

WJ16 series thermal resistors Ni1000, NTC, Pt100, thermocouples

Nonlinear signal isolation transmitter

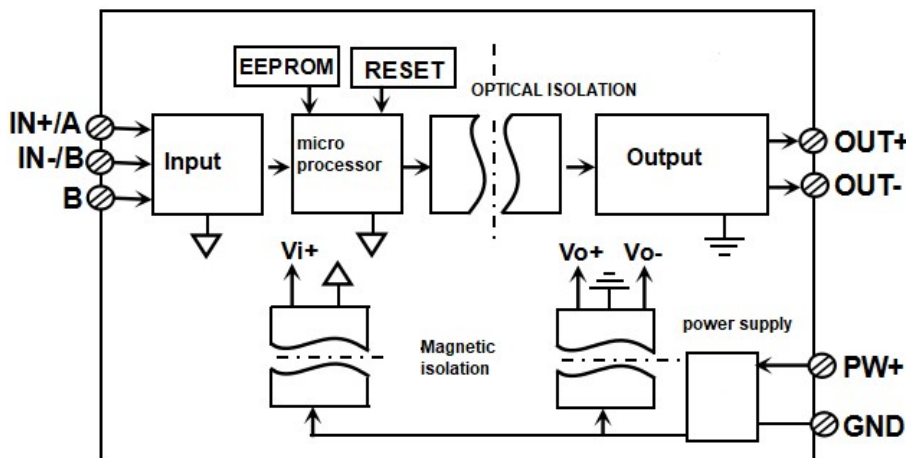
Features:

- >> Input: Ni1000, NTC 10K, NTC 20K,
Pt100, Pt1000, Pt10, Cu50, Cu100,
Thermocouples J/K/T/E/R/S/B type, etc.
(The temperature range for measurement can be customized)
(Nonlinear voltage and current signals can also be customized)
- >> Output signal: Standard signals such as 4-20mA, 0-5V, 0-10V, etc
You can also choose a 12V PWM signal output
- >> Auxiliary power supply: 5V, 9V, 12V, 15V or 24V DC single power supply
- >> Industrial grade temperature range: -45~+85 °C
- >> Accuracy level: 0.1 level (FSR%, relative to temperature)
- >> Including linear algorithm processing and long line compensation function
- >> Isolation and withstand voltage: 2500VDC (1mA, 60S), input/output/power triple isolation
- >> Installation method: DIN35 rail installation
- >> External dimensions: 79.0x69.5x25.0mm



Summary:

The thermal resistance temperature transmitter products developed are mainly used for isolation and transmission of sensor signals such as Ni1000, NTC 10K, NTC 20K, Pt100, Pt1000, Pt10, Cu50, Cu100, thermocouple J/K/T/E/R/S/B (sensors need to be configured by the user), and are mainly used in industry to measure various temperature signals. The transmitter has linearization and long line compensation functions, and the data is processed through microcontroller algorithms to ensure accurate correspondence between the output signal and temperature. When measuring thermocouples, a built-in temperature sensor can be used for cold end compensation. When leaving the factory, it is calibrated according to the national standard graduation table, fully meeting the accuracy requirement of 0.1 level. It can also be customized according to the indexing table provided by the user to meet their measurement needs. The input, output, and auxiliary power supply are completely isolated (triple isolated) and can withstand an isolation withstand voltage of 2500VDC.



WJ16 Block Diagram

The product adopts the DIN35 international standard guide rail installation method, with small size, high accuracy, stable performance, and high cost-effectiveness. It can be widely used in industries such as petroleum, chemical, power, instrumentation, and industrial control.

The WJ16 series temperature signal isolation amplifier is very convenient to use. Simply connect the wires to achieve isolation and transmission of temperature signals. For specific selection, please refer to the products selection table .

Products selection:

Input		Temperature Range		Power Supply		Output	
	code	T	code	P	code	A	code
Pt100	Z1	-20~-100℃	T1	24VDC	P1	0-20mA	A3
Pt10	Z2	0~-100℃	T2	12VDC	P2	4-20mA	A4
Cu100	Z3	0~-150℃	T3	5VDC	P3	User-defined	Au
Cu50	Z4	0~-200℃	T4	15VDC	P4		
Pt1000	Z5	0~-400℃	T5	User-defined	Pu	0-5V	V1
Ni1000	Ni	User-defined	Tu			0-10V	V2
NTC 10K	NTC10					1-5V	V6
NTC 20K	NTC20					User-defined	Vu
User-defined			Ru				
Thermocouple J-type (0℃~760℃)			J				
Thermocouple K-type (0℃~1000℃)			K			50Hz, 12V PWM	PWM1
Thermocouple T-type (-100℃~400℃)			T			100Hz, 12V PWM	PWM2
Thermocouple E-type (0℃~1000℃)			E			1KHz, 12V PWM	PWM3
Thermocouple R-type (500℃~1750℃)			R			10KHz, 12V PWM	PWM4
Thermocouple S-type (500℃~1750℃)			S			100KHz, 12V PWM	PWM5
Thermocouple B-type (500℃~1800℃)			B			User-defined	PWMz
0-20mA			A3				
4-20mA			A4				
User-defined			Au				
0-5V			V1				
0-10V			V2				
User-defined			Vu				

