

Air Conditonire Sensor



Application

- Measuring evaporator coil temperature to detect icing or ensure correct superheat/evaporation.
- Measuring ambient indoor/room air temperature so the control board knows the setpoint vs actual.
- Measuring outdoor ambient or outdoor unit coil temperature for fault detection or efficiency control.

Features

- Good resistance accuracy at 25°C (commonly $R_{(25)} = 5k\Omega, 10k\Omega$, etc) and tight tolerance on Beta (B) value (which defines how resistance changes with temperature) for consistent calibration.
- Fast response (low thermal time constant) so that the sensor tracks temperature changes quickly enough for control decisions (e.g., icing detection). accuracy at 25°C (commonly $R_{(25)} = 5k\Omega, 10k\Omega$, etc) and tight tolerance on Beta (B) value which defines how resistance changes with temperature) for consistent calibration.
- Good environmental robustness: moisture resistance, condensation tolerance (e.g., in evaporator coil area humidity), good mechanical stability.
- Variants / options: different lead lengths, connector types, packaging types (probe vs air/ambient bead), custom Beta, custom R values, bespoke cable lengths for OEM HVAC systems.

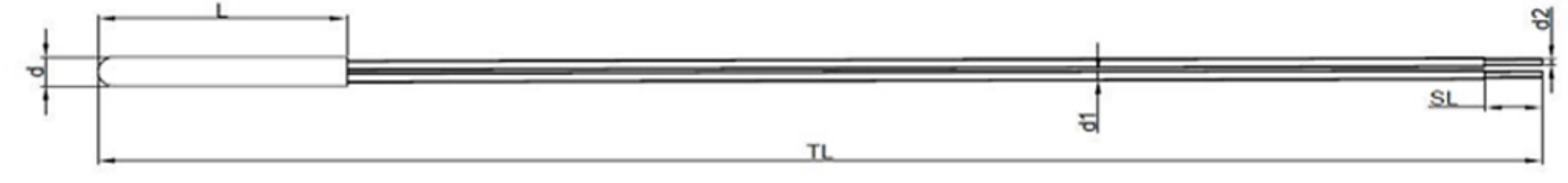
Options Available

- Encapsulation types: epoxy coated, glass encapsulated bead, metal housing (immersion sensors), thin film sensors, chip (SMD) version.
- Lead types: insulated thin wires, high temp wires, connectorized harness, or simple pair of wires.
- Tolerance classes: e.g., $\pm 1\%, \pm 3\%$ on $R_{(25)}$ and $\pm 1\%$ or $\pm 2\%$ on Beta, depending on cost/accuracy.
- Leadwire options: insulated thin wires, high temp wires, connectorized harness, or simple pair of wires. e.g., $\pm 1\%, \pm 3\%$ on $R_{(25)}$ and $\pm 1\%$ or $\pm 2\%$ on Beta, depending on cost/accuracy.

Reliability Data

Test	Standard	Test Conditions	Change In R	Remarks
Storage in dry heat	IEC 60068-2- 2	Storage at upper category temp T: 100°C t: 1000 h	<2%	No Visible Damage
Storage in damp heat, steady state	IEC 60068 - 2- 78	Temp of air: 40 °C Relative humidity of air: 93 % Duration: 56 days	<2%	No Visible Damage
Storage in coldness		Storage at lower category temp T: -30 °C t: 1000 h	<2%	No Visible Damage
Vibration resistance	IEC 60068-2-6	Frequency range: 5 to 500 Hz Amplitude: 7.5 mm, 2 g Duration: 3 x 8 h	<3%	No Visible Damage
Long-term stability (empirical value)		Temperature: 200 °C t: 10000 h	<3%	No Visible Damage
Voltage proof Test		1250 V AC, 1 s	<3%	No Flashover
Insulation test		The sensors are placed in a vessel containing metallic balls of 1 mm diameter (with total immersed head). The applied voltage is 100 V DC.		No Visible Damage
Rapid temperature cycling	IEC 60068 - 2- 14	Lower test temp : -30°C Upper test temp : 150°C Time to change from Low to Up Temp : <30s Number of cycles: 1000 Medium: air	<2%	No Visible Damage

Dimensions



* The dimensions depend on our standards or customer requirements.

Electrical Data (Resistance and Beta Values)

Resistance At 25°C (Ω)	Resistance At 25°C (Ω)	Resistance At 25°C (Ω)	Resistance At 25°C (Ω)
-40°C	-40°C	-40°C	-40°C
-40°C	-40°C	-40°C	-40°C
-40°C	-40°C	-40°C	-40°C
-40°C	-40°C	-40°C	-40°C
-40°C	-40°C	-40°C	-40°C
-40°C	-40°C	-40°C	-40°C
-40°C	-40°C	-40°C	-40°C

Rated Temp and Dissipation Factor

Heat capacity (Cth) :		≈ 18 mJ/K	
Lower Temperature :	-40°C	Dissipation factor in air(δth) :	approx 1.5 mW/K
Upper Temperature :	140°C	Beta Tolerance (Δβ/βN) :	±1%, ±2%, ±3%.
Max Permissible Power at 25°C :	60 mW	Resistance Tolerance (ΔR/RN) :	±0.5%, ±1%, ±2%, ±5%
Rated Temperature (TN) :	25°C	Thermal cooling time constant in air (τc) :	≈ 12s

Ordering Codes For Sensor

STTS 103 R5 E17 V H 451 3977 C16

Product Category		Connector	
STTS	NTC THERMISTOR TEMPERATURE SENSOR SERIES	C16	HR2522J-2Y 2 Pin Connector
Resistance Value		C22	PAP-02 V - S (JST) Connector
103	10 * 10 ³ Ohm	Beta Value (In K)	
102	10 * 10 ² Ohm	3435	3435 K
302	3 * 10 ² Ohm	3977	3977 K
Tolerance in R Value		4000	4000 K
103	10 * 10 ³ Ohm	Wire Length (In MM)	
103	10 * 10 ³ Ohm	451	450 MM
103	10 * 10 ³ Ohm	501	500 MM
Encapsulation		1001	1000 MM
E17	5*25 MM COPPER TUBE	Wire Gauge	
E136	6.5*32 MM COPPER TUBE	N	AWG 21
E45	5*25 MM NICKEL PLATED PLASTIC TUBE	H	AWG 26
Wire Type		K	AWG 24
V	PVC Twin Parallel Copper Wire		
N	XLPE Multi Strand Copper Wire		
U	PVC Multi Core copper wire		