

RESISTANCE THERMOMETER (RTD) 白金测温阻抗体

TYPE OF RTD SENSOR 白金测温阻抗体种类

JIS C1604-1997

normal resistance value at 0°C 0°C 阻抗值	class 等级	measuring current 规定电流	R100 / R0
Pt100Ω JPt100Ω	A B	below 2 mA	1.3851 1.3916

- Note : 1. R100 is the resistance value of the sensing resistor at 100°C 注: 1. R100为在100°C时阻抗元件之阻抗值。
 2. R0 is the resistance value of the sensing resistor at 0°C 2. R0为在0°C时阻抗元件之阻抗值。
 3. JPt100 was abolished from JIS 3. JPt100已经废止。

TOLERANCE of RTD 白金测温阻抗体精确度

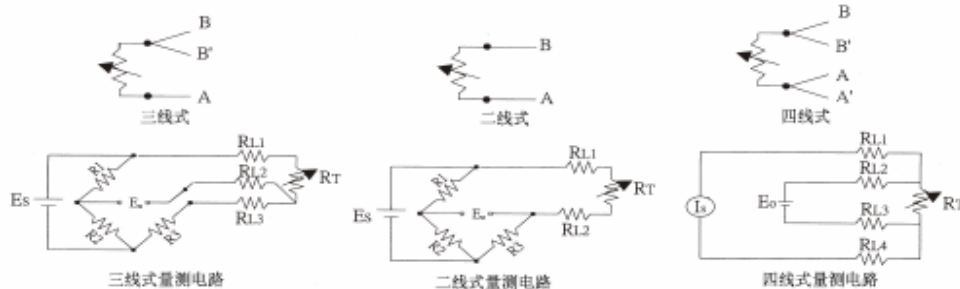
规格 种类	JIS C1604-1997 IEC Pub.751-1983	
	class 等级	tolerance 容许差(°C)
Pt100Ω R100 / R0 = 1.3851	A	+/- (0.15+0.002 t)
	B	+/- (0.3+0.005 t)

- Note 1. Tolerance is defined as the maximum allowable deviation from the temperature vs. resistance reference table.
 2. |t| = modulus of temperature in degrees Celsius without regard sign.
- 注: 1. 容许误差为阻抗元件之量测阻抗值依标准阻抗值表所换算之值(温度)减去测定温度所得值, 该差值最大限度之容许值称之为容许误差。
 2. |t| 为无关 +、- 符号以温度(°C)表示之测定温度。
 2. R0为在0°C时阻抗元件之阻抗值。
 3. JPt100已经废止。

RTD TEMPERATURE RANGE

LOW TEMP(低温): -200 ~ +100 °C	MID TEMP(中温): 0 ~ +350 °C	HIGH TEMP(高温): 0 ~ +600 °C
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WIRING METHOD OF RTD SENSOR 测度阻抗体之接线方式



Two-conductor type:

Since a conductor resistance is added to the resistance value, it is necessary to reduce the conductor resistance in advance. This type is not usually used, except for a high resistance RTD's.

Three-conductor type:

Use to eliminate the effect of conductor resistance, care should be taken for long-distance transmission because a variation of resistance of conductors has an effect on accuracy. This type of connection is most widely used in industrial applications.

Four-conductor type:

This type of connection is used for high-accuracy measurement and standards because it is not affected by conductor resistance. Generally, a constant current is applied and the resistance value is measured by a potential difference.

2 導線式：

因阻抗值須加算導線阻抗，雖然導線阻抗值非常小，但有必要於開始就知道導線之阻抗值。相較之下，R為高阻抗之場合以外不太被使用之型式。

3 導線式：

一般最常被採用的型式。此種型式各導線之材質、線徑、長度與線阻抗要相等，且全長之溫度分佈必須要等溫。因導線3線之差異將對於精度有不良之影響，在長距離傳輸時必須要注意。

4 導線式：



導線阻抗並不會對精度造成很大之影響，被使用在高精度計測時。一般量測時給與固定電流，再依電位差測定阻抗值。



MINERAL INSULATED RTD (金屬被覆熱電阻元件)

1. wide application in measuring small diameter is very useful for the place where space is at premium . 應用範圍廣，受空間限制小直徑特別有用。
2. quick response 反應速率快。
3. easily bent for installation 可撓性大。
4. long life span 壽命長。
5. excellent mechanical strength and pressure resistance 機械強度及耐壓性強。





