



Product Specification Sheet

Model: MS3706B

MS3700

Slim Plug-In Strain Gauge Transmitter with Isolated Single/Dual Output

DESCRIPTION

The MS3706B is a slim, plug-in strain gauge transmitter that supplies excitation voltage to strain-gauge type pressure sensors, load cells, and the like and converts their output signals into standard process signals. It provides isolated single or dual output.

ORDERING CODE

MS3706B - ☐ - ☐ ☐ ☐ ☐

Model _____

Power Supply _____

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

Excitation Voltage _____

E2: 5V DC **0:** Other DC voltages
E3: 10V DC

Input _____

A: 0 to 1mV DC **AW:** ± 1 mV DC
B: 0 to 2mV DC **BW:** ± 2 mV DC
0: Other DC voltage signals

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: ± 1 V DC
4W: ± 10 V DC
5W: ± 5 V DC
0: Other DC voltage signals

Output 2 _____

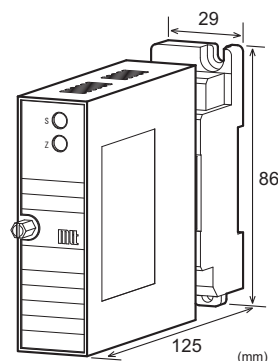
No code: None
The codes are the same as for Output 1.

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 550 Ω maximum for Output 1 and 350 Ω maximum for Output 2.

Options _____

No code: None
/L: Dual current output with high output load (OUT-1: 750 Ω / OUT-2: 550 Ω)
/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 on the left. Also specify a bridge resistance. (e.g.) MS3706B-A-E2BW4W4W (700 Ω)

Other Ordering Examples:

For an excitation voltage code of "0": MS3706B-A-0A11 (700 Ω / Excitation voltage: 4V)

For an input code of "0": MS3706B-A-E20AA (700 Ω / Input: 0 to 20mV)

For an output code of "Z": MS3706B-A-E2AZ6 (700 Ω / Output: 8 to 20mA)

Note: If you wish to include multiple options in your order, specify the option codes in series (e.g. /LX).

SPECIFICATIONS

POWER SECTION

Power Requirements	100 to 240V AC: 85 to 264V AC (47 to 63Hz) 24V DC: 24V DC $\pm 10\%$ 100 to 240V DC: 85 to 264V DC		
Power Sensitivity	Better than $\pm 0.1\%$ of span for each power supply range.		
Power Line Fuse	160mA fuse is installed (standard).		

Power Consumption

	100-240V AC	24V DC	100-240V DC
Single Output	7.0VA max	2.1W max	7.2W max
Dual Output	7.0VA max	2.4W max	8.4W max

INPUT SECTION

Input Resistance	With power: 1M Ω min. (Without power: 10k Ω min.)
Allowable Input Voltage	30V DC max., continuous.
Excitation Voltage	5V DC at 120 Ω bridge resistance 10V DC at 350 Ω bridge resistance Other voltages

Ranges Available

Input Range (DC)	-5mV to 5mV
Input Span (DC)	0.8mV* to 10mV
Input Bias	-100 to 100%
Excitation Voltage	3 to 10V

Note: For any input range including negative input signals, the input span ranges from *1.6mV to 10mV.

Input Spec. Ex.: For -2 to 2mV input, the input span is 4mV and the bias -50%.

● 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	-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 ±0.5% of span (at 25°C±5°C).	
Temperature Effect	Better than ±1.0% 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	

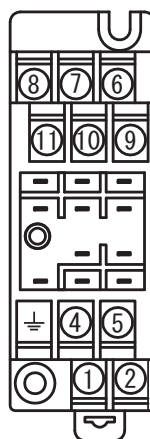
● PHYSICAL

Installation	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 (-)	
③	GND	
④	+ OUTPUT 1	
⑤	- OUTPUT 1	
⑥	- EX (Excitation voltage)	
⑦	+ OUTPUT 2	
⑧	- OUTPUT 2	
⑨	+ INPUT	
⑩	- INPUT	
⑪	+ EX (Excitation voltage)	

BLOCK DIAGRAM

