

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

Model MS3710-01 - -

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.

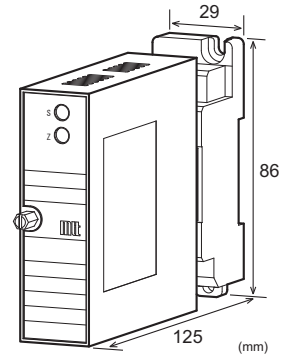
Output 1 _____

| | |
|------------------------------------|------------------------------------|
| A: 4 to 20mA DC | 1: 0 to 10mV DC |
| D: 0 to 20mA DC | 2: 0 to 100mV DC |
| Z: Other DC current signals | 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 _____

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 1 and 350Ω maximum for Output 2.
Note 3: Burnout protection is upscale.


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 | 50Ω 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**

| | | |
|--|---|---|
| Allowable Output Load | | |
| Voltage Output (DC) | 1V span and up 10mV 100mV | 2mA max. 10kΩ min. 100kΩ min. |
| Current Output (DC) | 4-20mA single output 4-20mA dual output | 750Ω max. 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% |
| Note: 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 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 |

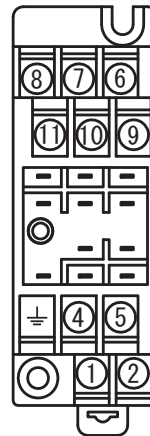
● **PHYSICAL**

| | |
|---------------------|---|
| Installation | Wall/DIN rail mounting |
| Wiring | M3.5 screw terminal connection (with a power terminal block cover & drop-proof screws) |
| Screwing Torque | 0.8 to 1.0 [Nm] * Recommended |
| External Dimensions | W29 × H86 × D125 mm (including the mounting screw and socket) |
| Weight | Main unit: 120g max. Socket: 80g max. |

● **MATERIAL**

| | |
|------------------------------|---|
| 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) |

TERMINAL ASSIGNMENTS



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

BLOCK DIAGRAM

