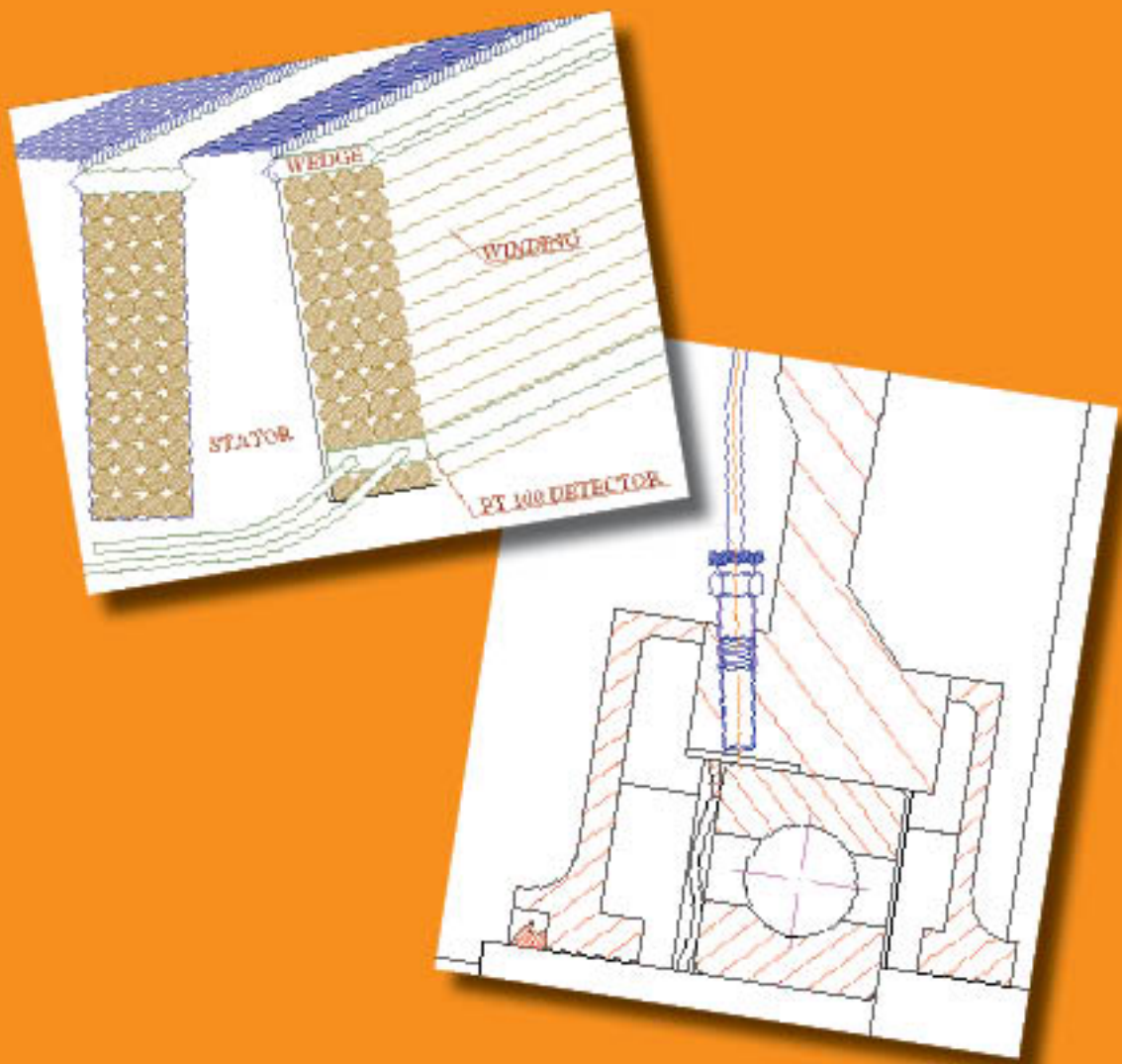


# PT 100 Detectors for Winding and Bearings





## PT100 FOR BEARINGS

### Application

Used as sensors of temperature measurement, the platinum thermal resistors are usually used together with displays, recorders and control devices. They are able to measure temperatures ranging from  $-50\text{ }^{\circ}\text{C}$  to  $180\text{ }^{\circ}\text{C}$  and used to measure the temperature of motor bearings as well as in the working fields of textile, machinery, railway engines that need temperature measurement. The sensors are easy to install. They are able to indicate the real working temperature of bearings and the real temperature of the spot being measured. So it is easy to record, control and regulate.

### Features

The sensors are made of firmed platinum thermal resistance components imported from Germany. The sensors are of solid state. The quality is according the IEC, the international standard. The resistance value of platinum resistors will change when temperature changes. The relationship between the temperature and resistance is close to that of linearity. They have a very slight allowable deviation and the quite stable electrical property. They are small in size, strong in vibration and reliable in operation. They also have good features such as accuracy, sensitiveness, stability, and endurance, strength, which will give customers much convenience in application.

