VPS802 Series Temperature Transmitter (Switch)

Operational Principle

During operation, changes in the thermocouple’ s measured thermoelectric potential (or resistance) create an unbalanced signal in the temperature transmitter’ s bridge circuit. After amplification, this signal is converted into a 4–20 mA DC current signal or a switching signal and then transmitted to the control instrument. The instrument subsequently displays the corresponding temperature value.

Product Application

- Electricity: Generators, steam boilers
- Petroleum: Reaction tower, distillation tower, sulfurization bed
- Chemical Industry
- Production of Chemical Fiber Raw Materials
- Agriculture: Greenhouse vegetables
- Food: Boilers, steam pipelines, edible oil processing
- Grains: Grain storage, Grain drying
- Medical: Incinerator
- Water: Condensate
- Detection equipment: Temperature test bench
- Metallurgy: Steel casting, smelting and processing

Product features

- Output in two-wire system: 4～20mA (compatible with HART protocol or 485 protocol), 1-5V output and switch signal
- Highly resistant to interference
- Cost-saving measures for compensating wires and installing temperature transmitters
- Wide measurement range (-200 to 1200°C)Cold-end temperature automatic compensation.
- Nonlinear correction circuit.
- Cold-end temperature automatic compensation

Technology Information

Product performance standard	IEC584 IEC1515 IEC751 JB/T7391-1994 GB3836			
Measurement range and tolerance	**Pt100 Thermistor (PS8000WZPB):** Temperature range: -200 to +500°C Class A error: ±(0.15+0.002|t|); Class B error: (0.30+0.005|t|). **Thermistors Cu50 and Cu100 (PS8000-WZCB):** Temperature range: -50 to +100°C Error: ±(0.30 + 0.005|t|) **K thermocouple calibration (PS8000-WRNB)** Level I error: ±1.5°C (-40 to +375°C), ±0.004|t| (375 to 1000°C) Level II error: ±2.5°C (-40 to +333°C), ±0.0075|t| (333 to 1200°C) **Thermocouple N division (PS8000-WRMB)** Level I error: ±1.5°C (-40 to +375°C), ±0.004|t| (375 to 1000°C) Level II error: ±2.5°C (-40 to +333°C) and ±0.0075|t| (333 to 1200°C) **Thermocouple E degree (PS8000-WREB)** Level I error: ±1.5°C (-40 to +375°C), ±0.004|t| (375 to 800°C) Level II error: ±1.5°C (-40 to +333°C), ±0.004|t| (333 to 900°C) **J-type thermocouple calibration (PS8000-WRFB)** Level I error: ±1.5°C (-40 to +375°C), ±0.004|t| (375 to 750°C) Level II error: ±1.5°C (-40 to +333°C) and ±0.004|t| (333 to 750°C) **Thermocouple T calibration (PS8000-WRCB)** Level I error: ±0.5°C (-40 to +125°C), ±0.004|t| (125 to 350°C) Level II error: ±1°C (-40 to +133°C), ±0.0075|t| (133 to 350°C) Note: t is the actual temperature measured by the temperature-sensing element			
Output signal	4-20mA (with optional HART or 485 protocol), 1-5V output, and switch signal Load resistance: 250Ω, transmission wire resistance: 100Ω			
Output method	Second-line system, third-line system...			
Tolerance class	0.2，0.5，0.1			
Power Supply Voltage	24VDC±10%			
levels of protection	IP65			
Insulation resistance	The insulation resistance between the instrument output terminal and the housing must be no less than 50MΩ.			
Work environment	Working Environment	Temperature ℃	Relative Humidity %	Atmospheric Pressure kPa
	Cx1	-25～+55		
	Cx2	-25～+70	5～+95	86～+106
	Cx3	-40～+80		
Anti-hazard classification	ExdⅡCT6 Gb 、ExiaⅡCT6 Ga			

