

RESISTANCE THERMOMETER (RTD)

TYPE OF RTD SENSOR

JIS C1604-1997

normal resistance value at 0 °C	class	measuring current	R100 / R0
Pt100Ω JPt100Ω	A	below 2 mA	1.3851
	B		1.3916

- Note :
1. R100 is the resistance value of the sensing resistor at 100°C
 2. R0 is the resistance value of the sensing resistor at 0°C
 3. JPt100 was abolished from JIS

TOLERANCE of RTD

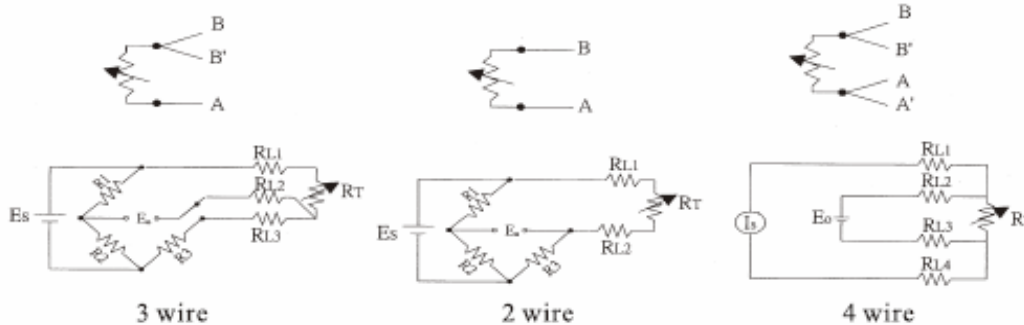
standard / symbol	JIS C1604-1997 IEC Pub.751-1983	
	class	tolerance (°C)
Pt100Ω R100 / R0 = 1.3851	A	+/- (0.15+0.002 t)
	B	+/- (0.3+0.005 t)

- 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.

RTD TEMPERATURE RANGE

LOW TEMP: -200 ~ +100 °C	MID TEMP: 0 ~ +350 °C	HIGH TEMP: 0 ~ +600 °C
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WIRING METHOD OF RTD SENSOR



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.

MINERAL INSULATED RTD

1. wide application in measuring small diameter is very useful for the place where space is at premium .
2. quick response
3. easily bent for installation
4. long life span
5. excellent mechanical strength and pressure resistance












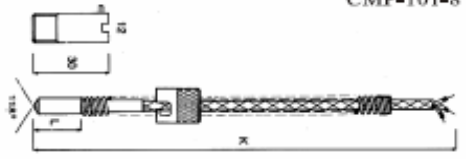
standard specification of AEROPAK[®] sheath RTD



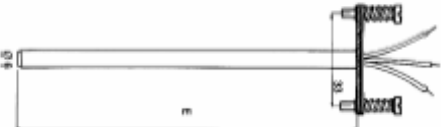
	sheath (mm)			wire dia(mm)	maximum length(M)
	O.D	t	MATERIAL		
SINGLE ELEMENT 	Ø 1.6	0.25	SUS 316	Ø 0.25	100
	Ø 3.2	0.47		Ø 0.51	83
	Ø 4.8	0.72		Ø 0.76	35
	Ø 6.4	0.93		Ø 1.00	20
	Ø 8.0	1.16		Ø 1.30	11.5
	Ø 9.0	1.25		Ø 1.46	21
	Ø 12.75	1.8		Ø 1.50	10.5
DOUBLE ELEMENT 	Ø 3.2	0.38	Ø 0.3	83	
	Ø 4.8	0.72	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	

