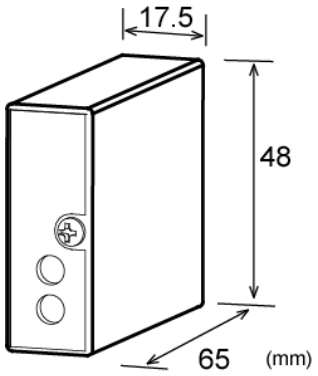
Product Specification Sheet Model: MS2901

Chassis-Mount Thermocouple Temperature Transmitter with Isolated Dual Output

DESCRIPTION

The MS2901 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
MS2901-□ (□–□)-8□□-B□ [1] [2] [3] [4]

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	2.2Ω 1/4W fuse resistor
Current Consumption	50mA max.

INPUT SECTION

Input (Specify a code in the field [1].)	JIS or other standard thermocouples (Span: 3mV min.) Code ■ 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. (without power, 10kΩ at rated input)
Allowable Signal Source Resistance	1kΩ max.
Allowable Input Voltage	30V DC max., continuous.
Cold Junction Compensation	A cold-junction compensation sensor attached to an optional chassis (RC2900).
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 ■ 1–5V DC / 1–5V DC ····· V1 ■ 0–5V DC / 0–5V DC ····· V5 ■ 0–10V DC / 0–10V DC ····· V6 ■ 1–5V DC / 4–20mA DC ····· C1 Note: Combinations of two outputs are only available as shown above.
Allowable Output Load	Voltage output: 2mA max. Current output: 300Ω max.
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].)	■ Upscale ····· U ■ Downscale ····· D (Selectable by selector switch on the side of the unit) Note: Upscale burnout protection will apply if nothing is specified.

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.
Burnout Drive Time	Approx. input span (mV) × 0.3 seconds
Standard Response Time	Approx. 2Hz−3dB
Isolation	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

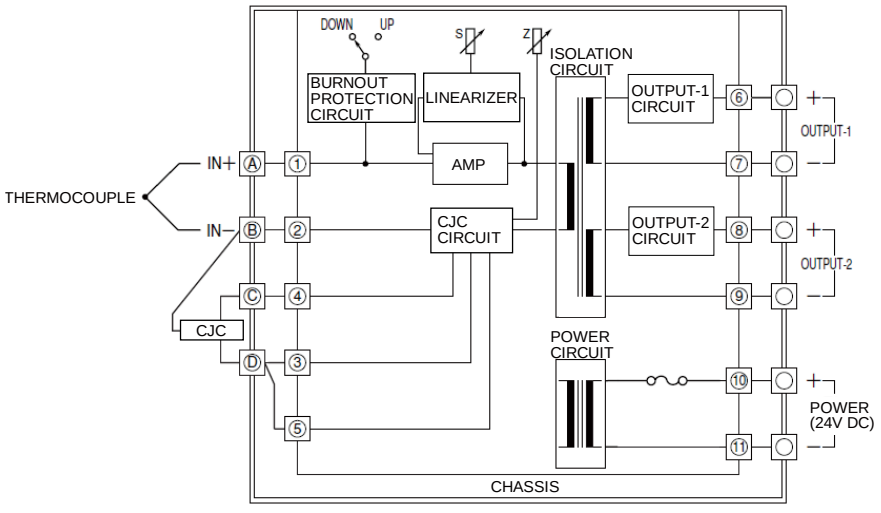
PHYSICAL

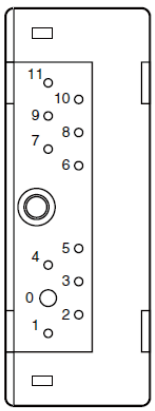
Installation	Mounted in an optional chassis (RC2900).
Wiring	Wired to an optional chassis (RC2900).
External Dimensions	W17.5 × H48 × D65 mm
Weight	Approx. 70g

MATERIAL

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

BLOCK DIAGRAM AND CONNECTION DIAGRAM





I/O PIN LAYOUT