General Specifications

DR5
RTD Converter (Free Range Type)

JUXTA

GS 77J05R05-01E

■ General

The DR5 is DCS correspondence nest stored 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.

- Input type selection, unit selection, input range setting, zero/span adjustment, burnout selection, and I/O monitoring can be easily performed from the host system or the parameter setting tool (VJ77) via the communication interface card.
- For the Fahrenheit display, specify the option "/DF".
- Available for the combination with Safety barrier (BARD-700).

■ Model and Suffix CodesModel

DR5-□6□*B/B□/□□

Model

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 -1 signal
6 : 1 to 5 V DC

Output -2 signal

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)

Burnout
U : UP
D : DOWN
N : OFF

Optional specification
DF : Fahrenheit display function

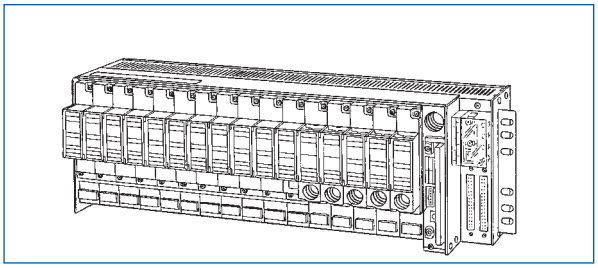
Power supply : 24 V DC±10%

■ Ordering Information

Specify the following when ordering.

- Model and suffix codes :e.g. DR5-16A*B/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. 1 mA
Allowable leadwire resistance: 150 Ω or less per wire (3 lines should be in balance)
Output -1 signal: 1 to 5 V DC
Output -2 signal: DC voltage or DC current signal (In the case of current output , output is available only either from front terminals 3-4 or connector)

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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 :
Output -1: ±0.1% of span or 0.1°C, whichever is greater;
for Pt50, ±0.2% of span or 0.2°C, whichever is greater
Output -2: ±0.2% or less of relative error of Span to the
Ch1 output. 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 95 mA (4 to 20 mA DC),55 mA(1 to 5 V DC)
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: Store in exclusive nest (Signal•power supply be connected through back board and connector)
Connection method: Connect to terminal M4 screw of input/output of exclusive nest
External dimensions: 130.6(H)×23.6(W)×126(D) mm
Weight: Approx. 120 g

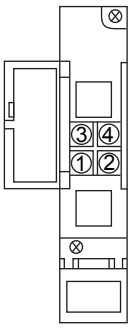
■ Accessories

Tag number label: 1
Range label:1

■ Customized Signal Specifications

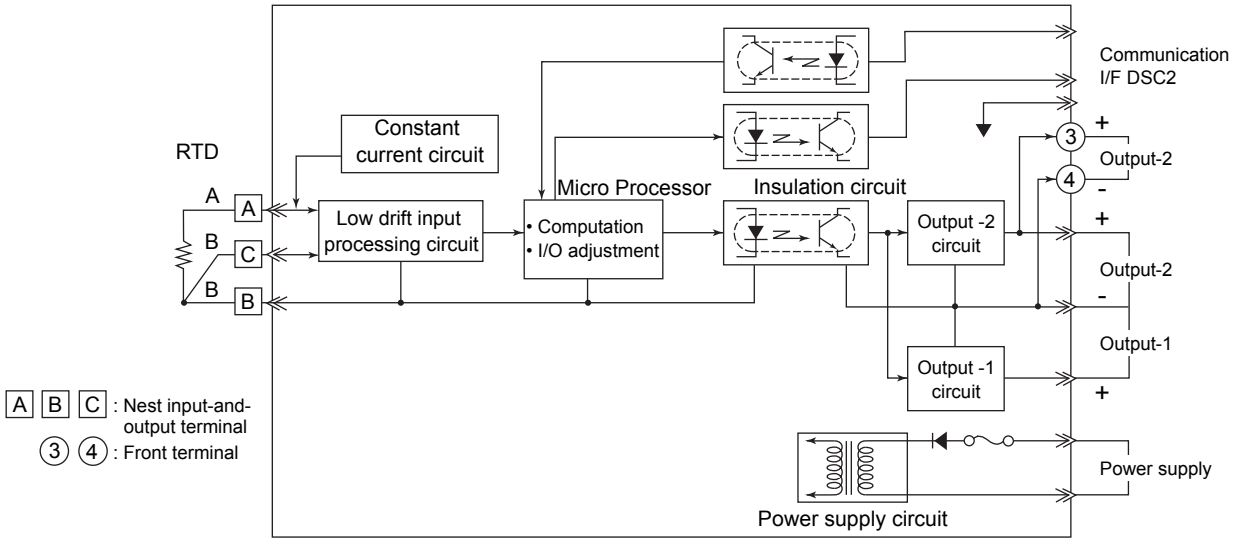
	Current Signal	Voltage Signal
Output range (DC)	0 to 24 mA	-10 to +10 V
Span (DC)	1 to 24 mA	10 mV to 20 V
Zero elevation	0 to 200%	-100 to +200%