Type	Measurement Range	Graduation Mark Class of Precision	Class of Precision	Allowable Deviation $\Delta$ t $^{\circ}\text{C}$	Thermal Response time	Insulating Resistance
WZPM-201	$-50^{\circ}\text{C}\sim 180^{\circ}\text{C}$	PT100 PT500 PT1000	A	$\pm(0.15+0.002t)$	6 seconds	$\geq 200\text{M}\Omega$

Side of Temperature Measurement		Lead-out wire					Application
Specification	Material	Length	Specification	Material	Heal Resistance	shield	
$\varnothing 6 \times 18$ Thread M8 X 0.75	1Cr18Ni9Ti	According to Customers	3 X 0.12mm <sup>2</sup> 7/0.15	High Strength fluorine 46 insulation lead-out wire	200 $^{\circ}\text{C}$	With shield	To measure the temperature of motor winding

### Working principle

The platinum thermal sensors measure the temperature by using the characteristic of which the resistance value of platinum itself changes while the temperature is changing. The display will show the corresponding temperature value by the resistance value of platinum. When there is a temperature gradient inside the dielectric being measured, the measured temperature is the average one inside the dielectric layer within the range of sensitive components

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### Indication of type

W Z P M - 2 0 1 / W Z P<sub>2</sub> M - 2 0 1

W	Z	P	M	-	2	0	1
Temperature meter							Outer diameter of the protective pipe is $\varnothing 6$
Thermal resistor							Type of no connection box
Platinum thermal resistor P <sub>2</sub> is double platinum thermal resistors							Threaded type
Terminal face temperature measurement							

### Orders

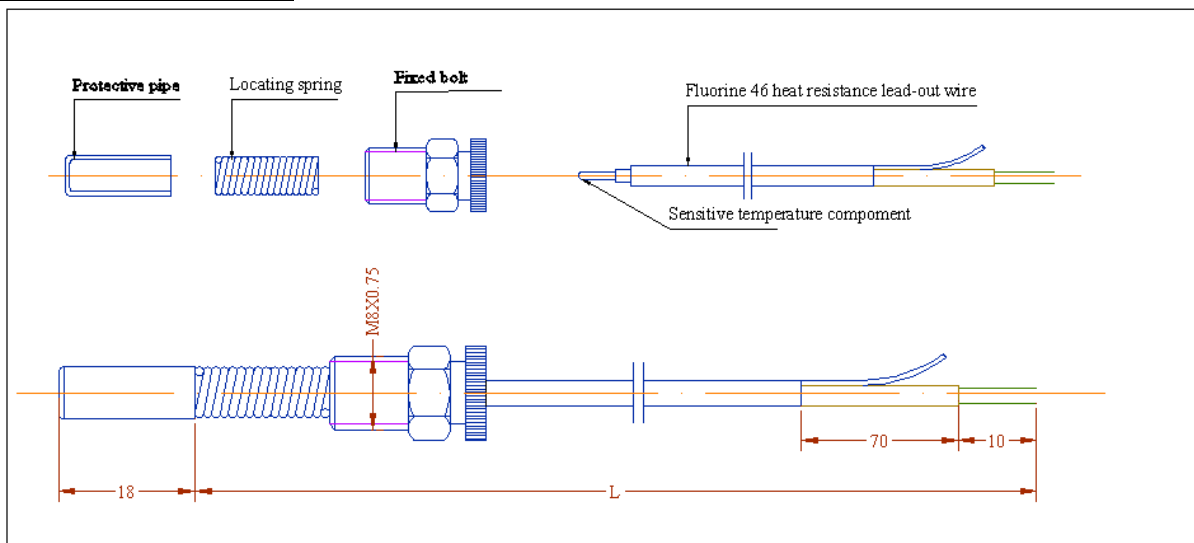
Detail types, outer of protective pipes, graduation marks of platinum thermal resistors and length of lead-out wire are preferred when you place a purchase order.

Special orders shall be made through negotiation between two sides.

For example: Single platinum thermal resistor WZPM-201, outer diameter of protective pipe is  $\varnothing 6 \times 18$ , the graduation mark of platinum thermal resistors is Pt100, the length of lead-out wire is 2000mm.

Double platinum thermal resistor WZP<sub>2</sub>M-201, outer diameter of protective pipe is  $\varnothing 6 \times 18$ , the graduation mark of platinum thermal resistors is Pt100, the length of lead-out wire is 3000mm.

### Overall dimension





**Installation instruction**

Fix the sensor of platinum thermal resistance on the location where temperature measurements are needed. Do not give much tension to the lead-out wire and then connect the wire to the control circuit. Pay attention to keep the electric current below the rated value in order to keep the component from temperature increasing in its return circuit, which will affect its performances.



## PT 100 FOR WINDING

### Application

WZPD series of embedded sensors of platinum thermal resistance for motors are suitable for making temperature measurement components for big and medium-size motor winding. Used together with displays, the sensors are able to measure temperature of motor winding directly. They are also suitable for other facilities of the same requirements.

