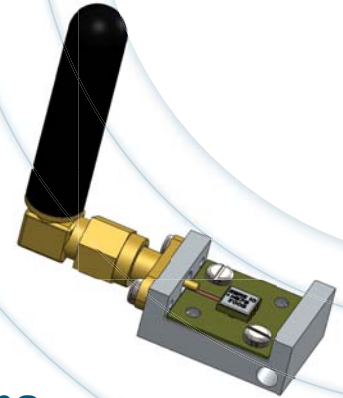


TSA D031

Fixture Mounted

Wireless Temperature SAW Sensor and Antenna

Surface Acoustic Wave Breakthrough Technology



Key Features

- ▶ Wireless, batteryless, robust
- ▶ Accurate, precise, reliable
- ▶ Temperature range: -15°C, 165°C

Benefits

Enables new measurements

- ▶ on moving and rotating parts
- ▶ in explosive, corrosive, radiated environments
- ▶ in confined and inaccessible places
- ▶ where cabling costs too much or is impossible

For process optimization and better equipment utilization through condition monitoring and process control



Working Principle

An electromagnetic wave is sent by the transceiver and converted into a mechanical wave on the surface of the acoustic wave chip. The mechanical wave is reflected and sent back to the transceiver, which allows SENSeOR to measure physical phenomena. TSA D031 is based on two resonators working at two different frequencies in the 434 MHz ISM band [433.05 MHz, 434.79 MHz]. Use of a differential structure offers improved accuracy in measurements and enables SENSeOR to provide the most time stable devices in the industry.

Applications

For OEM's and end-users in Energy, Transportation, Aerospace

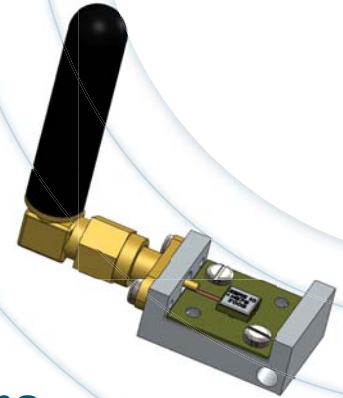
- ▶ Temperature measurement on rotors inside turbines, generators, motors
- ▶ Temperature measurement on moving carriers in industrial automation
- ▶ Temperature monitoring of bearings inside engines and machinery

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Electrical specifications at room temperature

Sensor	TSE AS10 (see related specifications)
Resonant frequency resonator 1 (25°C)	433.63 MHz \pm 0.20 MHz
Resonant frequency resonator 2 (25°C)	434.36 MHz \pm 0.15 MHz
Compatibility with ISM band	Yes

Antenna specifications

Recommended environment	Metallic surface
Type	Monopole
Radiation pattern	Omnidirectional
Polarisation	Vertical
Connector type	SMA

Temperature specifications

Operating temperature range	-40°C, 165°C
Measuring temperature range	-15°C, 165°C ⁽¹⁾

Mechanical specifications

Fixture material	Aluminium
Length (typical)	44.7 mm
Width (typical)	16.5 mm
Height (typical)	47.5 mm
Mounting	2 M2 screws

(1) Measuring temperature range is determined by the temperature range used for calibration i.e. -15°C, 165°C.
Sensor accuracy is +/- 2°C (wireless mode) with standard SENSeOR measurement system.

SENSeOR HEADQUARTERS
Parc du Font de l'Orme - Lot N° 3
694, av. du Docteur Maurice Donat - 06250 MOUGINS - FRANCE
Phone : +33 (0)4 97 23 13 20 - Fax: +33 (0)4 93 06 08 58
contact@senseor.com - www.senseor.com