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Datasheet

RTD Temperature Sensor

SUP-WZPK

# Supmea

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## Datasheet

### RTD Temperature Sensor SUP-WZPK

Screw-in temperature probes for standard applications are preferentially used for measuring temperatures in liquids and gases. A decisive selection criterion is the reliable sealing feature of this installation type with vacuum and with over-pressure. The application areas are, among others, in the air conditioning technology and refrigeration engineering as well as the HVAC and apparatus engineering sector.

Protection tubes made of various materials protect the measuring insert against chemical influences and mechanical damage. The appropriate protection tube material is selected according to the conditions on site.

#### Features

- Temperature range from -50 to +250 °C
- With built-in measuring insert
- As TC or RTD temperature probes
- Available with transmitters



## Principle

### **TC Principle**

A thermocouple is a closed loop circuit that consists of two dissimilar metal wires welded together at both ends. When a temperature difference exists between the two junctions, thermal electromotive force (EMF) is generated and an electric current flows in the closed circuit. The direction and magnitude of the EMF generated depend upon the temperature of the two junctions and upon the materials making up the thermocouple and are not affected by the size or length of the thermocouple wire. Temperature can be measured by knowing beforehand the change of EMF per degree change of temperature for a certain thermocouple.

### **RTD Principle**

Generally, electrical resistance of metal varies, depending on the temperature. Platinum in particular is more linear and has a larger temperature coefficient than most other metals. It is therefore, most suitable for temperature measurements. Platinum has excellent properties chemically and physically. Industrial high purity elements are readily obtained for long term use as a resistance elements for temperature measurements. The characteristics are specified in JIS and other foreign standards; thus, it permits a highly accurate temperature measurement.

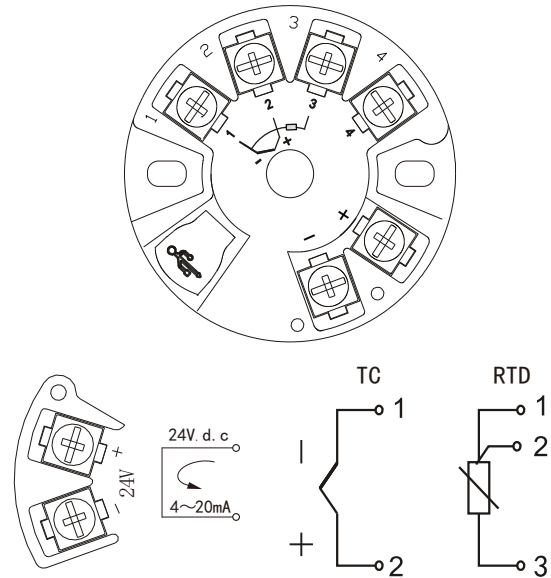
Parameters		
Input		
Input Signal	Pt100	Resistance temperature detector(RTD) thermocouple (TC)
	Pt1000	Resistance temperature detector(RTD)
Cold-junction Compensation Temperature Scope	-20~60℃	
Compensation Precision	±1℃	
Output		
Output Signal	4-20mA	
Load Resistance	$RL \leq (U_e - 12) / 0.021$	
Output Current of Upper and Lower Limit Overflow Alarm	IH=21mA, IL=3.8mA	
Power Supply		
Supply Voltage	DC12-40V	
Other Parameters		
Temperature Drift	0.02%FS/℃ (Standard)	
	0.0075%FS/℃ (Isolated)	
Response Time	Reach to 90% of the final value for 1s	
Used Environmental Temperature	-40~80℃	
Storage Temperature	-40~100℃	
Aseismicity	4g/2~150Hz	
Installation Angle	Unlimited	
Installation Area	B-type top cassette installation	
Electromagnetic Compatibility	Conform to GB/T18268 industrial equipment application requirements (IEC 61326-1)	
Isolated Type		
Insulation Strength (between input and output)	1500Vrms (1 min, without spark)	
Insulation Resistance (between input and output)	≥100MΩ (under the 500 VDC)	

## Wiring

### Pt100

#### Note:

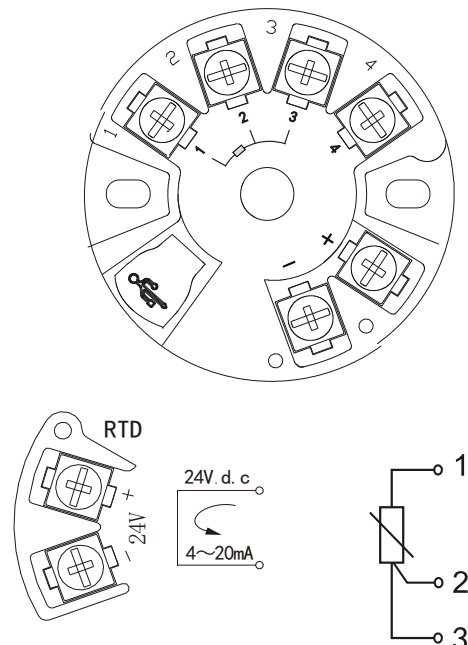
- ① When wiring a 2-wire RTD input, terminals 1 and 2 must be shorted.
- ② When wiring a 3-wire RTD input, the resistance of the three leads should be as equal as possible, and the resistance of each lead must not exceed  $10\Omega$ .
- ③ When wiring a thermocouple input, the compensation cables should be connected directly to the instrument's input terminals. No wires of other materials should be connected in between, otherwise measurement errors will occur.