Note: Thermal resistance products can choose a temperature range or customize a temperature range.

Thermocouple products can only be selected within a fixed temperature range.

Samples 1:

Input: Ni1000 Temperature Range: -20~100°C Power Supply: 24V Output: 4-20mA

Type No.: WJ16-Ni-T1-P1-A4

Samples 2:

Input: Pt1000 Temperature Range: 0~200°C Power Supply: 12V Output: 0-10V

Type No.: WJ16-Z5-T4-P2-V2

General Parameters:

Accuracy -0.1% (relative to temperature)

Input ----- Ni1000, NTC 10K, NTC 20K, default two line input

Pt100, Pt1000, Pt10, Cu50, Cu100, default three wire input

Thermocouple J/K/T/E/R/S/B type two wire input

When ordering, it is necessary to select a temperature range that corresponds to the output.

Output - Standard voltage or current signal. It can also be customized by the user. You can also choose a 12V PWM signal output.

Response time \leq 100mS

Auxiliary power supply - DC5V, 9V, 12V, 15V, 24V

Power -----<1W

Temperature drift -50 ppm/°C (typical value)

Load capacity - Voltage output: \geq 2 k Ω

Current output: \leq 450 Ω

Isolation - Signal input/output/output/auxiliary power supply triple isolation

Isolation voltage -2500VDC, 1 minute, leakage current 1mA

Impulse withstand voltage -3KV, 1.2/50us (peak)