Wiring diagram of RTD


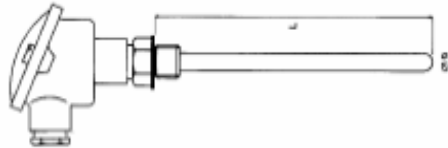
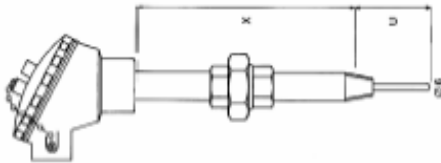
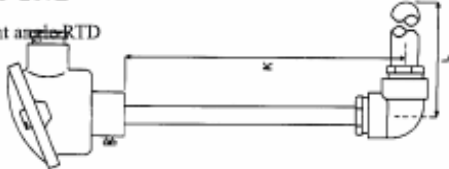
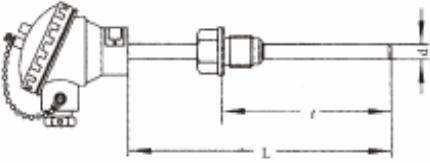
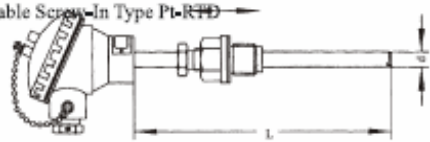
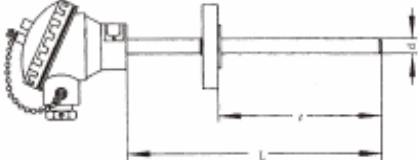
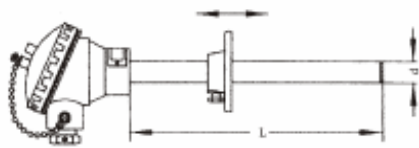
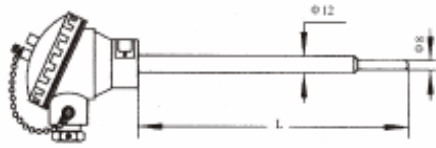
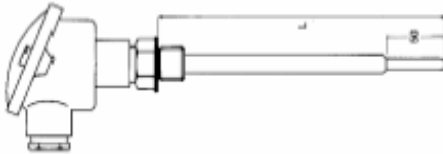
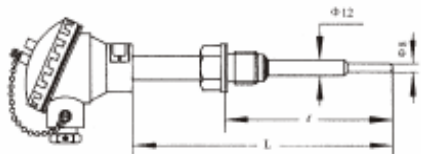
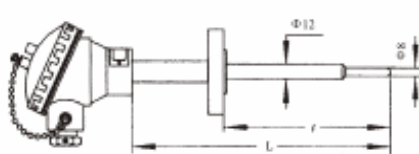


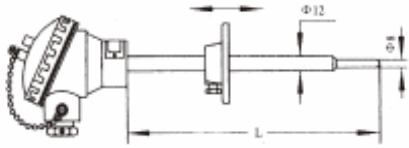
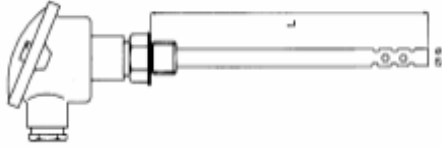
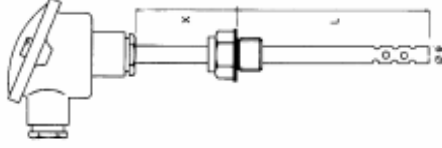
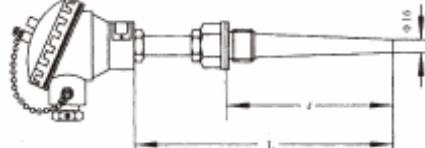
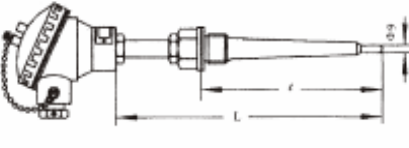
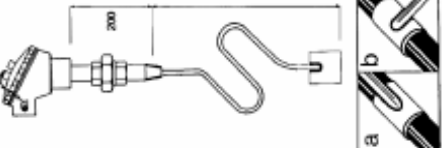
GENERAL RTD (1)

Basic RTD	general purpose tube and wire RTD
CMP-201 	CMP-201-6 
Flexible RTD extension	general purpose tube and wire RTD
CMP-203 	CMP-201-6a 
General purpose tube and armor wire RTD	general purpose tube and wire RTD
CMP-201-6b 	CMP-201-6c 
O Type general purpose tube and wire RTD	spade RTD
CMP-201-6F 	CMP-201S 
threaded nozzle RTD	armor adjustable immersion RTD
CMP-201B 	CMP-201C 
DIN terminator RTD	Spring adjustable immersion RTD
CMP-205DIN 	CMP-101-8 

