General Specifications

WR5A, WR5V
RTD Converter (Free Range Type)

JUXTA

GS 77J09R05-01E

■ General

The WR5A / WR5V 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).
- WR5A and WR5V are also available in 2000V AC voltage withstand specifications. Contact your dealer for details.

■ Model and Suffix Codes

WR5□-□□-□*C/B□/□□

Model

Output signal specification
A : DC current signal
V : DC voltage signal

Input Signal
IEC/JIS specifications RTD
1 : Pt100 (IPTS-68: JIS'89)
2 : JPt100 (JIS'89)
3 : Pt50 (JIS'81)
4 : Pt100 (ITS-90: JIS'97)
0 : Custom order

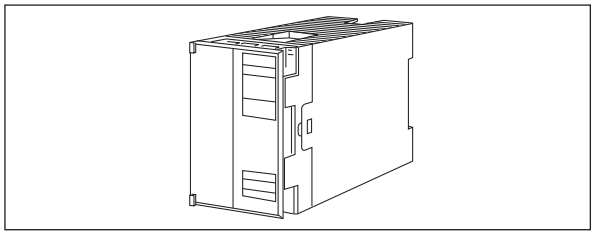
Output signal

[WR5A]	[WR5V]
A : 4 to 20 mA DC	1 : 0 to 10 mV DC
B : 2 to 10 mA DC	2 : 0 to 100 mV DC
C : 1 to 5 mA DC	3 : 0 to 1 V DC
D : 0 to 20 mA DC	4 : 0 to 10 V DC
E : 0 to 16 mA DC	5 : 0 to 5 V DC
F : 0 to 10 mA DC	6 : 1 to 5 V DC
G : 0 to 1 mA DC	7 : -10 to +10 V DC
Z : (Custom order) Current signal (24 mA or less)	0 : (Custom order) Voltage signal (±10 V or less)

Power supply
1 : 24 V DC±10% (DC-driven)
2 : 100 to 240 V AC (-15%, +10%) (AC-driven)

Burnout
U : UP
D : DOWN
N : OFF

Optional specification
DF : Fahrenheit display function
D0 : Dual output (1 to 5 V DC)



■ Ordering Information

Specify the following when ordering.

- Model and suffix codes :e.g. WR5V-16-2*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 +660	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

YOKOGAWA

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GS 77J09R05-01E

1st Edition Jan.31,2007

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. The 2nd output of Dual output specification is ±0.2% or less of relative errors to the 1st output.
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 each 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) (DC drive).
100 to 240 V AC(-15%,+10%) 50/60Hz(AC drive).
Power Consumption: 24 V DC 65 mA (WR5A), 50 mA (WR5V)
Power dissipation: 100 V AC 4 VA (WR5A), 3 VA (WR5V)
200 V AC 5.5 VA (WR5A), 4.5 VA (WR5V)
Insulation resistance: 100 MΩ minimum at 500 V DC between input, output and power supply mutually(DC-driven): between input, output, power supply and ground mutually (AC-driven).The 1st output and the 2nd output of Dual output specification are not insulated.
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) × 48 (W) × 127 (D) mm
Weight: Approx. 300 g

