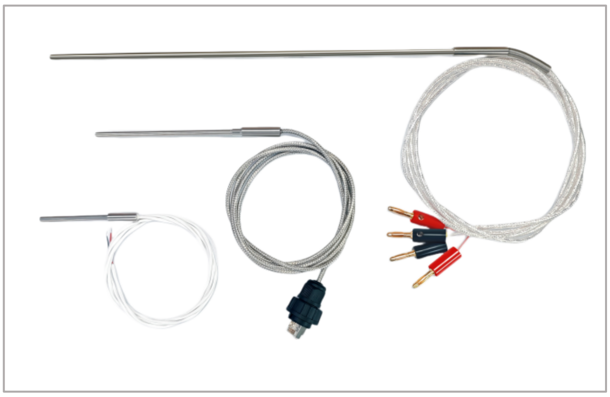
SENSOR_CPS Series PLATINUM TEMPERATURE SENSOR



◆ Product Introduction

A platinum resistance sensor measures temperature by utilizing the characteristic of platinum metal whose electrical resistance changes with temperature variation. The display instrument will indicate the temperature value corresponding to the measured resistance of the platinum resistor. When a temperature gradient exists in the measured medium, the temperature obtained represents the average temperature within the medium layer surrounding the sensing element.

Platinum resistance sensors can refer to any device that senses temperature by measuring changes in the electrical resistance of a material. Resistance Temperature Detectors (RTDs) come in many forms, but most commonly appear in a sheathed configuration. An RTD probe is an assembly consisting of a resistive element, a sheath, lead wires, and terminals or connectors. The sheath is a tube, closed at one end, which houses the element, protecting it from moisture and the measured environment. The sheath also protects and provides strain relief for the transition wires connected to the fragile element.

◆ Features

1. High Accuracy
2. Wide Temperature Measurement Range
3. Excellent Temperature Stability and High Reliability
4. Strong Anti-Interference Capability
5. Multiple Wiring Configurations
6. Standardization and Good Compatibility

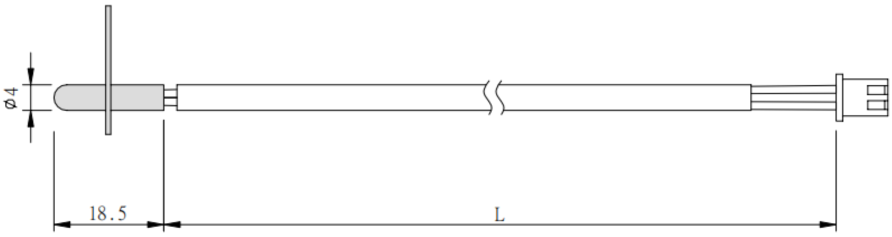
◆ Applications

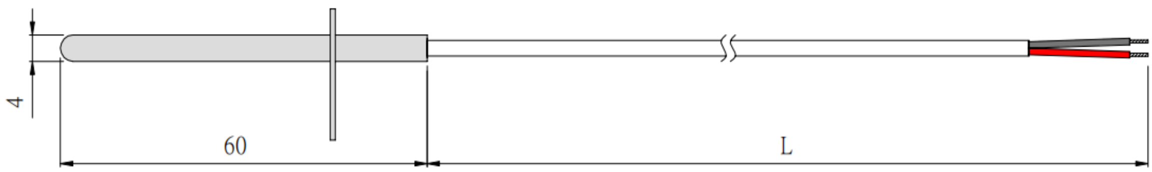
1. Aerospace and Military Equipment: Aircraft, Drones
2. Home Appliances: Televisions, Air Conditioners, Refrigerators, Washing Machines
3. Medical Equipment: Patient Monitoring Equipment, MRI Equipment, Medical Pumps, Electronic Monitoring Devices
4. Industrial Manufacturing: Variable Frequency Drive (VFD) Controllers, Switchgear and Control Panel Applications, UPS Systems, Server Power Supplies
5. Communication Equipment: Industrial-Grade Ethernet Switches
6. New Energy: Solar Power Generation Systems, Wind Turbine Generators, Geothermal Systems, Wave Power Generation Systems

