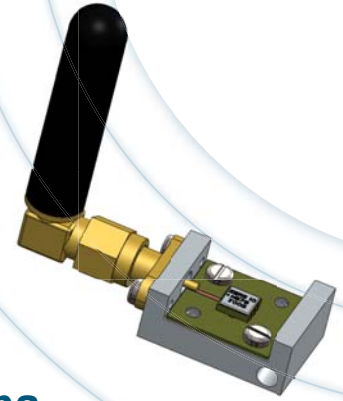


TSA D031 Fixture Mounted Wireless Temperature SAW Sensor and Antenna

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



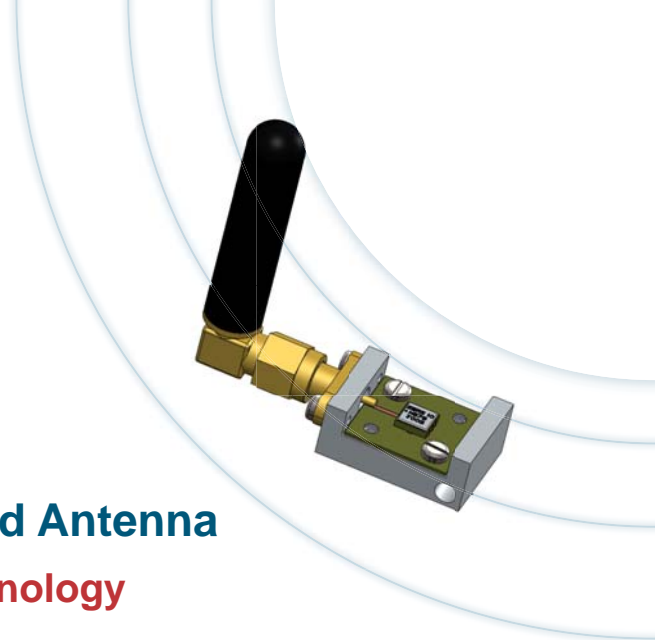
Working Principle

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



TSA D031

Fixture Mounted

Wireless Temperature SAW Sensor and Antenna

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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.

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