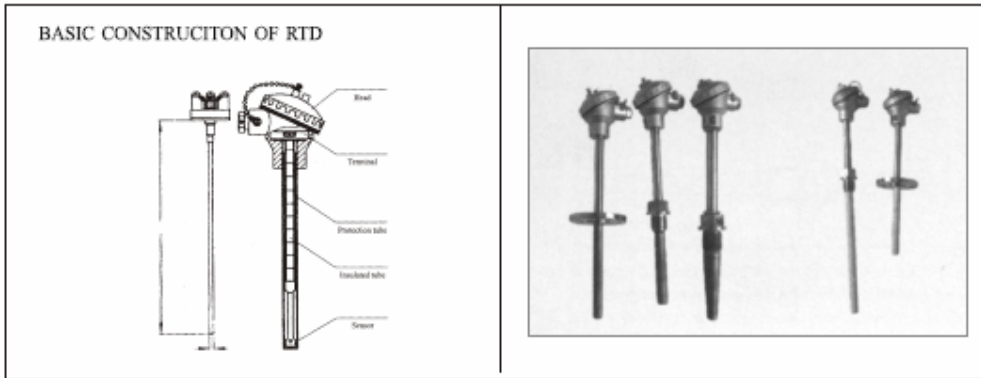
Plug RTD	Plug RTD
SP-70M 	SP-70FE 
Round plate RTD	
SP-70R 	

model	CMP 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	A =Pt 100 Ω , B =JPt 100 Ω , C =Pt 500 Ω , D =OTHER ,		
element quantity	S=Single , D=DUAL , O=OTHER		
process connection parts	5 =None , 7=fixed type bushing , 8=compression fitting , 9=compression fitting with bushing , 10=compression fitting with bayonet cap and spring See page (20,21) if need connection parts , please note connection size : ____ inch (PT , NPT, G , R)		
terminal connector	O=O type Y=Y type, T=T type, S=standard connector, M=mini connector see page(19)		
probe material	S4=SUS304 , S6=SUS316, S10 = SUS310 , NCF=INCONEL 600 , CERA=ceramic , TEF = Teflon		
probe diameter	Ø1.6 mm , Ø2.3 mm , Ø3.2 mm , Ø4.8 mm , Ø6.4 mm , Ø9 mm , Ø12.7 mm , Ø21.7 mm , specify		
probe length	____ mm		
lead wire length	flexible SUS316 tube armor length (if need) + leadwire length		
lead wire insulated material	PVC, fiber glass teflon, (page 25,26,27)		
measuring junction	2= 2 wired , 3= 3 wired , 4= 4 wired		
CLASS	A= CLASS A , B =CLASS B		

<p>Non-Fixed Type RTD</p> <p>CMP-207</p> 	<p>Fixed Screw-In Type RTD</p> <p>CMP-206</p> 
<p>Extended type RTD</p> <p>CMP-206 UN</p> 	<p>CMP-207L</p> <p>Right angle RTD</p> 
<p>Fixed Screw-In Type RTD</p> <p>CMP-206-I</p> 	<p>CMP-206M</p> <p>Movable Screw-In Type Pt-RTD</p> 
<p>Fixed Flange Type RTD</p> <p>CMP-207F</p> 	<p>Movable Flange Type RTD</p> <p>CMP-207MF</p> 
<p>Non-Fixed Type Pt-RTD With Variable Diameter</p> <p>CMP-207 IV1</p> 	<p>Fixed Screw-in With Variable diameter RTD</p> <p>CMP-206 IV1</p> 
<p>Fixed Screw-in Type Pt-RTD With Variable Diameter</p> <p>CMP-206 IV2</p> 	<p>Fixed Flange Type Pt-RTD With Variable Diameter</p> <p>CMP-207 VFF</p> 

<p>Movable Flange Type Pt-RTD With Variable Diameter</p>	<p>Air type RTD</p>
<p>CMP-207VMF</p> 	<p>CMP-206 Air 1</p> 
<p>Air type RTD</p>	<p>Fixed Screw-In Type Pt-RTD with Tapered Drilled Tube</p>
<p>CMP-206 Air 2</p> 	<p>CMP-207 ITW</p> 
<p>Fixed Screw-in Pt-RTD With Variable Diameter Tapered Drilled Thermowell</p>	<p>Extended sheath type RTD</p>
<p>CMP-207-IVTW</p> 	<p>CMP-206 UN-SH</p> 

RTD basic model & appearance shape



model CMP	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	A =Pt 100 Ω , B =JPt 100 Ω , C =Pt 500 Ω , D =OTHER ,		
element quantity	S=Single , D=DUAL , O=OTHER		
probe extension & connection type	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	0=with , 1=without		
terminal head	KB , KNC , KI , KD , KT , LS, 1080AE(explosion),1080SE(explosion) Page(18)		
PROBE MATERIAL	S4=SUS304 , S6=SUS316, S10 = SUS310 , NCF=INCONEL 600 , TEF =Teflon		
probe diameter	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	_____ mm		
measuring junction	2= 2 wired , 3= 3 wired , 4= 4 wired		
CLASS	Class A Class B		
THERMOWELL	TW=with thermowell NTW=without thermowell (see page 22,23,24)		