General Specifications

WT5A, WT5V
Thermocouple Converter
(Free Range Type)

JUXTA

GS 77J09T05-01E

■ General

The WT5A / WT5V is a compact, front terminal connection 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 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).
- WT5A and WT5V are also available in 2000V AC voltage withstand specifications. Contact your dealer for details.

■ Model and Suffix Codes

WT5□-□□-□*C/B□/□□

Model

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

Input Signal
IEC/JIS specifications thermocouple
- 1 : K (CA)
- 2 : T (CC)
- 3 : E (CRC)
- 4 : J (IC)
- 5 : R
- 6 : S
- 7 : B (RH)
- 8 : N
- 0 : Custom order

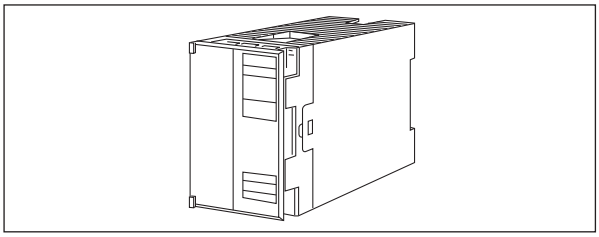
Output signal

[WT5A]	[WT5V]
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. WT5V-16-2*C/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 (10 kΩ or more when power off)
Burnout detective current: 0.1 μA
Permissible applied voltage: -0.5 to +4.0V DC
signal source resistance: 1kΩ or less
Output signal: DC voltage or DC current signal

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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: ±0.1% of span or ±10 μV, whichever is greaten; 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

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

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). 100 to 240 V AC (-15%,+10%) 50/60Hz.
Power Consumption: 24 V DC 65 mA (WT5A), 45 mA (WT5V)
Power dissipation: 100 V AC 4 VA (WT5A), 3 VA (WT5V)
200 V AC 5.5 VA (WT5A),4.5 VA (WT5V)
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. 300g

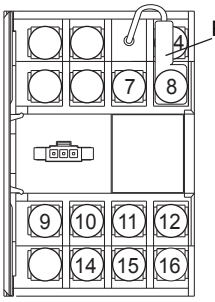
■ Accessories

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%

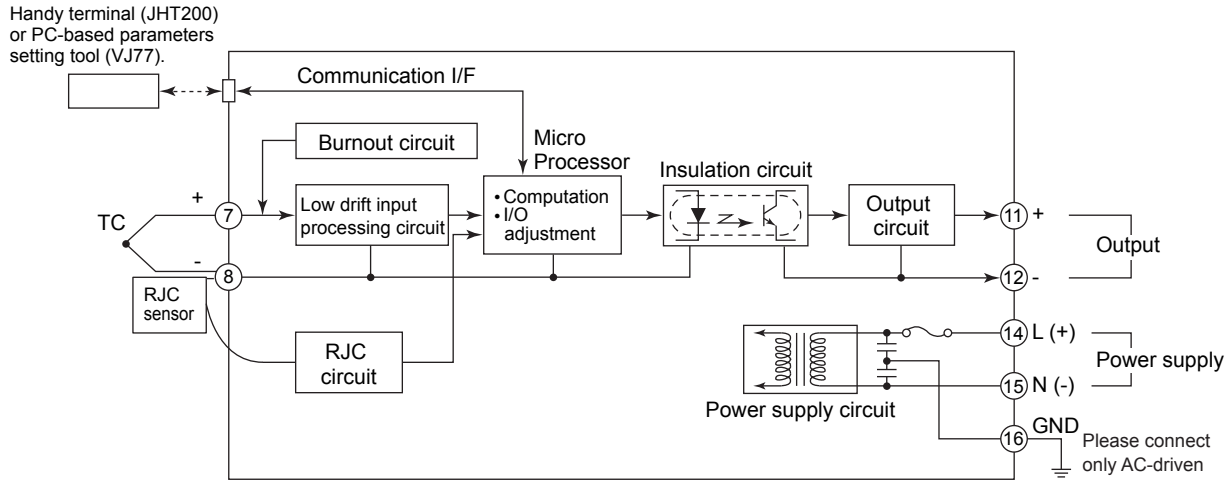
■ Terminal Assignments



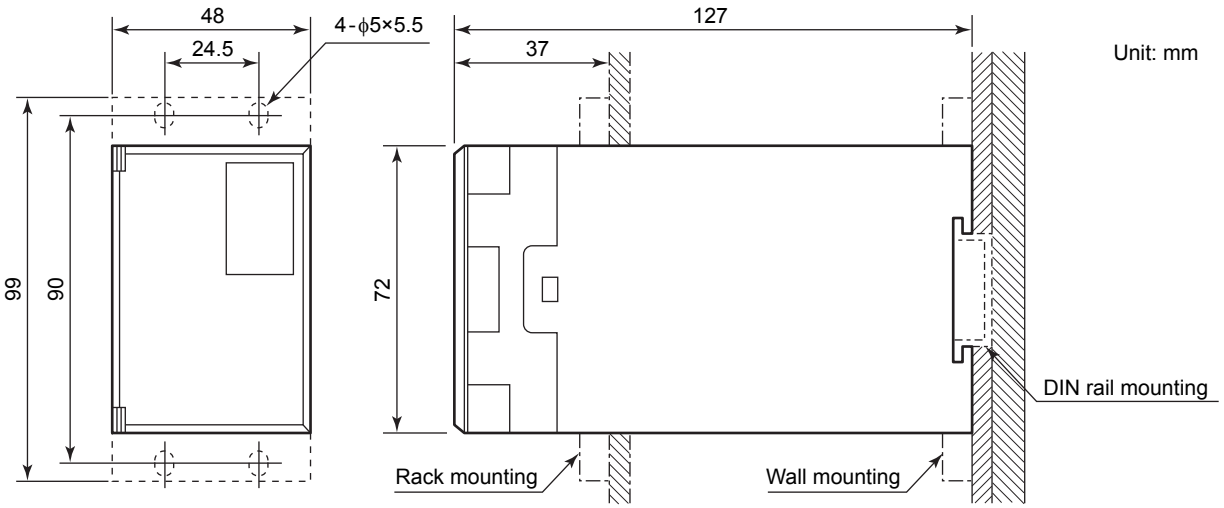
4	Prohibited to connect	
7	Input	(+)
8	Input	(-)(RJC)
9	Output-2	(+)
10	Output-2	(-)
11	Output-1	(+)
12	Output-1	(-)
14	Supply	(L+)
15	Supply	(N-)
16	Ground	(GND)*

* Please connect only AC-driven.

■ Block Diagram



■ External Dimension



Subject Change without notice.