Model and Naming Method

Product line					
PS8000-W	Temperature meter				
Class					
R	Thermocouple		Z	Heat Resistance	
Division mark	Thermistor material		Division number	Thermistor material	
N	Nickel-chromium silicon / Nickel-silicon M		P	Platinum Pt100	
Temperature Transmitter					
B	Temperature transmitter (4 ~ 20mA/1 ~ 5V)				
KG02	No analog output, 2 groups of switch signals		KG12	1 group: 4–20 mA analog signal + two switch signal groups	
Fixed installation type (specifications for threads or flanges must be specified in the contract)					
1	No fixed device	2	Fixed thread	3A （Default）	Movable baffle thread
				3B	Movable ferrule thread
4	Fixed flange	5	Movable flange	6	Clamp type
7	Contact block	8	Clamp type (pipe diameter size)	0	No thermal resistance
Type of junction box					
2	Cylindrical	2D	Cylindrical flameproof	2F	Cylindrical explosion-proof
3	water-proof type				
4	Industrial	5	Wall mounting type	6	Stainless steel
4D (default)	Explosion-proof	5D	Wall-mounted explosion-proof type	6D	Stainless steel explosion-proof
4F	intrinsic explosion-proof	5F	Wall-mounted security explosion-proof device	6F	Stainless steel explosion-proof
Protective pipe diameter (the contract must specify the insertion length below the thread or flange)					
0	Φ16	3	Φ3	6	Φ6
1	Φ12	4	Φ4	8	Φ8
2	Φ10	5	Φ5		
Gauge Display					
Signal output (default 4-20mA)					
CR	4-20mA output	VC	1-5VDC output	ZN	4-20mA output
ZX	485 protocol (industrial-grade products with 4-20mA output)				
Electrical connector					
D Hesman connector		H H3/H5 aviation plug (default 4-core/3-core/5-core)		CD* cable length	
Switch type					
N	NPN switch signal	P	PNP switch signal J relay	J	Relay
Others					

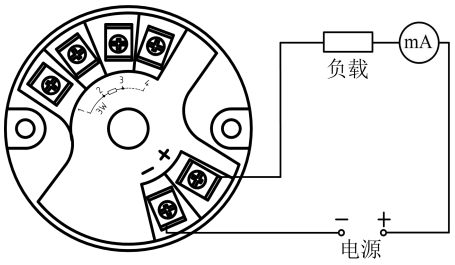
Connection method for pipelines (if threaded connections are used with on-site pipelines, the contract must specify the thread specifications)					
TH01	Protective tube welding	TH02A	Mounting base	TH03	Flange tube
		TH02B	Welded tube mounting base		
Protective casing diameter (length below the bevel must be specified in the contract)					
0	Φ16	1	Φ12	2	Φ10
Other requirements					

Example of selection

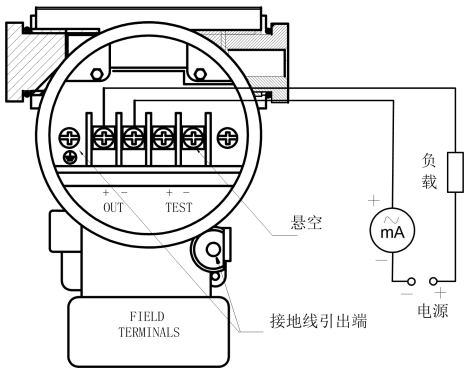
VPS802-WRNB-24D6S/FL/ZN-TH011

Mode of connection

1. No display transmitter wiring diagram

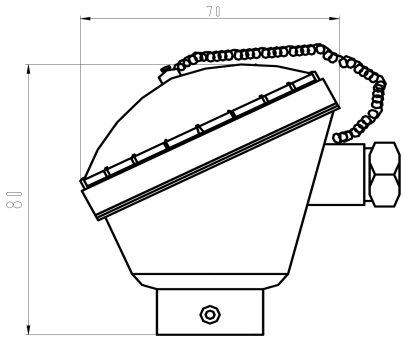


2. Display transmitter wiring diagram included

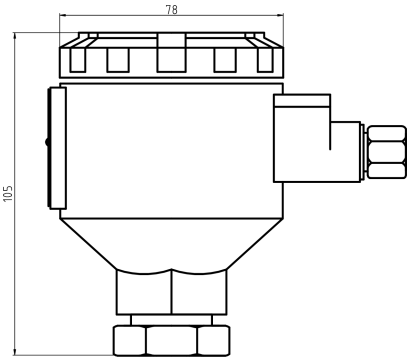


Wire box dimensions

Moisture-proof junction box



Explosion-proof junction box



Display case