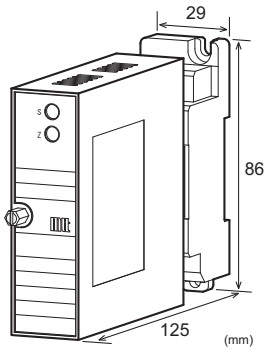
Product Specification Sheet Model: MS3763B

Slim Plug-In RTD Differential Temperature Transmitter with Isolated Single/Dual Output

DESCRIPTION

The MS3763B is a slim, plug-in RTD differential temperature transmitter that detects a temperature difference between two 2-wire RTD's, converts the difference into commonly used DC signals, and provides isolated single or dual output.



ORDERING CODE

MS3763B - □ - □ □ □ □

Model

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

Input
2-wire RTD Pt 100Ω

Measuring Temperature Range
- **A**: -20 to 30°C
- **B**: 0 to 50°C
- **C**: 50 to 100°C
- **Y**: Other than those above.

Input Temperature Difference (A RTD – B RTD)
- **D**: ±10°C
- **E**: ±20°C
- **F**: 0 to 20°C
- **G**: 0 to 50°C
- **Y**: Other than those above.

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 the 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.

Options
- **No code**: None
- **/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.
(e.g.) MS3763B-A-ADA6

Other Ordering Examples:
For an output code of "0": MS3763B-A-BEA0 (Output: 2 to 10V)
For an option code of "X": MS3763B-A-CFA6/X (JPt 100Ω)
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±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	1.5W max	6.0W max
Dual Output	6.5VA max	1.8W max	7.2W max

●INPUT SECTION

Excitation Current	Approx. 2mA
Lead Wire Resistance	50Ω max. per wire

●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.)

Burnout Protection	Upscale (even if any of the three wires, A RTD, B RTD and COM is opened)

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

<Standard Specifications> (at ambient temp. 25°C±5°C)

Temperature Range	Input Temp. Difference	Accuracy
-20 to 30°C 0 to 50°C 50 to 100°C	0 to 20°C	Better than ±1.0% of span.
	0 to 50°C	Better than ±0.5% of span.
	±10°C	Better than ±1.0% of span.
	±20°C	Better than ±1.0% of span.

* For any other temperature ranges and input temperature differences, ask MTT for availability

Temperature Effect	Better than ±0.2% of span per 10°C change in ambient.
Response Time	300ms 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

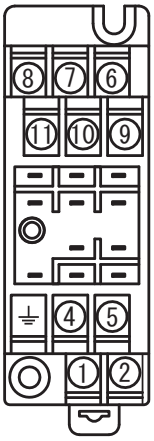
Installation	Wall/DIN rail mounting
Wiring	M3.5 screw terminal connection (with a power terminal block cover & drop-out prevention screws)
Screwing Torque	0.8 to 1.0 [Nm] * Recommended
External Dimensions	W29 × H86 × D125mm (including the mounting screw and socket)
Weight	Main unit: 120g max. Socket: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

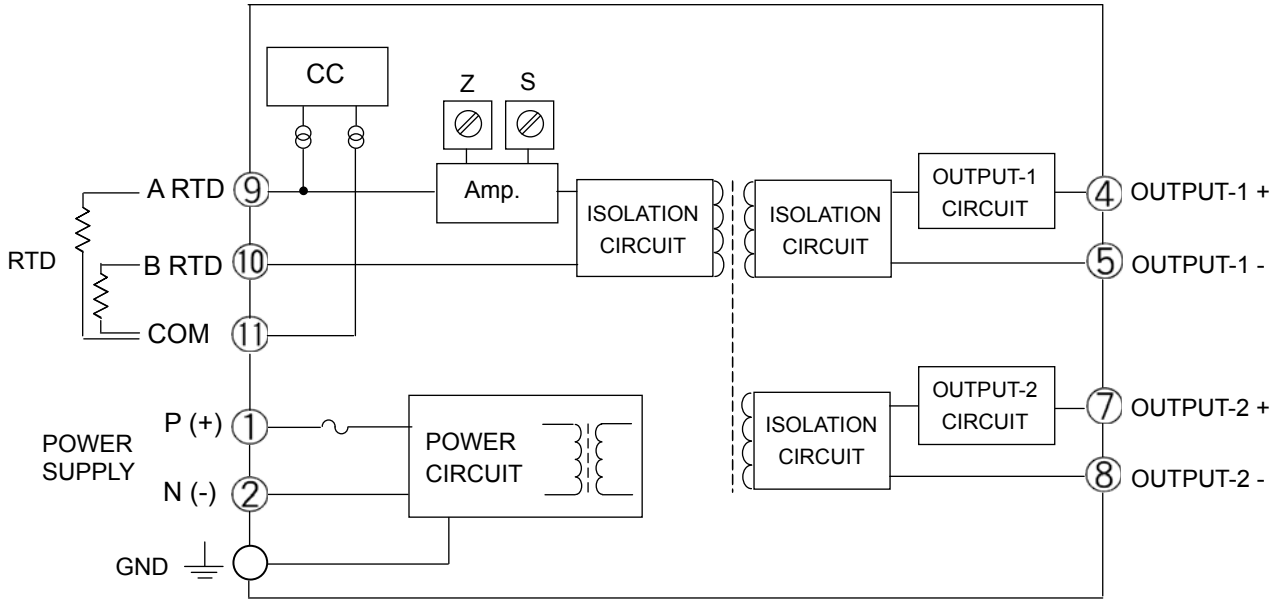
* HumiSeal® is a registered trademark of Chase Corporation.

TERMINAL ASSIGNMENT



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

BLOCK DIAGRAM



* Input Temperature Difference = A RTD – B RTD

(Example) When the following configurations are specified:

Measuring temperature range: 50 to 100°C

Input temperature difference: ±10°C

Output 1: ±10V

Output 2: 0 to 10V

A RTD	B RTD	A RTD – B RTD	Output 1	Output 2
75°C	75°C	75°C – 75°C = 0°C	0V	5V
75°C	65°C	75°C – 65°C = 10°C	10V	10V
65°C	75°C	65°C – 75°C = -10°C	-10V	0V