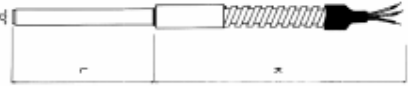






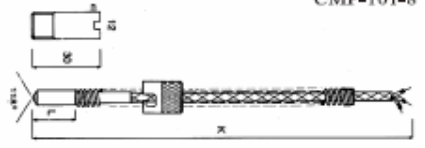
standard specification of AEROPAK[®] sheath RTD

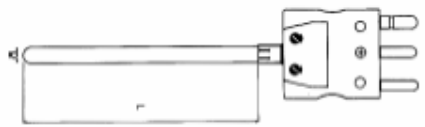


	sheath (mm)			wire dia (mm) 素線徑	maximum length (M) 最大長度(米)
	O.D 外徑	t 肉厚	MATERIAL 材質		
SINGLE ELEMENT (單組) 	Ø 1.6	0.25	SUS 316	Ø 0.25	100
	Ø 3.2	0.47		Ø 0.51	83
	Ø 4.8	0.72		Ø 0.76	35
	Ø 6.4	0.93		Ø 1.00	20
	Ø 8.0	1.16		Ø 1.30	11.5
	Ø 9.0	1.25		Ø 1.46	21
	Ø 12.75	1.8		Ø 1.50	10.5
DOUBLE ELEMENT (雙組) 	Ø 3.2	0.38	Ø 0.3	83	
	Ø 4.8	0.72	Ø 0.5	35	
	Ø 6.4	0.93	Ø 0.72	20	
	Ø 8.0	1.16	Ø 0.9	11.5	
	Ø 9.0	1.25	Ø 1.00	21	
	Ø 12.75	1.8	Ø 1.5	10.5	

熱電阻接線圖 Wiring diagram of RTD

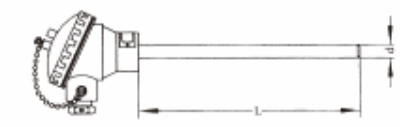
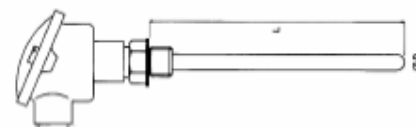
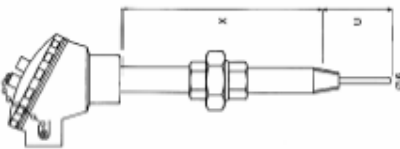
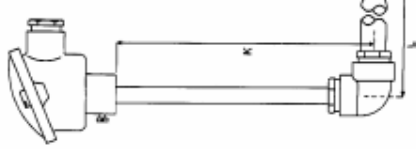
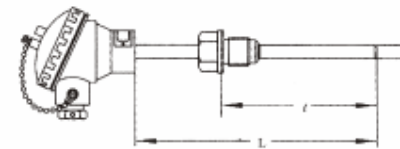
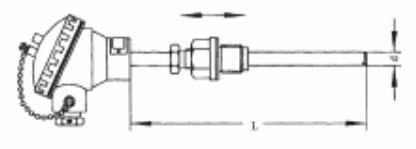

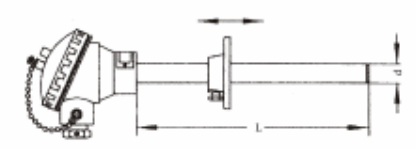
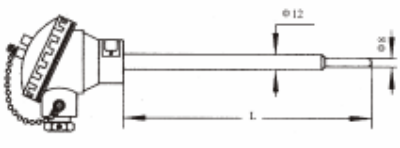
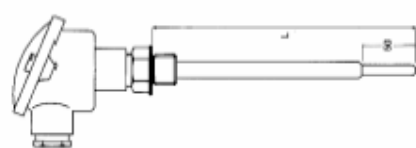
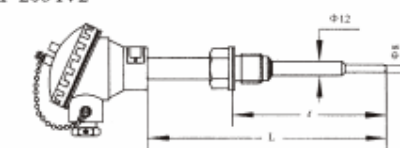
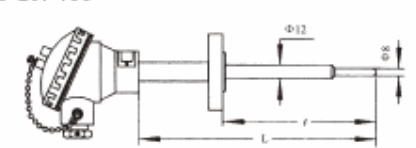