Working temperature -40~+85 °C

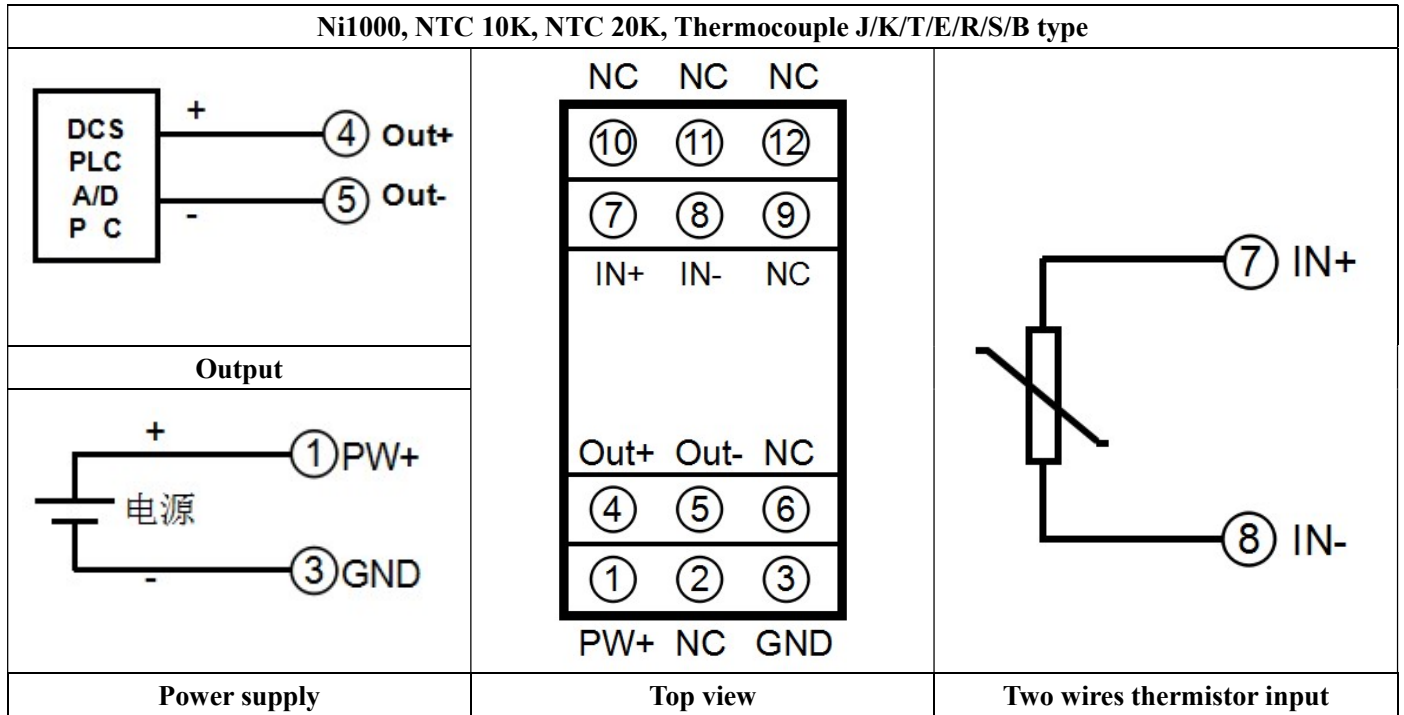
Storage temperature -40~+85 °C

Working humidity -10~90% (without condensation)

Storage humidity -10~95% (no condensation)

Footprint and wire diagram: (Ni1000, NTC 10K, NTC 20K, thermocouple J/K/T/E/R/S/B type)

PIN	Name	Description	PIN	Name	Description
1	Vcc	Power supply+	7	IN+	signal input+
2	NC	No connecting	8	IN-	signal input-
3	GND	Power supply-	9	NC	No connecting
4	OUT+	Signal output+	10	NC	No connecting
5	OUT-	Signal output-	11	NC	No connecting
6	NC	No connecting	12	NC	No connecting



Footprint and wire diagram: (Pt100, Pt1000, Pt10, Cu50, Cu100)

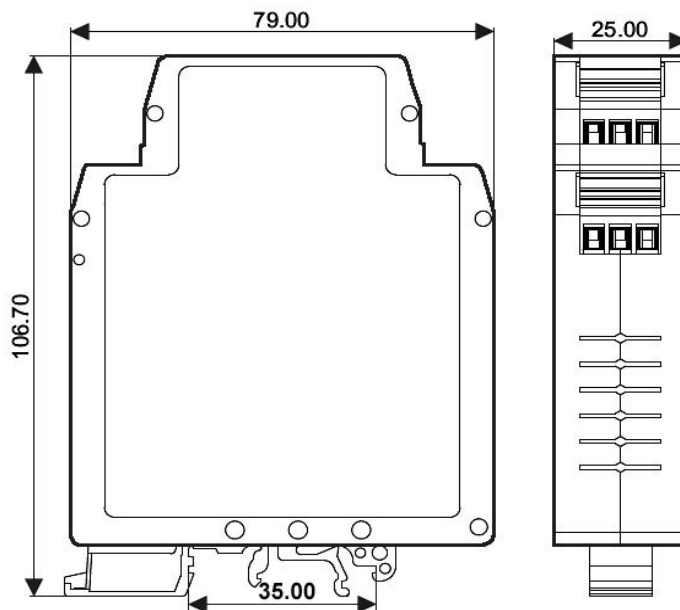
PIN	Name	Description	PIN	Name	Description
1	Vcc	Power supply+	7	A	Thermal input A
2	NC	No connecting	8	B	Thermal input B
3	GND	Power supply-	9	B	Thermal input B
4	OUT+	Signal output+	10	NC	No connecting
5	OUT-	Signal output-	11	NC	No connecting
6	NC	No connecting	12	NC	No connecting

Pt100, Pt1000, Pt10, Cu50, Cu100		
output		<p style="text-align: center;">Two wires thermistor input</p>
		<p style="text-align: center;">Three wires thermistor input</p>
Power supply		
Power supply	Top view	Four wires thermistor input

Note:

1. When inputting two wire, three wire, or four wire thermistors, refer to the wiring diagram separately.
2. Three wire thermoelectric blocking line detection:
 - a. Maximum output value: The wire connected to pin 7 or 9 is disconnected;
 - b. Output minimum value: wire breakage connected to pin 8

Size (unit:mm) DIN35 rail-mounted



Note:

1. Before using, according to packing lists, and product labels, check the quantity, models and specifications
2. When measure the signal directly, please set the terminal tighten
3. There are no damaged insulation, conductive dust and corrosive fumes of metal in the environment
4. Installation pitch $\geq 10\text{mm}$
5. We have adjusted well, do not adjust arbitrarily
6. Two years warranty. But if clients damage products by themselves or tear off any labels on the product, we can not exchange
7. Products can not been used in strong magnetic field
8. Internal no anti-lightning circuit
9. Specifications subject to change without notice

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