

General Specifications

DT5 Thermocouple Converter (Free Range Type)



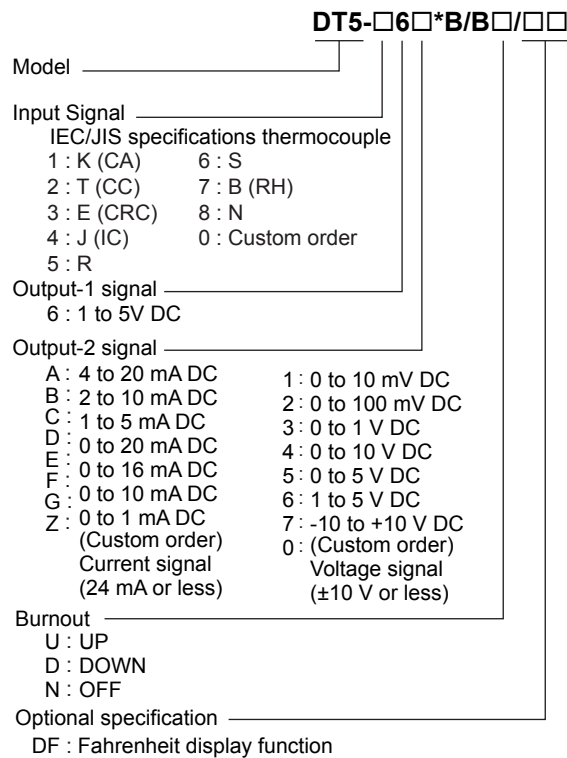
GS 77J05T05-01E

General

The DT5 is DCS correspondence nest stored type signal conditioner that is connected to an IEC/JIS-standard thermocouple (TC), such as a Type K, T, E, J, R, S, B or N thermocouples 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 communication I/F card (DSC2) and 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-600).

Model and Suffix Codes



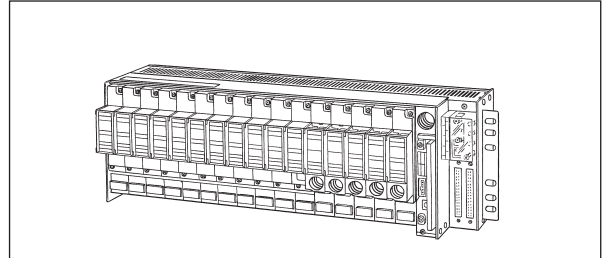
Power supply 24 V DC±10%

Ordering Information

Specify the following when ordering.

- Model and suffix codes :e.g. DT5-16A*B/BU
- Input range :e.g. 0 to 500°C

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



Input/Output Specifications

Input signal: An IEC/JIS-standard thermocouple (ITS-90, JIS C 1602: '95, IEC 584: '95)

Input type and Measuring range:

Code	Input Type	Measuring Range (°C)	Measuring Span	Zero Elevation
1	Type K	-270 to +1372	3 mV or more	Within 3 times of the measuring span or ±25 mV, whichever is smaller
2	Type T	-270 to +400		
3	Type E	-270 to +1000		
4	Type J	-210 to +1200		
5	Type R	-50 to +1768		
6	Type S	-50 to +1768		
7	Type B	0 to 1820		
8	Type N	-270 to +1300		

Input resistance : 1 MΩ or more (10kΩ or more when power off)

Burnout detective current : 0.1 μA

Permissible applied voltage : -0.5 to +4.0 V DC

Signal source resistance : 1 kΩ or less

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)

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 ±10 μV, whichever is greater ;
 see the following exceptions:
 Accuracy is not guaranteed for less than 400°C of Type B
 Type K, E, T and N: For the measured temperatures less than -200°C, multiply the input accuracy mentioned above by K, where

$$K = \frac{\text{(Thermocouple output change/°C near 0°C)}}{\text{(Thermocouple output change/°C at measured temperature)}}$$

Output-2: ±0.2% or less of relative error of span to the output-1.

Accuracy is not guaranteed for output level less than 0.5% of the span of a 0 to X mA output range type.

Accuracy of reference junction compensation:

Other than Type R and S: ±1°C (0 to 50°C)
 Type R and S: ±2°C (0 to 50°C)

Reference junction compensation of Type B is not carried out.

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: ±15 μV or less for a change of 100 Ω (Need adjustmet when combining with BARD-600).

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)

Power Consumption: 24 V DC
 75 mA (4 to 20 mA DC),
 50 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

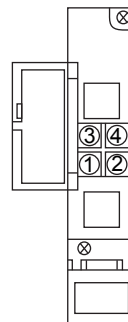
Range label:1

RJC sensor:1

Customized Signal Specifications

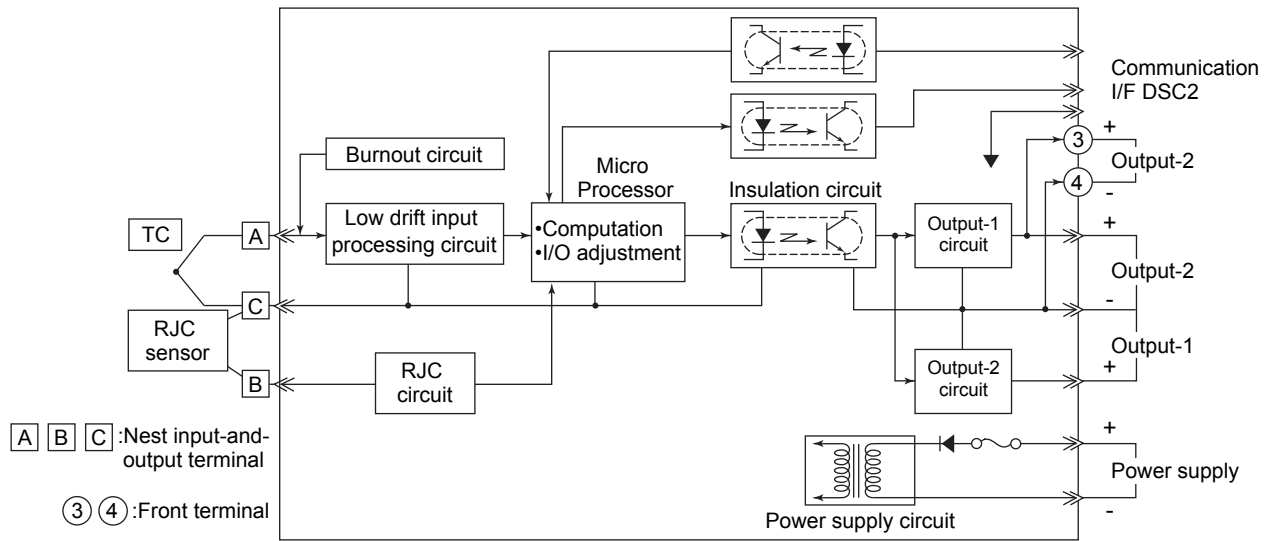
	Current Signal	Voltage Signal
Output range (DC)	0 to 24 mA	-10 to +10 V
Span (DC)	1 to 24 mA	10 mV to 20 V
Zero elevation	0 to 200%	-100 to +200%

Terminal Assignments



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

■ Block Diagram



■ External Dimensions

