

General Specifications

FR5A, FR5V
RTD Converter (Free Range Type)

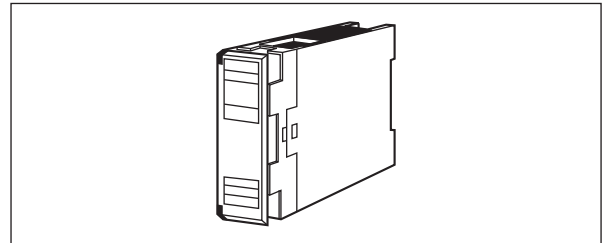
JUXTA

GS 77J08R05-01E

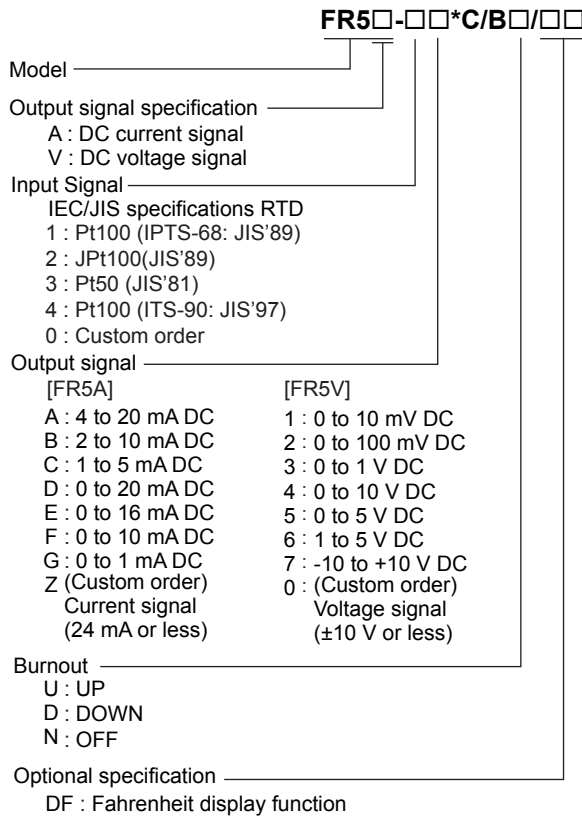
■ General

The FR5A/FR5V is a compact, front terminal connection type signal conditioner that is connected to an IEC/JIS-standard resistance temperature detector (RTD) to convert temperature signals into isolated DC current or DC voltage signals.

- Selection of input type, input range setting, burnout setting, output adjustment, I/O monitoring, and loop back test can be made using the optional Parameter Setting Tool (VJ77) or Handy Terminal (JHT200).
- For the Fahrenheit display, specify the option "/DF".
- Available for the combination with Safety barrier (BARD-700).



■ Model and Suffix Codes



Power supply : 24 V DC±10%

■ Ordering Information

Specify the following when ordering.

- Model and suffix codes :e.g. FR5V-16*C/BU
- Input range :e.g. 0 to 100°C

When the burnout is not specified, the product is manufactured as /BU.

■ Input/Output Specifications

Input signal: A three-wire RTD, IEC/JIS standard compliant.

Input Type and Measuring Range:

Code	Input Type	Measuring Range (°C)	Measuring Span	Zero Elevation
1	Pt100 (IPTS-68: JIS'89)	-200 to +600	10°C or more	Within 5 times of the measuring span
2	JPt100 (JIS'89)	-200 to +510		
3	Pt50 (JIS'81)	-200 to +649		
4	Pt100 (ITS-90, JIS C 1604: '97, IEC 751: '95)	-200 to +850		

Pt100 (ITS-90) : R0 = 100 Ω, R100/R0 = 1.3851
 JPt100 (JIS'89) : R0 = 100 Ω, R100/R0 = 1.3916
 Pt100 (IPTS-68) : R0 = 100 Ω, R100/R0 = 1.3850

RTD detective current: Approx. 1mA

Allowable leadwire resistance: 150 Ω or less per wire
 (3 lines should be in balance)

Output signal : DC voltage or DC current signal

Allowable load resistance:

Output Range	Allowable Load Resistance
4 to 20 mA DC	750 Ω or less
2 to 10 mA DC	1500 Ω or less
1 to 5 mA DC	3000 Ω or less
0 to 20 mA DC	750 Ω or less
0 to 16 mA DC	900 Ω or less
0 to 10 mA DC	1500 Ω or less
0 to 1 mA DC	15 kΩ or less
0 to 10 mV DC	250 kΩ or more
0 to 100 mV DC	250 kΩ or more
0 to 1 V DC	2 kΩ or more
0 to 10 V DC	10 kΩ or more
0 to 5 V DC	2 kΩ or more
1 to 5 V DC	2 kΩ or more
-10 to +10 V DC	10 kΩ or more

Input adjustment : ±1% of span (Zero/Span)
 Output adjustment : ±10% of span (Zero/Span)
 In the case of the output specification code 7, it is ±5% of span.