### Features

The sensors are made of firmed platinum thermal resistance components.. The quality is according the IEC, the international standard. The resistance value of platinum resistors will change when temperature changes. The relationship between the temperature and resistance is close to that of linearity. They have a very slight allowable deviation and the quite stable electrical property. They are accurate in measurement, durable in operation and strong in vibration. The sensitive components and the weld points of the lead-out wire are all sealed up. So they are quite reliable.

Graduation Mark Class of Precision	Class of Precision	Measurement Range	Allowable Deviation $\Delta t$ °C	Thermal Response time	Insulating Material	Application
PT100	A	-50°C~180°C	$\pm(0.15+0.002t)$	4 seconds	Insulating board of epoxy resin	To measure the temperature of motor winding

Length l		Width b		Thickness $\delta$		Lead-out wire		
Basic size	Deviation	Basic size	Deviation	Basic size	Deviation	Length L	Specification	Shield
60	+20	8/10	0-0.2	2	0-0.2	150	3X0.12mm <sup>2</sup> 7/0.15	Without shield
400								
1000						3X0.12mm <sup>2</sup> 7/0.15	With shield	
2000								
3000								
4000								
500						5000		

### Working principle

The platinum thermal sensors measure the temperature by using the characteristic of which the resistance value of platinum itself changes while the temperature is changing. The display will show the corresponding temperature value by the resistance value of platinum. When there is a temperature gradient inside the dielectric being measured, the measured temperature is the average one inside the dielectric layer within the range of sensitive components.



### Indication of type

W Z P D - 1 0 0 X 1 0 X 2

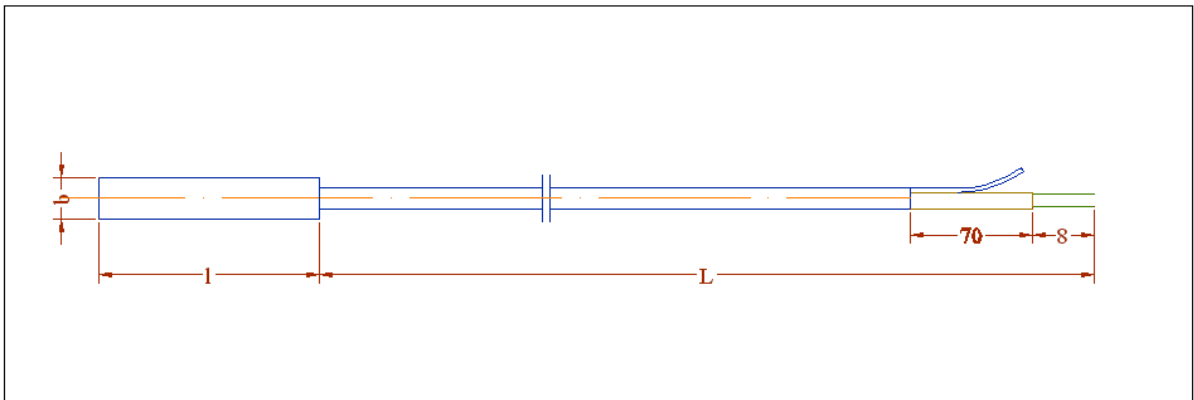
W	Z	P	D	-	100 X	10 X	2
Temperature meter							Thickness of measuring component
Thermal resistor							Width of measuring component
Platinum thermal resistor							Length of measuring component
Embedded type							

### Orders

Detail types, length of lead-out wire, with or without shield are preferred when you place a purchase order. Special orders shall be made through negotiation between two sides.

For example: WZPD-200X10X2, length of lead-out wire 4000mm, with shield.

### Overall dimension



### Installation instruction

Fix the sensor of platinum thermal resistance on the location where temperature measurements are needed. Do not give much tension to the lead-out wire and then connect the wire to the control circuit. Pay attention to keep the electric current below the rated value in order to keep the component from temperature increasing in its return circuit, which will affect its performances.



### Technical data

Name	Graduation Mark	Measurement Range °C	Class of Precision	Deviation $\Delta t$ °C
Platinum resistor	Pt 100	-50~200	1/3DIN	$\pm (0.10+0.0017  t )$
			A	$\pm (0.15+0.002  t )$
			B	$\pm (0.30+0.005  t )$

### Graduation table of platinum thermal resistance

Marked Resistance Value ( $\Omega$ )	Pt 100	Pt 500	Pt 1000
Temperature (°C)	Resistance Value ( $\Omega$ )		
-50	80.31	401.53	803.07
0	100.00	500.00	1000.00
50	119.40	596.98	1193.95
100	138.51	692.50	1385.00
150	157.33	786.57	1573.15
200	175.86	879.20	1758.40
250	194.10	970.37	1940.74
300	212.05	1060.09	2120.19
350	229.72	1148.37	2296.73
400	247.09	1235.19	2470.38
450	264.18	1320.56	2641.12
500	280.98	1404.48	2808.96
550	297.49	1486.95	2973.90



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