

SystempaK (Analog/Single Case)

RTD/V (I) Module

Model J-SRP 50/55

Introduction

The RTD/V(I) Module (J-SRV50/55) is a signal conversion module housed in a single case and accepts a resistance or Pt or Ni thermobulb corresponding to the measured temperature or other, and converts it into a linearized 1 to 5V DC or 4 to 20mA DC signal.

The RTD/V(I) Module is available for one-output (J-SRP50) or two-output (J-SRP55) model.

Complete isolation is employed between the power, input, and output circuits.

Specification

Input signal:

Pt thermobulb (100 Ω at 0°C),
three-wire system

Span; 25 to 600°C

Lead wire resistance; 5 Ω or less

Ni thermobulb (508.4 Ω at 0°C),
three-wire system

Span; 10°C or more

Lead wire resistance; 10 Ω or less
(Difference in resistance between
three wires is within 0.5 Ω ,
measured current 1mA)

Output signal:

No.1 output;

1 to 5V DC or 4 to 20mA DC

No.2 output; 1 to 5V DC

Between No.1 and No.2 outputs is
not isolated. (minus common)

Output impedance:

Voltage output; 250 Ω or less
(No.1 and No.2 outputs)

Current output; 250k Ω or more
(No.1 output)

Load: 0 to 600 Ω (current output)

Conversion accuracy

(No.1 and No.2 outputs):

$\pm 0.25\%$ FS

(Pt; 50°C span or more,
Ni; 20°C span or more)

$\pm 0.5\%$ FS

(Pt; Less than 50°C span,
Ni; Less than 20°C span)

Common mode rejection ratio:

120dB (at 50Hz)

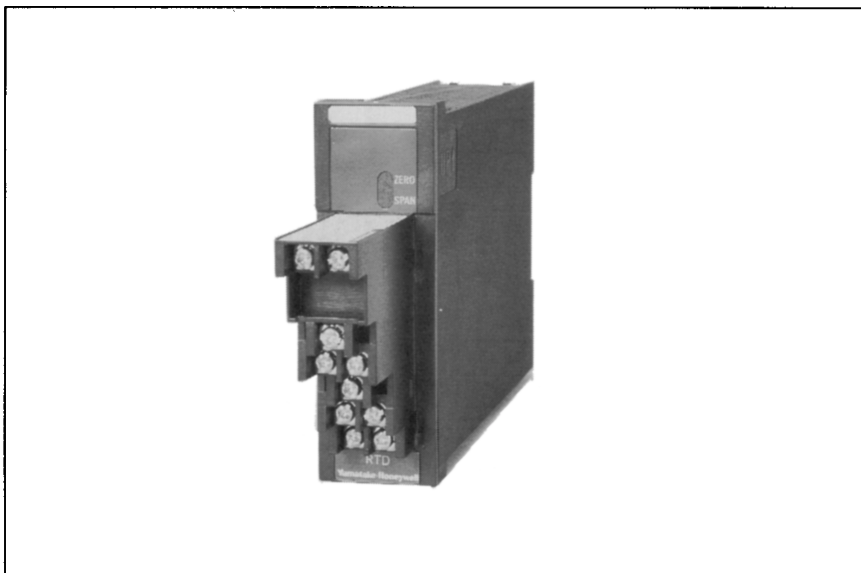
Power supply: 24V DC $\pm 15\%$

Current consumption:

150mA max. (at 24V DC)

Ambient temperature: -5 to +55°C

Ambient humidity: 0 to 90%RH



Mounting:

Panel, Wall, DIN rail mounting

Front mask color: Black

Weight: 450g

Operating influence:

Supply voltage effect;
 $\pm 0.1\%$ FS/24V DC $\pm 15\%$

Temperature effect;

$\pm 0.2\%$ FS/ $\pm 10^\circ\text{C}$

(Pt; 50°C span or more,

Ni; 20°C span or more)

