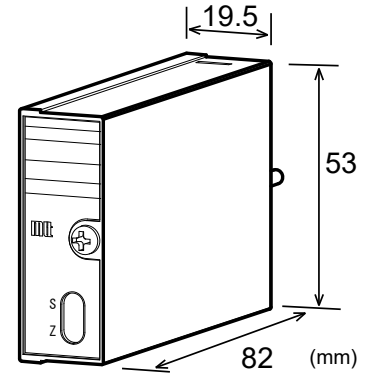




DESCRIPTION

The MS3901 is a chassis-mount thermocouple temperature transmitter that converts millivolt input signals from a thermocouple into mutually isolated dual channel DC output signals.

- ▽ Features cold junction compensation, linearization, and burnout protection.
- ▽ A multi-slot chassis provides ease of maintenance and high-density mounting.
- ▽ Input, output 1, output 2, and power circuits are all isolated from each other.
- ▽ Equipped with a fuse on the DC power line as standard.



ORDERING INFORMATION

Ordering Code
MS3901-□(□-□)-8□□-B□_
[1] [2] [3] [4][5]

SPECIFICATIONS

POWER SECTION

Power Requirement	24V DC±10%	
Power Sensitivity	Better than ±0.1% of span per 10% change in supply voltage	
Power Line Fuse	Output Code	Fuse
	V1, V5, V6, V7, W5, W6, C1	160mA fuse
	C2	300mA fuse
Current Consumption	50mA max. at 24V DC	

INPUT SECTION

Input (Specify a code in the field [1].)	JIS or other standard thermocouples (Span: 3mV min.) Code
	<ul style="list-style-type: none"> ■ Type K thermocouple K ■ Type E thermocouple E ■ Type J thermocouple J ■ Type T thermocouple T ■ Type B thermocouple B ■ Type R thermocouple R ■ Type S thermocouple S ■ Type N thermocouple N ■ Other than those above X Specify a thermocouple standard (A) and symbol (B) as indicated below: X = A / B
	Notes:
	1. When the type of a thermocouple is specified with a JIS symbol, the latest edition of the relevant JIS will be used,

	unless otherwise requested. 2. For non-JIS standard thermocouples, submission of a relevant EMF table may be required.
Input Range (Specify a range in the field [2].)	Specify a measuring temperature range in °C within the range given in the EMF table. The input span must be 3mV or greater. Notes: 1. For input temperature ranges starting from any specified temperature below 0°C, the accuracy may be partly out of specification. 2. For the type B thermocouple, the accuracy in the temperature range below 600°C is not guaranteed.
Input Resistance	1MΩ min. with or without power.
Allowable Lead Wire Resistance	1kΩ max.
Allowable Input Voltage	30V DC max., continuous.
Cold Junction Compensation	A cold-junction compensation sensor attached to an optional chassis (RC3900A-□□AI or RS3900-01TB).
Cold Junction Compensation Error	±0.3°C max.
Linearizer	Built-in (6 segments max.)

OUTPUT SECTION

Output (Specify a code in the field [3].)	Output 1 / Output 2 Code <ul style="list-style-type: none"> ■ 1-5V DC / 1-5V DC V1 ■ 0-5V DC / 0-5V DC V5 ■ 0-10V DC / 0-10V DC V6 ■ -5-10V DC / -5-10V DC V7 ■ ±5V DC / ±5V DC W5 ■ ±10V DC / ±10V DC W6 ■ 1-5V DC / 4-20mA DC C1 ■ 4-20mA DC / 4-20mA DC C2 Note: Combinations of two outputs are only available as shown above.
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Allowable Output Load	Voltage output: 2mA max. Current output: 300Ω max. (350Ω max. for dual current output)
Zero Adjustment	Approx. ±2% of span (Adjustable by front-accessible trimmer)
Span Adjustment	Approx. ±2% of span (Adjustable by front-accessible trimmer)
Burnout Protection (Specify a code in the field [4].)	<ul style="list-style-type: none"> ■ Upscale (standard) U ■ Downscale D Note: Upscale burnout protection will apply if nothing is specified.

ADDITIONAL

Options [5]	<ul style="list-style-type: none"> ■ CE compliant /C Notes: 1. This applies to orders having an output code other than “-8C1” and “-8C2”. 2. CE-compliant chassis must be used to meet the CE marking requirements. <ul style="list-style-type: none"> ■ Polyurethane conformal coating /H
Optional Parameter Changes	You can optionally specify the following parameters when ordering. Please ask our Sales representatives for availability in advance. <Parameter> <How to specify> <ul style="list-style-type: none"> ■ Response frequency · Fc = □□□Hz ■ Response time constant · Tc = □□□s ■ Burnout Drive Time Bt = □□□s

PERFORMANCE

Accuracy Rating	Better than ±(0.1% of span + 0.3°C*1 + Linearity error*2) (at 25°C±5°C) *1: Accuracy of the cold-junction compensation sensor *2: Linearity errors vary with input spans. (0.1% of span, typical)
Temperature Effect	Better than ±0.2% of span per 10°C change in ambient.
Response Time	160ms 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, and power.
Dielectric Strength	Input / [Output 1, Output 2, Power]: 1500V AC for 1 minute (Cutoff current: 0.5mA) Output 1 / Output 2 / Power: 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: 0 to 55°C Humidity: 5 to 90% RH (non-condensing)
Storage Temperature	-10 to 60°C

PHYSICAL

Installation	Mounted in an optional chassis (RC3900A-□□AI or RS3900-01TB).
Wiring *1	Wired to an optional chassis (RC3900A-□□AI or RS3900-01TB).
External Dimensions	W19.5 × H53 × D82 mm
Weight	70g max.

*1: For a dual current output version, external connection to the Output-1 shall only be made with either the terminal block or D-subminiature connector.

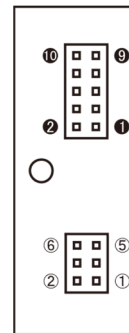
MATERIAL

Housing	ABS resin
PC Board	Glass fabric, epoxy resin (FR-4: UL 94V-0)

STANDARDS CONFORMITY

EC Directive	EMC Directive (2014/30/EU)
Conformity	EN61326-1:2013

PIN ASSIGNMENTS



PIN	SIGNAL	PIN	SIGNAL
①	T. C. +	①	+ OUTPUT 1
②	T. C. -	②	- OUTPUT 1
③	N. C.	③	+ OUTPUT 2
④	C. J	④	- OUTPUT 2
⑤		+ POWER DC24V	
⑥		⑥	- POWER DC24V
		⑦	N. C.
		⑧	N. C.
		⑨	F. G.
		⑩	N. C.

BLOCK DIAGRAM

