sensience
ADVANCED SENSING TECHNOLOGIES

20J Series

20J sensors are used to measure air or fluid temperature in automotive applications such as HVAC or Charge-Air temperature sensing. Therm-O-Disc is proud to offer different connection and mounting options to fit your needs. Custom designs can also be developed if needed to meet complex application requirements.

Specifications

- Operating Temperature Range: -40°C - 320°C
- Accuracy: 1°C typical
- Response Time: <13sec
- Specifications vary based on the wires, sensors, and materials used. For specifications for specific materials please contact us for more information.

Applications

Internal Combustion Engines

- Ambient Air Temperature
- Intake Air Temperature
- HVAC Temperature
- Engine Coolant Temperature

Electric Vehicles

- Battery Temperature
- Coolant Temperature
- Charge Port
- Motor/Busbar
- HVAC Temperature

20J Series

	Ambient Air Temp Sensors	HVAC Air Temp Sensors	Engine Coolant and Exhaust Temp Sensors	Intake Air Temp Sensors
Description	All-plastic designs for measuring ambient air temperature	Measure temperature of air flow in interior air ducts and evaporator fins.	Measure temperature of fluid in engine coolant or exhaust gas applications.	Measures average temperature of air intake to the engine.
Operating temp	-40° to 105°C	-40° to 85°C	-40° to 150°C; 320°C for exhaust gas sensor	-40°C to 125°C
Fast thermal response	✓	✓	✓	✓
Stable performance with high degree of accuracy	✓	✓	✓	✓
Various mounting and interface configurations	✓	✓	✓	✓
Moisture resistant	✓	✓	✓	

20J Series

	Coolant Temp Sensors	Battery Temp Sensors	Charge Port Temp Sensors	Motor/ Busbar Temp Sensors	HVAC Temp Sensors
Description	Measures coolant for temp sensing and battery system.	Measure temperature of battery cells in electric vehicles.	Measures temperatures at the charge port inlet and outlet.	Measures motor coil and busbar temperature.	Measures temperature at various points in the HVAC system.
Operating temp	-40°C-150°C	-40°C-150°C	-40°C-150°C	-40°C-200°C	-40°C-85°C
Fast thermal response	✓	✓	✓	✓	✓
Stable performance with high degree of accuracy	✓	✓	✓	✓	✓
Various mounting and interface configurations	✓	✓	✓	✓	✓
Moisture resistant	✓	✓	✓	✓	

Technical Data

Typical Resistance/Temperature

T (°C)	Grade 1 B25/85=3977K	Grade 5 B25/85=4107K	Grade 9 B25/85=3435K	Grade 15 B25/85=3740K	Grade 18 B25/85=4269K	Grade 19 B25/85=3468K	Grade 25 B25/85=3680K
	Multiplier						
-40	33.73	37.25	19.58	25.79	43.67	21.65	24.87
-35	24.32	26.63	14.83	19.12	30.73	16.23	18.34
-30	17.74	19.26	11.34	14.31	21.89	12.30	13.69
-25	13.08	14.07	8.76	10.81	15.77	9.41	10.33
-20	9.74	10.38	6.83	8.23	11.48	7.27	7.88
-15	7.321	7.74	5.37	6.33	8.45	5.66	6.07
-10	5.55	5.83	4.25	4.90	6.28	4.45	4.72
-5	4.25	4.42	3.39	3.83	4.71	3.52	3.71
0	3.27	3.38	2.72	3.01	3.56	2.81	2.93
5	2.54	2.61	2.20	2.38	2.72	2.26	2.34
10	1.99	2.03	1.79	1.90	2.09	1.82	1.87
15	1.57	1.59	1.47	1.52	1.62	1.48	1.51
20	1.25	1.26	1.21	1.23	1.27	1.21	1.23
25	1	1	1	1	1	1	1
30	0.81	0.80	0.83	0.82	0.79	0.83	0.82
35	0.65	0.84	0.69	0.67	0.63	0.69	0.68
40	0.53	0.52	0.58	0.55	0.51	0.58	0.56
45	0.44	0.43	0.49	0.46	0.41	0.49	0.47
50	0.36	0.35	0.41	0.38	0.33	0.41	0.39
55	0.30	0.29	0.35	0.32	0.27	0.35	0.33
60	0.25	0.24	0.30	0.27	0.22	0.30	0.28
65	0.21	0.20	0.26	0.23	0.19	0.25	0.23
70	0.18	0.17	0.22	0.19	0.15	0.22	0.20
75	0.15	0.14	0.13	0.17	0.13	0.19	0.17
80	0.13	0.12	0.17	0.14	0.11	0.16	0.14
85	0.11	0.10	0.15	0.12	0.09	0.14	0.12
90	0.09	0.08	0.13	0.11	0.08	0.12	0.11
95	0.08	0.07	0.11	0.09	0.07	0.11	0.09
100	0.07	0.06	0.10	0.08	0.06	0.10	0.08
105	0.06	0.05	0.09	0.07	0.05	0.08	0.07
110	0.05	0.05	0.08	0.06	0.04	0.07	0.06
115	0.04	0.04	0.07	0.05	0.04	0.07	0.05
120	0.04	0.03	0.06	0.05	0.03	0.06	0.05
125	0.03	0.03	0.05	0.04	0.03	0.05	0.04
130	0.03	0.03	0.05	0.04	0.02	0.05	0.04
135	0.03	0.02	0.04	0.03	0.02	0.04	0.03
140	0.02	0.02	0.04	0.03	0.02	0.04	0.03
145	0.02	0.02	0.03	0.03	0.02	0.03	0.02
150	0.02	0.02	0.03	0.02	0.01	0.03	0.02