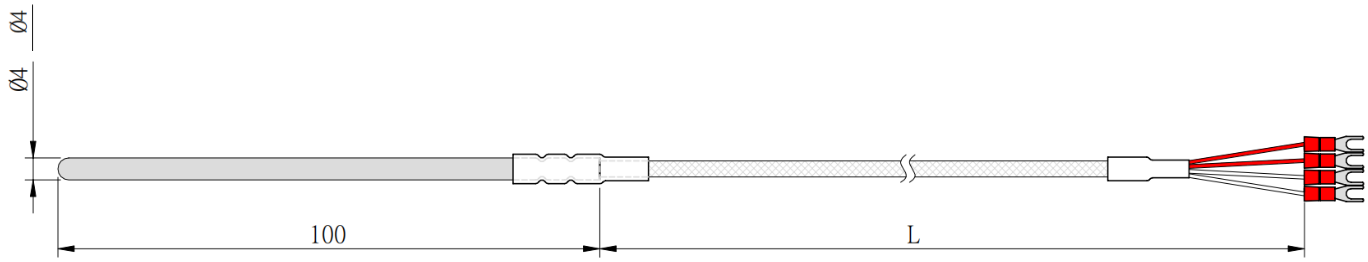
◆ Coding Principles

1 2 3		4	5	6 7 8		9		10	11	12~18
Product Type		Size		Resistance value		Resistance value accuracy		TCR		Internal Control Code
CPS	PTchip	A	Electrical Terminal Structure	101	PT100	A	A level F 0.15	P1	3850(3851)	
		F	Metal Tube (Case) Structure	102	PT1000	B	B level F 0.3	P2	3750	
		G	Plastic pipe (shell) structure	202	PT2000	C	C level F 0.6	P3	3911	
		E	Epoxy Resin Encapsulation Structure	501	PT500					
		H	Other irregular structur							

◆ Product dimensions

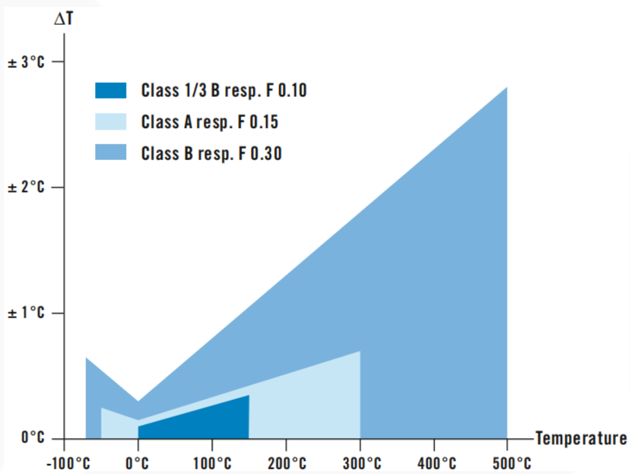






◆ Tolerance classification (classification criteria are based onDIN EN 60751)

Tolerances are specified in DIN EN 60751 1996-07	Tolerances are specified in DIN EN 60751 1996-07	Temperature range
Class 1/3 B	F 0.10	0℃ to +150℃
Class A	F 0.15	-50℃ to +300℃
Class B	F0.30	-70℃ to +500℃
Class 2B	F 0.60	-70℃ to +500℃



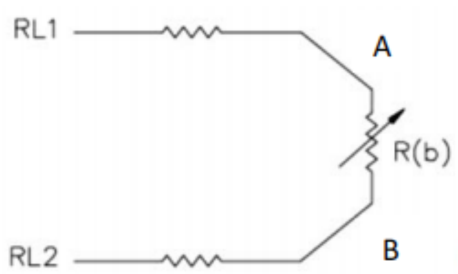
◆ PT100Ω,TCR=3850ppm/K RT list(DIN EN 60751)

