Product Specification Sheet Model: MS3770

Slim Plug-In Split-Range Transmitter with Isolated Dual Output

DESCRIPTION

The MS3770 is a slim, plug-in split-range transmitter that amplifies DC current or voltage input signals, converts them into split range control signals, and provides isolated dual output. It is available in two ordering options: V-shaped or parallel characteristics.

ORDERING CODE

MS3770 - □ - □ □ □ □

Model

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

Output Characteristics
V: V-shaped characteristics
P: Parallel characteristics

Input
A: 4 to 20mA DC **4**: 0 to 10V DC **6**: 1 to 5V DC

Output 1
A: 4 to 20mA DC **4**: 0 to 10V DC **6**: 1 to 5V DC

Output 2
The codes are the same as for Output 1.

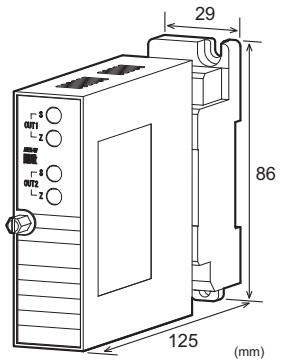
Note: The Outputs 1 and 2 must have the same code.

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.) MS3770-A-VAAA

Another Ordering Example:
For an option code of "X": MS3770-A-P444/X (0-90% response time: 300ms max.)



SPECIFICATIONS

●POWER SECTION

Power Requirements	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 6.5VA max	24V DC 2.0W max	100-240V DC 2.5W max

●INPUT SECTION

Input Resistance		
Voltage Input (DC)	With or without power: 1MΩ min.	
Current Input (DC)	4 to 20mA	250Ω
Allowable Input Voltage		
Voltage Input Model	30V DC max., continuous.	
Current Input Model	40mA DC max., continuous.	

●OUTPUT SECTION

Maximum Output Load	
Voltage Output (DC)	2mA max.
Current Output (DC)	600Ω max.
Zero Adjustment	Output 1: Approx. ±1% of span with 100% input. Output 2: Approx. ±1% of span with 0% input. (Adjustable by the front-accessible trimmer.)
Span Adjustment	
Output 1	(Adjustable by the front-accessible trimmer.)
V-shaped:	Output can be set to 0% within the input range of 0 to 65%.
Parallel:	Output can be set to 0% within the input range of 0 to 65%.
Output 2	(Adjustable by the front-accessible trimmer.)
V-shaped:	Output can be set to 0% within the input range of 35 to 100%.
Parallel:	Output can be set to 100% within the input range of 35 to 100%.

●PERFORMANCE

Accuracy Rating	Better than ±0.3% of span (at 25°C±5°C; gain = 1 or -1).
Temperature Effect	Better than ±0.2% of span per 10°C change in ambient.
Response Time	500ms 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)
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

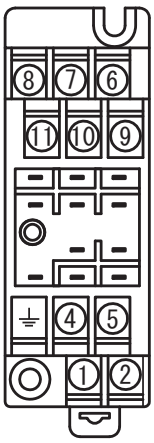
Installation	Wall/DIN rail mounting
Wiring	M3.5 screw terminal connection (with a power terminal block cover & drop-out prevention screws)
Screwing Torque	0.8 to 1.0 [Nm] * Recommended
External Dimensions	W29 × H86 × D125mm (including the mounting screw and socket)
Weight	Main unit: 120g max. Socket: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

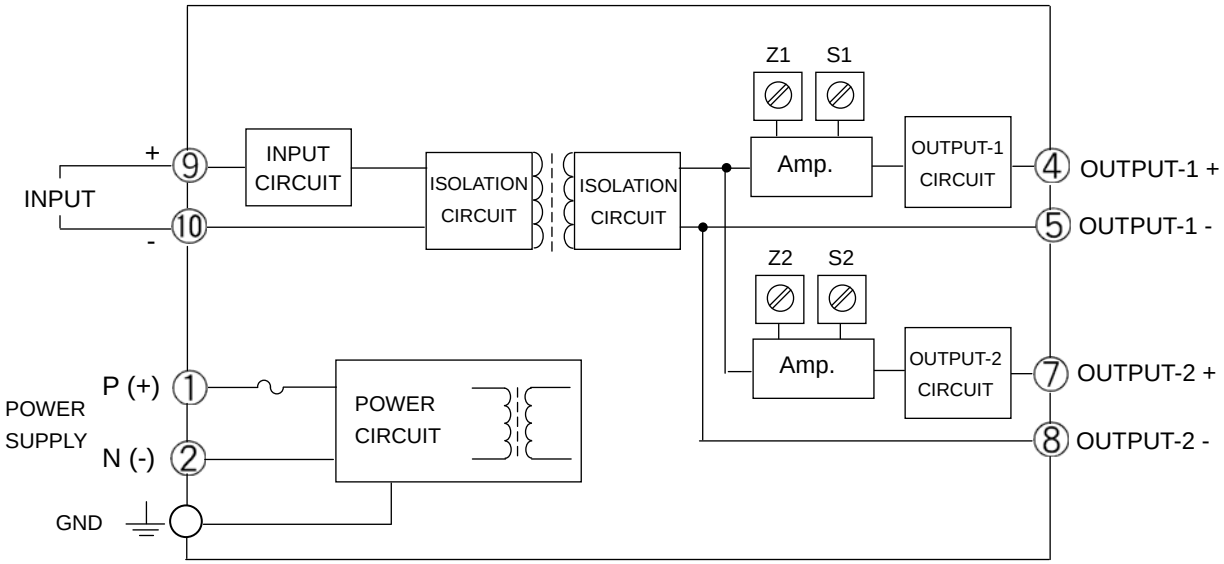
* HumiSeal® is a registered trademark of Chase Corporation.