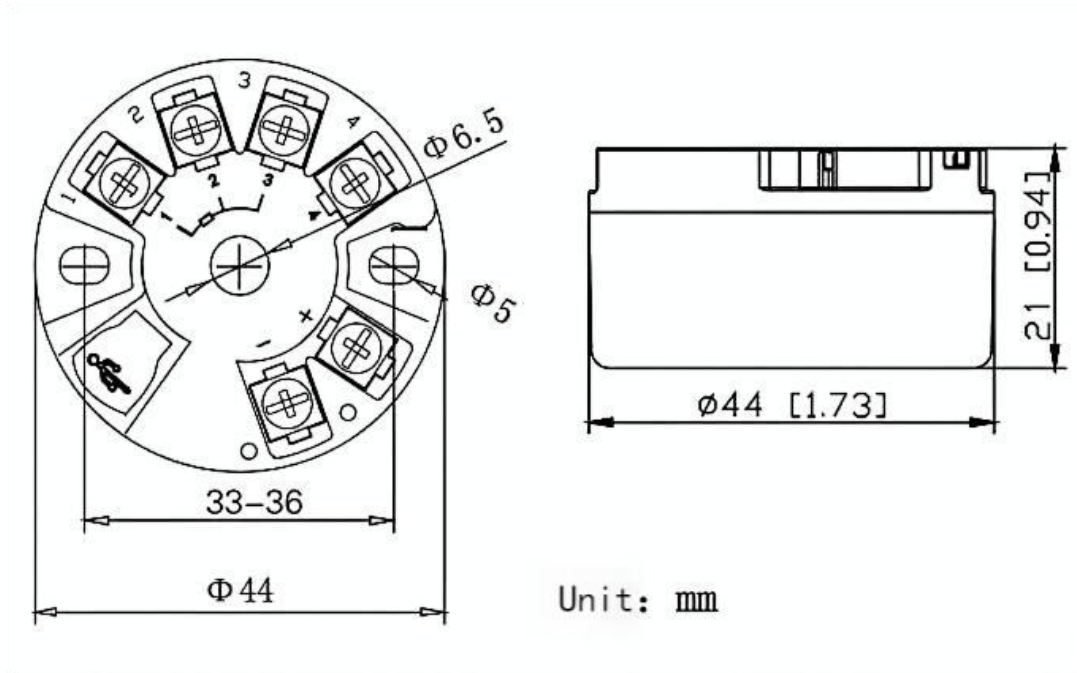
### Pt1000

#### Note:

When using a three-wire RTD input, the resistance of the three leads should be as equal as possible, and the resistance of each lead must not exceed  $10\Omega$ .



Dimension



**Ordering Code**

SUP-WZPK -PA-00-L2-06-1H-0-M1-M1-50-WF										Description	
SUP-WZPK	-	-	-	-	-	-	-	-	-	-	
RTD Type	PA										Pt100, A Class
	PC										Pt100 Dual, A Class
	PD										Pt1000, A Class
	XX										Others
Transmitter Output and Power Supply	00										Not Available
	A1										Two Wire 4-20mA
	XX										Others
Process Connection	L2										M20×1.5 Thread
	L3										M27×2 Thread
	G1										G1/2 Thread
	G4										G3/4 Thread
	L1										M14×1.5 Thread
	G2										G1/4 Thread
	NC										NPT1/2 Thread
	NE										NPT3/4 Thread
	NA										NPT1/4 Thread
	KB										G1/2 Sleeve
	AK										2" Clamp
	00										Not Available
	XX										Others
Probe (Sheath) Diameter	06										Φ6mm
	08										Φ8mm
	1E										Φ8mm Core-Pull Type
	2E										Φ10mm Core-Pull Type
	3E										Φ12mm Core-Pull Type
	4E										Φ16mm Core-Pull Type
	5E										Φ8mm Detachable Sleeve
	9E										Φ10mm Detachable Sleeve
	6E										Φ12mm Detachable Sleeve
	AE										Φ14mm Detachable Sleeve
	7E										Φ16mm Detachable Sleeve
	04										Φ4mm
	XX										Others
Probe (Sheath) Length	1H										100mm
	2H										200mm
	3H										300mm
	4H										400mm

	5H					500mm
	6H					600mm
	7H					700mm
	8H					800mm
	9H					900mm
	1T					1000mm
	20					20mm
	30					30mm
	40					40mm
	50					50mm
	60					60mm
	80					80mm
	XX					Others
Probe Type	0					Insertion Depth Without Thread
	1					Insertion Depth With Thread
Process Connection Material	M1					304SS
	M3					316LSS
Probe Material	M1					304SS
	M3					316LSS
	XX					Others
Cold End Length	50					50mm
	1H					100mm
	00					0mm
	XX					Others
Terminal Head	WF					M20×1.5 Cable Gland, Aluminum Alloy, IP65
	XX					Others