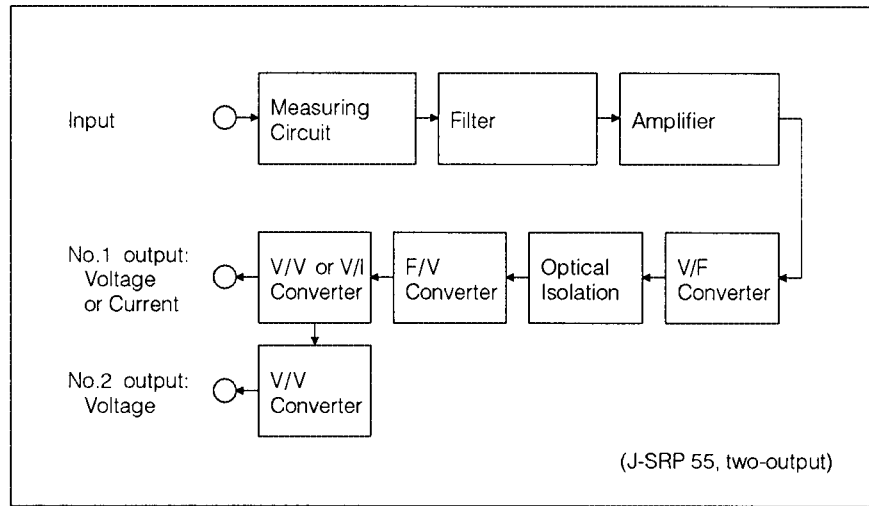
$\pm 0.3\%$ FS/ $\pm 10^\circ\text{C}$

(Pt; Less than 50°C span,

Ni; Less than 20°C span)

Theory of Operation

An input is converted into an appropriate mV (for amplification) by the Measuring circuit, and the Filter circuit removes any AC noise. The input voltage (converted into a rippleless DC voltage) is converted again into 1 to 5V DC by the ultra-low drift high performance amplifier. The 1 to 5V DC (passing through the V/F and F/V converters) is isolated by the photocoupler and is V/V- or V/I- converted for voltage or current output.



Measuring Ranges

Range (°C)	Pt(100Ω)	Ni(508.4Ω)
-100 to 50	⊙	-
-100 to 100	⊙	-
-50 to 50	⊙	⊙
-50 to 100	⊙	⊙
-50 to 150	⊙	⊙
-40 to 60	⊙	⊙
-30 to 20	⊙	⊙
-30 to 30	⊙	⊙
-25 to 25	⊙	⊙
-20 to 30	⊙	⊙
-20 to 80	⊙	⊙
-20 to 100	⊙	⊙
-10 to 10	×	○
-10 to 40	⊙	⊙
-10 to 50	⊙	⊙

Range(°C)	Pt(100Ω)	Ni(508.4Ω)
-10 to 90	⊙	⊙
0 to 10	×	○
0 to 20	×	○
0 to 30	⊙	⊙
0 to 50	⊙	⊙
0 to 70	⊙	⊙
0 to 100	⊙	⊙
0 to 120	⊙	⊙
0 to 150	⊙	⊙
0 to 200	⊙	-
0 to 250	⊙	-
0 to 300	⊙	-
0 to 400	⊙	-
0 to 500	⊙	-
0 to 600	⊙	-

Range(°C)	Pt(100Ω)	Ni(508.4Ω)
10 to 30	×	○
20 to 50	○	○
30 to 80	⊙	⊙
50 to 100	⊙	⊙
50 to 150	⊙	⊙
100 to 150	⊙	⊙
100 to 200	⊙	-
100 to 300	⊙	-
100 to 500	⊙	-
150 to 250	⊙	-
200 to 300	⊙	-
200 to 400	⊙	-
200 to 500	⊙	-
200 to 600	⊙	-

⊙ : Standard range ○ : Accuracy ±0.5%FS × : Out of input spec. range - : Out of Ni table range

