SENSEOR
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WR C001

Transceiver for Wireless SAW Sensors

Surface Acoustic Wave Breakthrough Technology

Key Features

- CE-certified
- Compact
- Dimensions: 18.4x10.9x3 cm
- Remotely interrogates wireless, batteryless, robust SAW sensors
- Accurate, precise, reliable
- Easy connection to a computer using the RS232 connection or a RS232/USB converter
- For temperature, pressure, stress measurements

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

WR C001 transceiver remotely interrogates wireless SAW sensors by radio waves. It sends an electromagnetic pulse which is converted into surface acoustic wave (SAW) on the sensor (piezoelectric effect).

Properties of the acoustic wave will be modified under the effect of the physical parameter which is sensed. The SAW sensor reflects these modified signals back to the transceiver, which interprets the results and provides digital output.

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
- Pressure monitoring in process automation
- Temperature monitoring of bearings inside engines and machinery
- Stress sensors implanted in concrete, wood, plastic

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Parameter	Specifications
Consumption	138 mA/12 V
Frequency band	434 MHz European ISM band [433.05 MHz, 434.79 MHz]
Digital output	RS232 (1)
Analogue output	Yes
Maximum RF Power	+10 dBm
50 ohms RF output (antenna connection)	1 (SMA connector)
Sweep time of the ISM band (typical value)	For a temperature sensor (based on two resonators) 13 ms (2)
Operating temperature range	-20°C, 55°C
Storage temperature range	-40°C, 55°C
Interrogation distance (typical values)	0.1m, 3m (3)
Dimensions (typical values)	18.4x10.9 x3 cm
CE certified	Yes (4)

(1) WR C001 can either be connected to a computer using the RS232 interface or the included RS232/USB converter.

(2) Sweep time can be optimized depending upon application.

(3) Interrogation distance is application and system dependant and can be extended.

(4) WR C001 is CE certified. Performances are compliant with norms: RADIO EN 300 220-2 : 2006 v 2.1.1, EMC EN 301 489-3 : 2002 V1.4.1, security EN 60950-1 : 2006.

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