Other values are available upon request. For higher temp values, contact a Therm-O-Disc Sales Engineer.

Product Nomenclature Thermistors

Model Designation System

XXJ	1B	XXXXX
I	II	III

I – Series designator, where X is any numeral between 0-9

II – Grade and NTC type (Ex: 1B, 1E, 1G, 1H, 1M, 1R, 1S, etc.)

III – Customer speci c numbers (4 or 5 digits)

Product Nomenclature Thermistors – UL Recognized

Model Designation System

XXJ	1B	A	M	Z	XXXXX
I	II	III	IV	V	VI

I – Series designator, where X is any change to numeral between 0-9

II – Grade and NTC type (Ex: 1B, 1E, 1G, 1H, 1M, 1R, etc.)

III – Temperature rating – A, B, C etc. – See table below for details

III	Max Op Temp		III	Max Op Temp
A	80		F	130
B	90		G	150
C	105		H	180
D	120		K	200
E	125			

IV – Construction

    E - Plastic shell with epoxy fi ll
    M - Metal shell
    R - Molded in plastic
    X - Not insulated with or without shell

V – Investigation Standard Code

    Z - NTC elements tested to UL60730-1
    Without Z - NTC elements tested to UL1434

VI – Customer speci c numbers (4 or 5 digits)

Part # - J Probes Not UL Recognized Using RTD Sensors

Model Designation Syste

XXJ	PT	102	XXXXX
I	II	III	VI

I – Product Series Designator

II – Material of RTD: PT = Platinum RTD, NI = Nickel RTD

III – Resistance: 201 = 200 ohms, 501 = 500 ohms, 102 = 1,000 ohms

VI – Customer specifi c numbers (4 or 5 digits)

Product Nomenclature RTD Sensors

Model Designation System

XXJ	PT	103	XX	X	XXXXX
I	II	III	IV	V	VI

I – Series designator

II – Material of RTD: PT = Platinum RTD, NI = Nickel RTD

III – Resistance: 201 = 200 ohms, 501 = 500 ohms, 102 = 1,000 ohms

IV – Max Temperature Rating Designator – A, B, C etc. - See table below for details (1 or 2 letters)

III	Max Op Temp		III	Max Op Temp
A	80		M	300
B	90		N	350
C	105		P	400
D	120		Q	450
E	125		R	500
F	130		S	520
G	150		T	540
H	180		U	560
K	200		V	580
L	250		W	600

V - Construction Designator:

    E- Plastic shell with epoxy fi ll (shrink tube does not need to be UL recognized if plastic is the insulator

    M- Dead metal shell

    R- Molded in plastic

    X- Not insulated with or without shell

VI – Customer specifi c numbers (4 or 5 digits)