Model Number Table

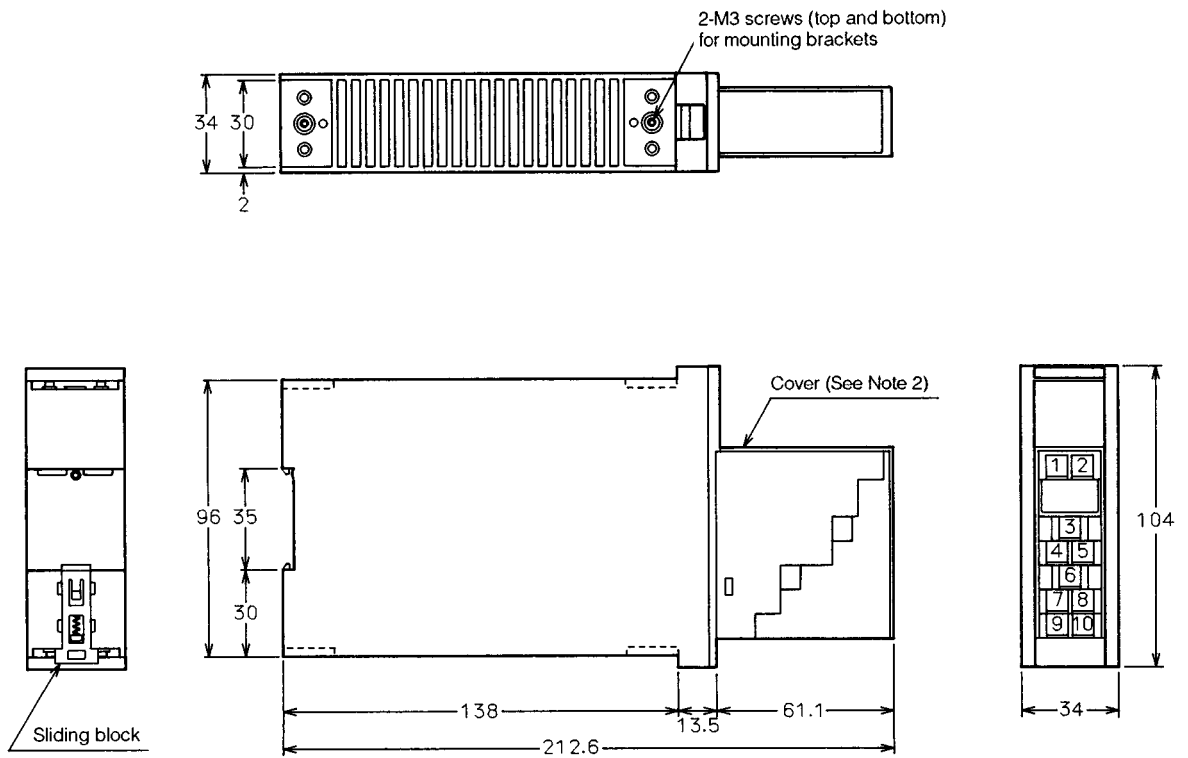
One-output model:

Basic Model Number	Selections		Description
	I	II	
J-SRP 50			RTD/V(I) Module
	-1		Pt (100Ω) input
	-2		Ni (508.4Ω) input
		1	1 to 5V DC output
		2	4 to 20mA DC output

Two-output model:

Basic Model Number	Selections		Description
	I	II	
J-SRP 55			RTD/V(I) Module
	-1		Pt (100Ω) input
	-2		Ni (508.4Ω) input
		1	No.1 output: 1 to 5V DC No.2 output: 1 to 5V DC
		2	No.1 output: 4 to 20mA DC No.2 output: 1 to 5V DC