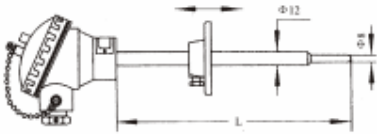
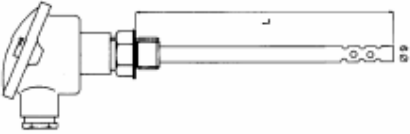
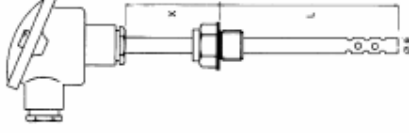
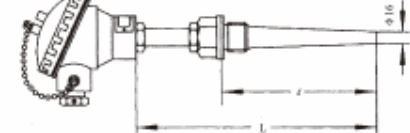
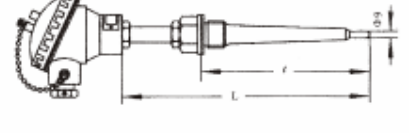

GENERAL RTD (1) 一般热电阻型式 (1)

Basic RTD 基本型	general purpose tube and wire RTD 金属被覆型
<p>CMP-201</p> 	<p>CMP-201-6</p> 
Flexible RTD extension 延长型	general purpose tube and wire RTD 金属被覆型
<p>CMP-203</p> 	<p>CMP-201-6a</p> 
General purpose tube and armor wire RTD 金属蛇管被覆型	general purpose tube and wire RTD 金属被覆型
<p>CMP-201-6b</p> 	<p>CMP-201-6c</p> 
O Type general purpose tube and wire RTD 末端O型金属被覆型	spade RTD 片状型
<p>CMP-201-6F</p> 	<p>CMP-201S</p> 
threaded nozzle RTD 螺丝坎入型(2)	armor adjustable immersion RTD 金属蛇管弹簧可调浸入型
<p>CMP-201B</p> 	<p>CMP-201C</p> 
DIN terminator RTD DIN型端子	Spring adjustable immersion RTD 弹簧可调浸入型
<p>CMP-205DIN</p> 	<p>CMP-101-8</p> 

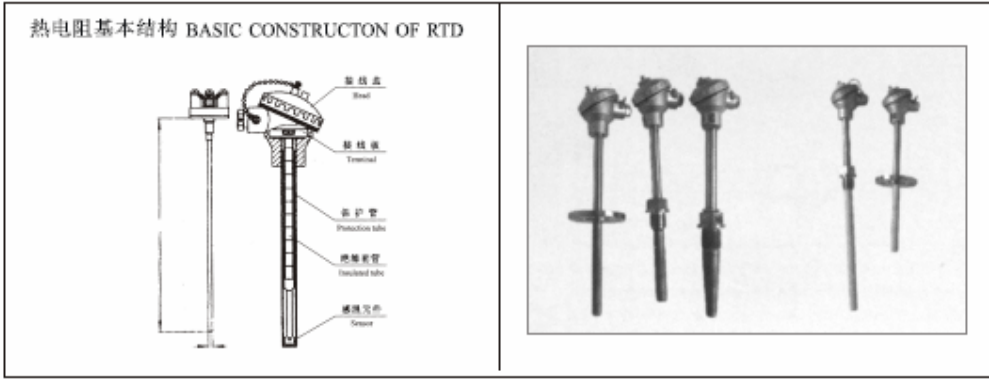
Plug RTD 快速接头热电阻 SP-70M 	Plug RTD 快速接头热电阻 SP-70FE 
Round plate RTD 圆盘热电阻 SP-70R 	

model 型号	201, 201-6, 203, 201-6a, 201-6b, 201-6c, 201-6F, 201s, 201c, 101-8 201-B, 205DIN, SP-70R, SP-70M, SP-70FE		
type of element 类型	A =Pt 100 Ω , B =JPt 100 Ω , C =Pt 500 Ω , D =OTHER ,		
element quantity 测温点数量	S=Single , D=DUAL , O=OTHER		
process connection parts 制程接和附件	5 =None , 7=fixed type bushing , 8=compression fitting , 9=compression fitting with bushing 10=compression fitting with bayonet cap and spring if need connection parts , See page (20,21) please note connection size : _____ inch (PT , NPT , G , R)		
terminal connector 接线端子	O=O type Y=Y type, T=T type, S=standard connector, M=mini connector see page(19)		
probe material 外管材质	S4=SUS304, S6=SUS316, S10 = SUS310 , NCF=INCONEL 600 , CERA=ceramic , TEF = Teflon		
probe diameter 外管直径	Ø mm , Ø2.3 mm , Ø3.2 mm , Ø4.8 mm , Ø6.4 mm , Ø9 mm , Ø12.7 mm , Ø21.7 mm , specify		
probe length 外管长度	_____ mm		
lead wire length 导线长度	flexible SUS316 tube armor length (if need) + leadwire length		
lead wire insulated material 导线绝缘材质	PVC, fiber glass teflon, (page 25,26,27)		
measuring junction 测温点种类	2= 2 wired , 3= 3 wired , 4= 4 wired		
CLASS 等级	A= CLASS A , B =CLASS B		