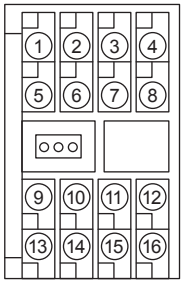
■ Accessories

Tag number label: 1
Range label: 1
Mounting blocks: 2
M4 mounting screws: 4

■ 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%

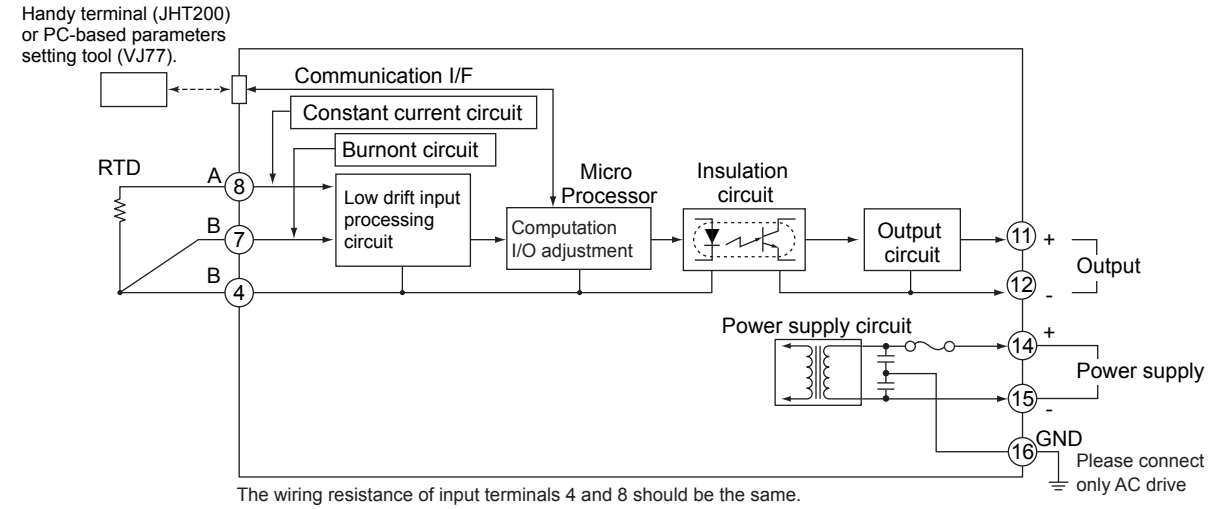
■ Terminal Assignments



4	Input	(B)
7	Input	(B)
8	Input	(A)
9	Output-2	(+)
10	Output-2	(-)
11	Output-1	(+)
12	Output-1	(-)
14	Supply	(L+)
15	Supply	(N-)
16	Ground	(GND)*

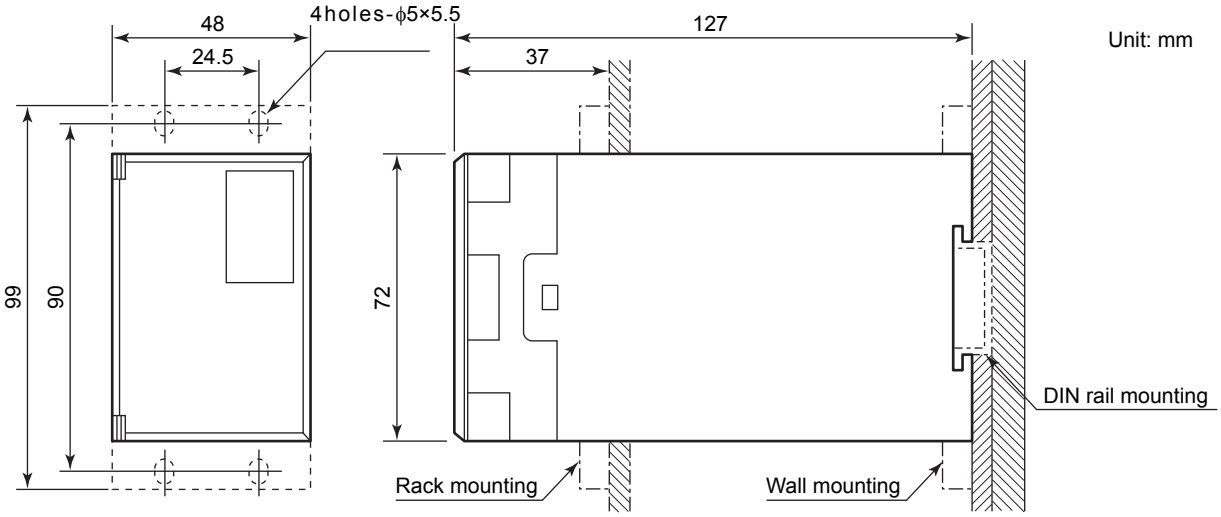
* Please connect only AC-driven.

■ Block Diagram



The wiring resistance of input terminals 4 and 8 should be the same.

■ External Dimensions



Subject Change without notice.