Product Specification Sheet Model: MS3710-01

Slim Plug-In 4-Wire Potentiometer Transmitter with Isolated Single/Dual Output

DESCRIPTION

The MS3710-01 is a slim, plug-in 4-wire potentiometer transmitter that detects changes in the resistance of potentiometric sensors, converts them into commonly used DC signals and provides isolated single or dual output.

ORDERING CODE

MS3710-01 - □ - □ □ □

Model

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

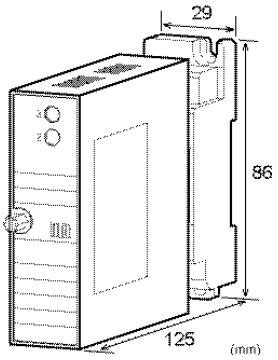
Input
R: 4-wire potentiometer
Specify an input range.

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
No code: None
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 1and 350Ω maximum for Output 2.
Note 3: Burnout protection is upscale.

Options
No code: None
/K: Fast response (0 to 90% response time: 10ms max.)
/L: Dual current output with high output load (OUT-1: 750Ω / OUT-2: 550Ω)
/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 on the left. Also specify an input range.
(e.g.) MS3710-01-A-RA6 (20 to 70Ω)

* Note that the total resistance and input range should be specified in steps of at least 50 ohms.

Other Ordering Examples:
For an output code of "0": MS3710-01-A-R06 (50 to 100Ω / Output: 2 to 5V)
For an option code of "X": MS3710-01-A-RA/X (0 to 50Ω / 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 Supply	100 to 240V AC: 85 to 264V AC (47 to 63Hz) 24V DC: 24V DC±10% 100 to 240V DC: 85 to 264V DC
Power Sensitivity	Better than ±0.1% of span for each power supply range.
Power Line Fuse	160mA fuse is installed (standard).

Power Consumption

Power	100-240V AC	24V DC	100-240V DC
Single Output	5.5VA max	1.6W max	6.0W max
Dual Output	7.0VA max	1.8W max	6.0W max

●INPUT SECTION

Excitation Current	Approx. 1mA
Allowable Lead Wire Resistance	50kΩ max. per wire

Ranges Available
<Standard specifications>

Total Resistance	300Ω max.
Input Range	Specify between 50Ω and 200Ω in steps of 50Ω.

Input Spec Ex.: For 125 to 175Ω input, the input span is 50Ω.
Note: Any specification out of the total resistance or input range requirement listed above is handled as a special order.

●OUTPUT SECTION

Maximum 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 (at 25°C±5°C).
Temperature Effect	Better than ±0.2% of span per 10°C change in ambient.
Response Time	170ms max. (0 to 90%) with a step input at 100%.
CMRR	100dB min. (500V AC, 50/60Hz)
Isolation	4-way isolation between input, output [Output 1/Output 2], power, and ground.
Insulation Resistance	100MΩ min. (@ 500V DC) between input, output [Output 1/Output 2], power, and ground.
Dielectric Strength	Input / Output [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

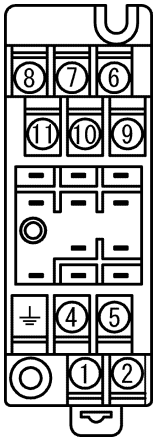
Installation	Wall/DIN rail mounting
Wiring	M3.5 screw terminal connection (with a power terminal block cover & drop-out prevention screws)
Screwing Torque	0.8 to 1.0 [Nm] * Recommended
External Dimensions	W29 × H86 × D125mm (including the mounting screw and socket)
Weight	Main unit: 120g max. Socket: 80g max.

●MATERIALS

Housing	ABS resin (UL 94V-0)
Terminal Block	PBT resin (UL 94V-0)
Terminal Block Cover	PC resin (UL 94V-2)
DIN Rail Stopper	PP resin (UL 94HB)
Screw Terminal	Nickel-plated steel
Contacts Material and Finish	Brass with 0.2μm gold plating
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.

TERMINAL ASSIGNMENT



①	P (+)	POWER
②	N (-)	
⏚	GND	
④	+ OUTPUT 1	
⑤	- OUTPUT 1	
⑥	A POT	
⑦	+ OUTPUT 2	
⑧	- OUTPUT 2	
⑨	B POT	
⑩	C POT	
⑪	D POT	

BLOCK DIAGRAM