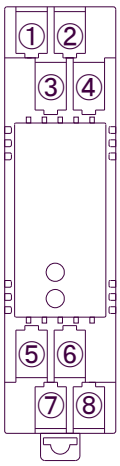
Housing	ABS resin (UL 94V-0)
Screw Terminal	Nickel-plated steel
Printed Circuit Board	Glass fabric epoxy resin (FR-4: UL 94V-0)
Anti-Humidity Coating	HumiSeal® 1A27NS (Polyurethane)

* HumiSeal® is a registered trademark of Chase Corporation.

●STANDARDS CONFORMITY

EC Directive Conformity	EMC Directive (2014/30/EU) EN61326-1: 2013

TERMINAL ASSIGNMENT



①	(L) INPUT
②	(N) INPUT
③	L INPUT
④	N INPUT
⑤	OUTPUT +
⑥	OUTPUT -
⑦	+ POWER
⑧	-

BLOCK DIAGRAM