无固定装置式热电阻 Non-Fixed Type RTD	固定螺栓式热电阻 Fixed Screw-In Type RTD
<p>CMP-207</p> 	<p>CMP-206</p> 
延长型热电阻 Extended type RTD	角尺式热电阻 Right angle RTD
<p>CMP-206 UN</p> 	<p>CMP-207L</p> 
固定螺栓式热电阻 Fixed Screw-In Type RTD	活动螺栓式铂热电阻 Movable Screw-In Type Pt-RTD
<p>CMP-206-1</p> 	<p>CMP-206M</p> 
固定法兰式热电阻 Fixed Flange Type RTD	活动法兰式热电阻 Movable Flange Type RTD
<p>CMP-207F</p> 	<p>CMP-207MF</p> 
无固定装置变径式铂热电阻 Non-Fixed Type Pt-RTD With Variable Diameter	固定螺栓变径式热电阻 Fixed Screw-in With Variable diameter RTD
<p>CMP-207 IV1</p> 	<p>CMP-206 IV1</p> 
固定螺栓变径式铂热电阻 Fixed Screw-in Type Pt-RTD With Variable Diameter	固定法兰变径式铂热电阻 Fixed Flange Type Pt-RTD With Variable Diameter
<p>CMP-206 IV2</p> 	<p>CMP-207 VFF</p> 

活动法兰变径式铂电阻 Movable Flange Type P-RTD With Variable Diameter	空气用热电阻 Air type RTD
CMP-207VMF 	CMP-206 Air 1 
空气用热电阻 Air type RTD	固定螺紋錐形保護管式鉑熱電阻 Fixed Screw-In Type P-RTD with Tapered Drilled Tube
CMP-206 Air 2 	CMP-207 ITW 
固定螺紋錐形保護管變長式鉑熱電阻 Fixed Screw-In P-RTD With Variable Diameter Tapered Drilled Thermowell	延長型热电阻 Extended sheath type RTD
CMP-207-IVTW 	CMP-206 UN-SH 

RTD basic model & appearance shape (热电阻元件基本型式和外观)



model 型号	206, 207, 206NU, 207L, 206-1, 206M, 207F, 207MF, 207-IV1		
	206-IV1, 206-IV2, 207-VFF, 207-VMF, 206-Air1, 206-Air2, 207-ITW, 207-IVTW, 206-UNSH		
type of element 种类	A =Pt 100 Ω , B =Pt 100 Ω , C =Pt 500 Ω , D =OTHER ,		
element quantity 测温点数量	S=Single , D=DUAL , O=OTHER		
probe extension & connection type 测温管接和方式	5 =None , 6NUN=nipple-union-nipple , 6N=Nipple , 6NU=nipple-union 7=fixed type bushing , 8=compression fitting , 9=compression fitting with bushing Page(19,20,21) if need extension parts , please note extension length = ___ mm & connection size : ___ inch PT (or other) ,		
spring loaded 弹簧伸缩	0=with , 1=without		
terminal head 接线盒	KB , KNC , KI , KD , KT , LS , 1080AE(explosion) , 1080SE(explosion) Page(18)		
PROBE MATERIAL 测温管材质	S4=SUS304 , S6=SUS316 , S10 = SUS310 , NCF=INCONEL 600 , TEF =Teflon		
probe diameter 测温管直径	Ø1.8 mm , Ø2.3 mm , Ø3.2 mm , Ø4.8 mm , Ø6.4 mm , Ø9 mm , Ø12.7 mm , Ø21.7 mm ,specific		
probe length 测温管长度	_____ mm		
measuring junction 测温点种类	2= 2 wired , 3= 3 wired , 4= 4 wired		
CLASS 等级	Class A Class B		
THERMOWELL 保护套管	TW=with thermowell NTW=without thermowell (see page 22,23,24)		