

# Sensor Tag for quarter bridge strain gauges

## AST-01-STR14



### Description

The AST family of sensor tags allows wireless measurements to be taken by sensors from remote locations. Sensors are powered by microwave energy, harvested from a dedicated RF power source and need no batteries or other consumables.

The AST-01-STR14 sensor tag is designed for use with quarter-bridge strain gauge sensors. It offers offset compensation, gain control and calibration.

The device can be operated in continuous or pulsed mode, depending on the application and working distances. In continuous mode, the sensor connected to the tag has sufficient energy to perform measurements and send/receive data at any time. In pulsed mode, the sensor measures and sends data only when the tag's capacitor is fully charged.

### Features

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2450 MHz harvesting frequency

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Maintenance-free:  
no embedded battery, no wiring

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Integrated 868 MHz bi-directional radio

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Operation down to - 8 dBm input RF power

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Up to 100 m working distance  
(application dependent)

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Compatible with 350 Ohms quarter-bridge  
strain gauge sensors

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Gauge offset, gain control and calibration  
available in continuous mode

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RoHS compliant

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CE certified

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# AST-01-STR14

## Characteristics

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| <b>Regulatory approvals</b>              | EN 301489<br>EN 61000<br>EN 60950<br>EN 300220   |  |
| <b>Harvesting frequency</b>              | 2450 MHz   |   |
| <b>Integrated Radio</b>                  |  |   |
| Operating frequency                      | 868.300 MHz (868.900 MHz alternate)  |   |
| Modulation (Rx & Tx)                     | 2-GFSK / 50 kHz  |   |
| Data bit rate (Rx & Tx)                  | 100 kbps on air  |   |
| <b>Integrated Power Storage</b>          | 100 µF capacitor (other capacitor sizes upon request)  |   |
| <b>DAC resolution</b>                    | 16 bits  |   |
| <b>Maximum Data Refreshing Frequency</b> | 100 ms   |   |
| <b>RF Sensitivity</b>                    | from - 8 dBm to + 15 dBm (max)   |   |
| <b>Output voltage</b>                    | 1.25 V   |   |
| <b>Gauge Amplifier Input Range</b>       | 1.44 mV/V  |   |
| <b>Input Configurations</b>              | 1x 350 Ω Quarter Bridge Strain Gauge   |   |
| <b>Mounting</b>                          | 4x metallic holes Ø = 3.5 mm   |   |
| <b>Dimensions</b>                        | 80 mm x 80 mm x 14 mm (with vertically mounted SMA)<br>80 mm x 93 mm x 12 mm (with horizontally mounted SMA) |   |
| <b>Operating Temp.</b>                   | - 20 °C / + 70 °C  |   |
| <b>Storage Temp.</b>                     | - 40 °C / + 85 °C  |   |
| <b>Weight</b>                            | 40 g (with 2 SMA connectors)   |   |

## Ordering Options

| Part Number                | Configuration Description   |
|----------------------------|---|
| AST-01-STR14- <b>A1-A2</b> | <p><b>A1: Power RF Input</b></p> <p><b>PVJ</b> : Jack connector for external 50 Ω antenna (vertically mounted)</p> <p><b>PVP</b> : Plug connector for external 50 Ω antenna (vertically mounted)</p> <p><b>PHJ</b> : Jack connector for external 50 Ω antenna (horizontally mounted)</p> <p><b>PHP</b> : Jack connector for external 50 Ω antenna (horizontally mounted)</p> <p><b>A2: Data RF Input/Output</b></p> <p><b>DA</b> : Integrated 868 MHz - 2,5 dBi antenna</p> <p><b>DVJ</b> : Jack connector for external 50 Ω antenna (vertically mounted)</p> <p><b>DVP</b> : Plug connector for external 50 Ω antenna (vertically mounted)</p> <p><b>DHJ</b> : Jack connector for external 50 Ω antenna (horizontally mounted)</p> <p><b>DHP</b> : Jack connector for external 50 Ω antenna (horizontally mounted)</p> |