■ Terminal Assignments



Terminal No.	Signal name
1	
2	
3	Output-2 (+)
4	Output-2 (-)

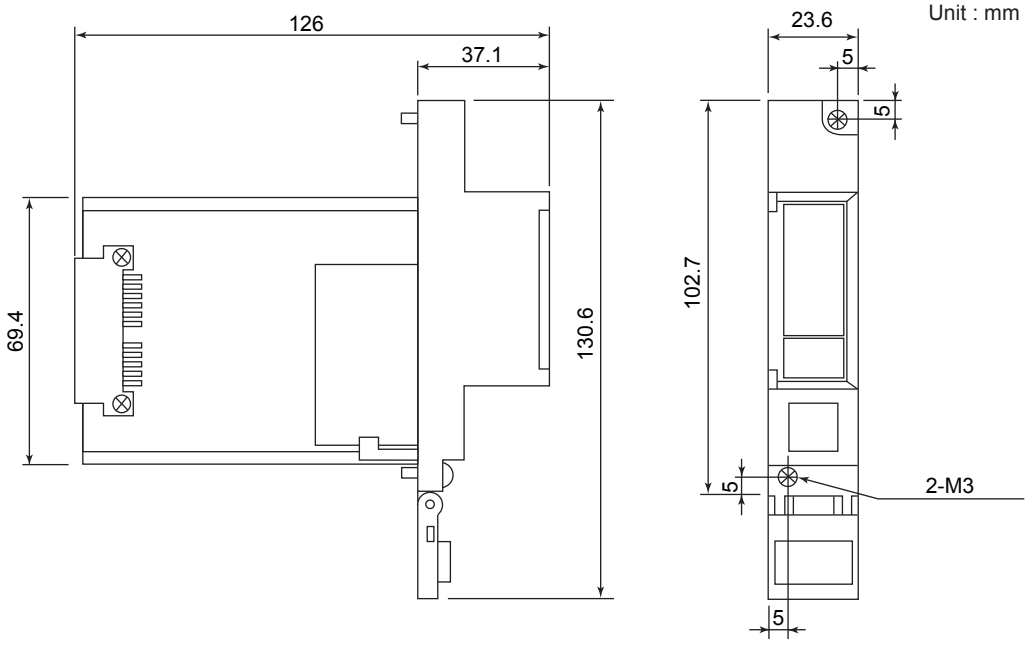
■ Block Diagram



The wiring resistance of input terminals A and B should be the same.

■ External Dimensions

Unit : mm



■ Basic Conditions and Individual Contracts at the Time of Purchase

The warranty for this product is defined in the basic conditions and individual contracts at the time of purchase. The individual conditions are as follows.

• Firmware warranty conditions

The warranty conditions for the firmware installed in this products are same as that of the hardware.

• Handling of non-conforming products

If Yokogawa verifies a non-conformity of the product that is attributable to Yokogawa within the warranty period, we will deliver an equivalent product.

Yokogawa can not provide a free evaluation of non-conforming products. The investigation of the non-conforming products will be performed at the expense of the customer.