TERMINAL ASSIGNMENT



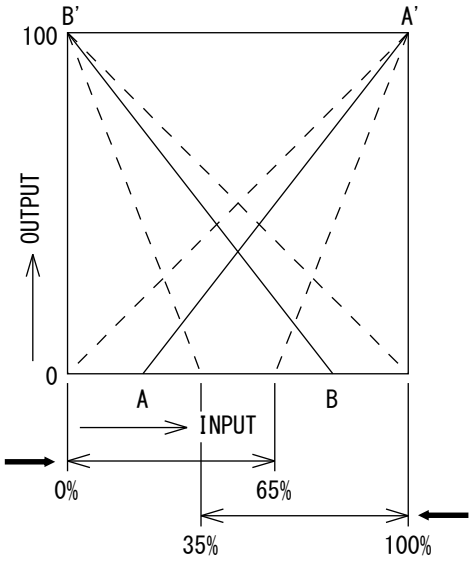
①	P (+)	POWER
②	N (-)	
⏚	GND	
④	+ OUTPUT 1	
⑤	- OUTPUT 1	
⑥	N.C.	
⑦	+ OUTPUT 2	
⑧	- OUTPUT 2	
⑨	+ INPUT	
⑩	- INPUT	
⑪	N.C.	

BLOCK DIAGRAM



INPUT/OUTPUT CHARACTERISTICS

●V-SHAPED CHARACTERISTICS



Output 1:
Output can be set to 0% within the input range of 0 to 65%.

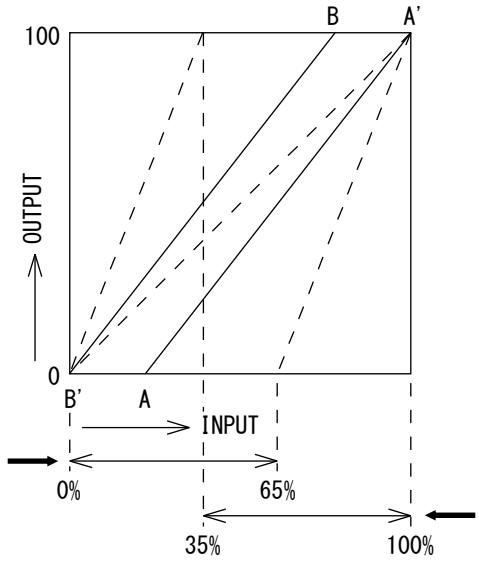
Output 2:
Output can be set to 0% within the input range of 35 to 100%.

The solid lines indicate examples of I/O characteristic settings, and the broken lines indicate the limits of the setting range.

Point A: Input set value corresponding to 0% of Output 1
Line A-A': I/O characteristics for Output 1
Point B: Input set value corresponding to 0% of Output 2
Line B-B': I/O characteristics for Output 2

Note: The output is from 0 to 100% with no fixed limitation values. If the input is open, the Output 1 gives 0% or smaller output and the Output 2 gives 100% or greater.

●PARALLEL CHARACTERISTICS



Output 1:
Output can be set to 0% within the input range of 0 to 65%.

Output 2:
Output can be set to 100% within the input range of 35 to 100%.

The solid lines indicate examples of I/O characteristic settings, and the broken lines indicate the limits of the setting range.

Point A: Input set value corresponding to 0% of Output 1
Line A-A': I/O characteristics for Output 1
Point B: Input set value corresponding to 100% of Output 2
Line B-B': I/O characteristics for Output 2

Note: The output is from 0 to 100% with no fixed limitation values. If the input is open, both the Output 1 and Output 2 give 0% or smaller output.