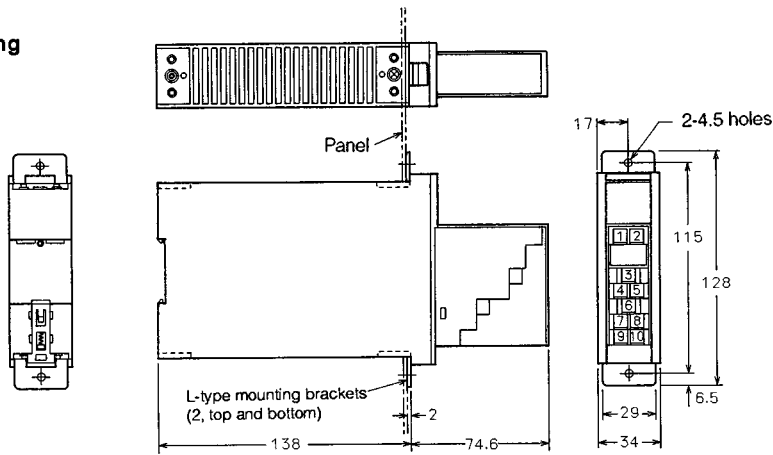
Dimensions and Wirings



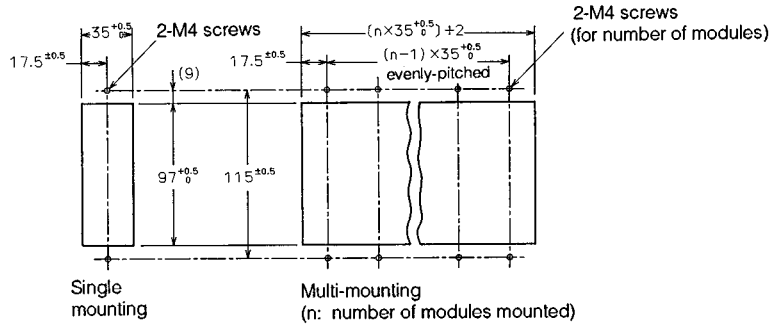
No.	Description	
1	Thermobulb input C	
2	Thermobulb input B	
3	Thermobulb input A	
4	No.1 output (+)	
5	No.1 output (-)	
6	No.2 output *1 (+)	
7	No.2 output *1 (-)	
8	24V (PS+)	
9	GND	
10	0V (PS-)	

- *1: For two-output model.
- *2: Operate the Module with a cover.
- *3: Terminal screws: M3.5
- *4: Use the pressured terminals with insulation sheath.

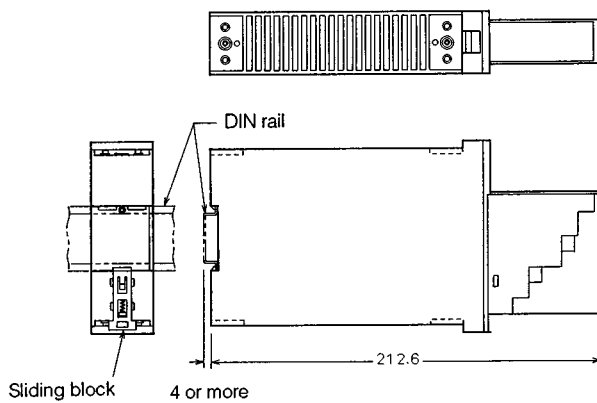
Panel-mounting



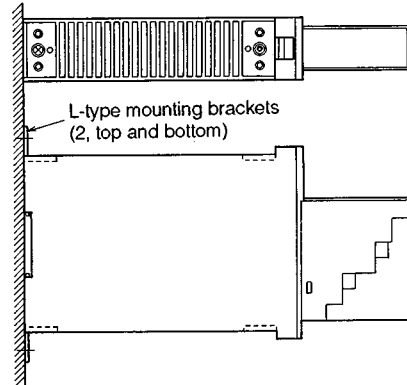
Panel-cutout



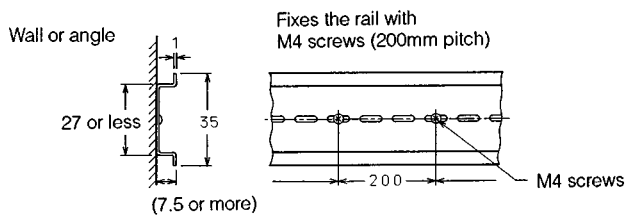
DIN rail mounting



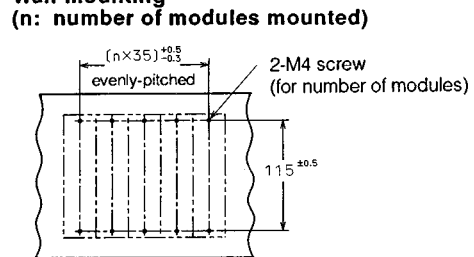
Wall-mounting



DIN rail mounting



Wall-mounting



Recommended DIN rail and end fittings

Rail : DAS-4 [Toyo Giken made]
End fittings : ATO-29 [Toyo Giken made]

Specifications are subject to change without notice.

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