Standard Performance

Accuracy rating : ±0.1% of span or 0.1°C, whichever is greater; for Pt50, ±0.2% of span or 0.2°C, whichever is greater
 Accuracy is not guaranteed for output level less than 0.5% of the span of a 0 to X mA output range type.

Response speed: 200 ms, 63% response (10 to 90%)
 Burnout : Up, Down or Off; the maximum burnout time is specified as 60 seconds.

Effect of power supply voltage fluctuations: ±0.1% of span or less for the fluctuation within the operating range of power supply voltage specification.

Effect of ambient temperature change: ±0.2% of span or less for a temperature change of 10°C.

Effect of leadwire resistance change: ±0.1°C or less for a change of 10 Ω (3 lines should be in balance).
 Need adjustment when combining with BARD-700

Environmental conditions

Operating temperature range: 0 to 50°C
 Operating humidity range: 5 to 90% RH (no condensation)

Avoid the following environments for installation locations: Areas with vibration, corrosive gases, dust, water, oil, solvents, direct sunlight, radiation, a strong electric field, and/or a strong magnetic field, altitude of more than 2000 m above sea level.

Power Supply and Isolation

Supply input voltage range: 24 V DC±10% (Ripple content 5% p-p or less)
 Consumption current: 24 V DC 65 mA (FR5A), 50 mA (FR5V)
 Insulation resistance: 100 MΩ minimum at 500 V DC between input, output and power supply mutually.
 Withstanding voltage: 1500 V AC for one minute between input, output and input, power supply. 500 V AC for one minute between output and power supply.

Mounting and Appearance

Mounting method: Rack, Wall or DIN rail mounting
 Connection method: M4 screw terminals
 External dimensions: 72(H)×24(W)×127(D) mm
 Weight: Approx. 130 g

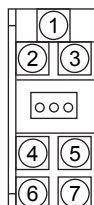
Accessories

Tag number label: 1
 Range label: 1
 Mounting blocks: 2
 M4 mounting screws: 2

Customized Signal Specifications

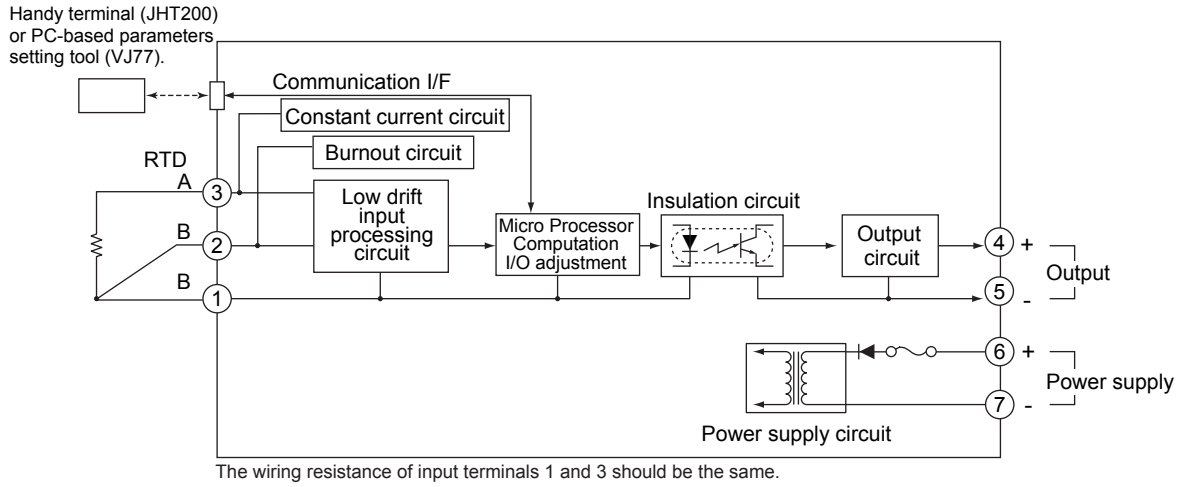
	Current Signal	Voltage Signal
Output range (DC)	0 to 24 mA	-10 to +10 V
Span (DC)	1 to 24 mA	10 mV to 20 V
Zero elevation	0 to 200%	-100 to +200%

Terminal Assignments



1	Input	(B)
2	Input	(B)
3	Input	(A)
4	Output	(+)
5	Output	(-)
6	Supply	(+)
7	Supply	(-)

■ Block Diagram



■ External Dimensions

