

Intelligent and explosion proof temperature transmitter

Model: WR/WRB-205 (Local display type)



Description

WR-205 is integrated temperature transmitter uses PT100, N, K, J and other temperature sensing components, through the circuit processing module to convert the resistance signal into a standard 4-20mA current signal, with local display, widely used in chemical automatic control systems, and transmitted to Indicators, recorders and regulators for monitoring, regulating and controlling industrial systems. It not only saves expensive compensation wires cost, but also improves the anti-interference ability of signals during long-distance transmission. The transmitter is high precision, low power consumption, wide temperature range, stable and reliable operation, and is resistant to shock and moisture due to the silicone rubber sealing structure, which is suitable for use in harsh field environments.

Explosion-proof Principle

It uses the gap flameproof principle and designs the sufficient strength junction box and other part. All the components which can cause a spark, arc and dangerous temperature are sealed in the junction box. When it happens explosion in the cavity, the joint side can make flameout and cool, to prevent the flame and temperature after explosion from spreading out of the cavity.

Application

In chemical plant, there are various flammable and explosive chemical gases around the production site. It's unsafe and easy to cause environmental gas explosion if use common thermocouples, it needs to use flameproof thermocouple as temperature measurement instrument in these cases.

Main technical indexes of thermocouple

Material	Type	Temperature Range	Error/ t
Ni/Ch-Ni/Si	K	800-1600°C	±2.5 or ±0.75%t
Ni/Ch-Cu	E	600-800°C	±2.5 or ±0.75%t
Cu	T	350-400°C	±2.5 or ±0.75%t
Fe-Cu	J	600-700°C	±2.5 or ±0.75%t
Pt	PT100	-200-600°C	±1 or ±0.75%t
Cu	CU50	-50~100°C	±2.5 or ±0.75%t



Feature

- Easy assembly and easy replacement
- Good shakeproof and high precision
- Wide measuring range (-200 ° C ~ 1600 ° C)
- Fast thermal response time and long service life
- High mechanical strength and good pressure resistance
- Suitable Explosion proof area

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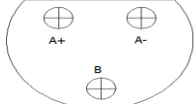
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Specification

Temperature Sensing element:	N,R,K,E,J,T,PT100,CU50
Temperature range:	-200℃~0℃~1600℃
Output:	mV/V (for WR-205) 4-20mA, HART optional (for WRB-205)
Local display:	LCD optional
Power supply:	10VDC (mV/V) (for WR-205) 24VDC (4-20mA /HART) (for WRB-205)
Accuracy class:	Class A: +/- (0.15+0.2%t); Class B: +/- (0.3+0.5%t)
Electrical connector:	waterproof, explosion-proof
Process connection:	M20*1.5, G1/2 , G1/4 ,flange, customized
Probe tube diameter (D):	6mm ,8mm ,12mm ,customized
Probe tube length (L):	8mm<L<800mm
Insert tube material	SS304 ,SS316L optional

Wiring diagram

 <p>WRB-205 4~20mA Output</p>	 <p>WR-205 PT100 Output</p>	Terminal	4-20mA (2 wires)	PT100(3 Wires)
		A+	P+	A+(Red)
		A-	P-	A- (Red)
		B		B (White)

Order Guide

Model	Sensing element	Temperature range	Output	Insert Diameter	Insert Length	Process connection	Accuracy	Others
WRB-205	---	---	---	---	---	----		---
Example: WRB-205-PT100-(-50~200)℃-4-20mA-8-50-M20*1.5-A								

HART type temperature transmitter, universal HART communication adapter, used to connect the computer to complete the parameter setting. Users can also use the universal HART Communicator to complete the parameter setting.

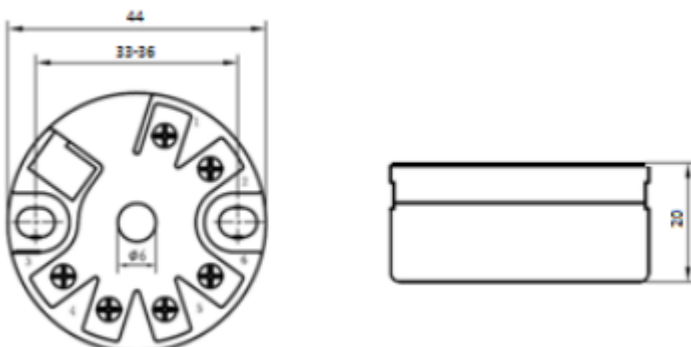
Products Appearance :



Technical parameters

1. Thermal resistance input: Pt100, Cu50, three-wire connection method, automatic lead compensation
2. Thermocouple input: K, N, E, J, T, R, S, B, We325, We526, internal cold junction compensation
3. Output loop power supply: 12 ~ 30VDC, two-wire transmitter
4. Output signal: 4 ~ 20mA, low limited output 3.6mA, upper limited output 20.5mA, when sensor disconnected the fault output is 22.8mA .
5. Output load: $\leq 600\Omega$ (900 Ω can be customized when ordering)
6. Lead wire compensation range: 0 ~ 30 Ω / wire, three-wire resistance is equal
7. Cold junction compensation range: -40 ~ 80 $^{\circ}\text{C}$, compensation accuracy $\pm 1^{\circ}\text{C}$
8. Isolation performance (end D of the model): 2500VAC applied between input and output • 1 minute without damage .
9. Electromagnetic compatibility: Comply with GB / T 18268-2000 (IEC 61326-1)
10. Working environment: temperature -40 ~ 80 $^{\circ}\text{C}$, humidity 10 ~ 90% RH
11. Degree of protection: IP20 body, required to be installed in the sensor junction box
12. Electromagnetic compatibility: Comply with GB / T 18268-2000 (IEC 61326-1)
13. Working environment temperature : -40 ~ 80 $^{\circ}\text{C}$, humidity 10 ~ 90% RH
14. Degree of protection: IP20 body, required to be installed in the sensor junction box

Dimensions

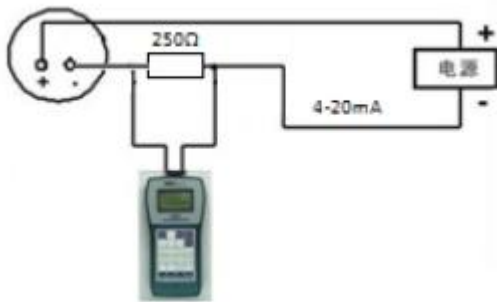


Terminal wiring diagram



Parameter settings

Perform digital communication through the universal HART Communicator to complete the parameter setting. The typical operation steps are as follows:



- 1) Connect the Communicator to the measurement circuit as shown in the figure, where a load resistance of 250Ω is required.
- 2) Set the sensor index number: Press the menu index "Detailed Settings" → "Setting Information" → "Information Prompt", and set the index number according to the information prompt listed in the «Temperature Sensor Index Number Table».
- 3) Set the measurement range: Press the menu index "Basic Settings" → "User Range", and set the zero and full points after entering.

Note:

1. When the user does not explicitly request it, the factory setting is:
2. Input signal: Pt100 thermal resistance
3. Measuring range: 0 ~ 100 °C
4. Damping time: 0.5S
5. In the normal working mode, flashing display `S n r b r`, which means that the sensor wiring is disconnected or severely over range. At this time, 22.8mA is output. Please check the wiring and sensor signal carefully.
6. In response to the user's special index number requirements, our company can negotiate and customize.

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