℃	Ω	Ω/℃	℃	Ω	Ω/℃	℃	Ω	Ω/℃	℃	Ω	Ω/℃
-200	18.52	0.432	70	127.08	0.383	340	226.21	0.352	610	316.92	0.320
-190	22.83	0.429	80	130.90	0.382	350	229.72	0.350	620	320.12	0.319
-180	27.10	0.425	90	134.71	0.380	360	233.21	0.349	630	323.30	0.318
-170	31.34	0.422	100	138.51	0.379	370	236.70	0.348	640	326.48	0.317
-160	35.34	0.419	110	142.29	0.378	380	240.18	0.347	650	329.64	0.316
-150	39.72	0.417	120	146.07	0.377	390	243.64	0.346	660	332.79	0.315
-140	43.88	0.414	130	149.83	0.376	400	247.09	0.345	670	335.93	0.313
-130	48.00	0.412	140	153.58	0.375	410	250.53	0.343	680	339.06	0.312
-120	52.11	0.409	150	157.33	0.374	420	253.96	0.342	690	342.18	0.311
-110	56.19	0.407	160	161.05	0.372	430	257.38	0.341	700	345.28	0.310
-100	60.26	0.405	170	164.77	0.371	440	260.78	0.340	710	348.38	0.309
-90	64.30	0.403	180	168.48	0.370	450	264.18	0.339	720	351.46	0.308
-80	68.33	0.402	190	172.17	0.369	460	267.56	0.338	730	354.53	0.307
-70	72.33	0.400	200	175.86	0.368	470	270.93	0.337	740	357.59	0.305
-60	76.33	0.399	210	179.53	0.367	480	274.29	0.335	750	360.64	0.304
-50	80.31	0.397	220	183.19	0.365	490	277.64	0.334	760	363.67	0.303
-40	84.27	0.396	230	186.84	0.364	500	280.98	0.333	770	366.70	0.302
-30	88.22	0.394	240	190.47	0.363	510	284.30	0.332	780	369.71	0.301
-20	92.16	0.393	250	194.10	0.362	520	287.62	0.331	790	372.71	0.300
-10	96.09	0.392	260	197.71	0.361	530	290.92	0.330	800	375.70	0.298
0	100.00	0.391	270	201.31	0.360	540	294.21	0.328	810	378.68	0.297
10	103.90	0.390	280	204.90	0.358	550	297.49	0.327	820	381.65	0.296
20	107.79	0.389	290	208.48	0.357	560	300.75	0.326	830	384.60	0.295
30	111.67	0.387	300	212.05	0.356	570	304.01	0.325	840	387.55	0.294
40	115.54	0.386	310	215.61	0.355	580	307.25	0.324	850	390.48	0.293
50	119.40	0.385	320	219.15	0.354	590	310.49	0.323			
60	123.24	0.384	330	222.68	0.353	600	313.71	0.322			

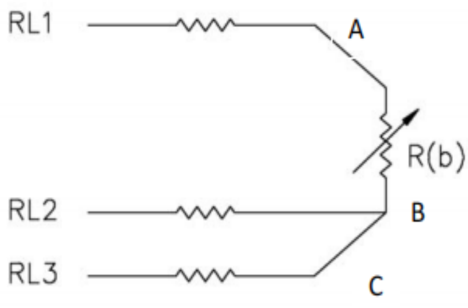
◆ Lead out wire specifications

Two line type:

Connect a wire to each end of the thermistor to extract the resistance signal. This wiring method is the simplest, but there is inevitably a lead resistance R in the wire, which causes errors. The size of R is related to the material and length of the wire, so this wiring method must pay attention to the measurement errors caused by the impedance of the wire.



Three line type:
Connecting one wire at the root of a thermal resistor and two wires at the other end is called a three wire system.
This method is often used in conjunction with an electric bridge to eliminate the influence of lead resistance and is the most commonly used style in the industry.
Three wire principle: Connect the A end of the resistor in parallel with the C end, allowing the resistor to be connected to three terminals A, B, and C. In this way, the resistance of the measuring wire introduced by the B wire can be compensated by the C wire, reducing the resistance error caused by temperature changes in the wire resistance.



Four line type:
The method of connecting two wires at each end of the root of a thermistor is called a four wire system, where two leads provide a constant current I to the thermistor, convert R into a voltage signal U, and then lead U to the secondary instrument through the other two leads.