

Structural Health Monitoring (SHM) **Strain Sensor**

Battery-free, Wireless UHF RFID, Temperature Compensated, On board Memory

UNIQUE BENEFITS

Phase IV's revolutionary Structural Health Monitoring (SHM) Sensor leverages our 20 years of experience with battery-free wireless RFID sensors. The result is an **easy to install, battery-free, embedded strain sensor that facilitates inexpensive structural health monitoring in places previously not possible.**

The **SHM Strain Sensor** can be read with a fixed RFID reader or hand held reader. The on-board non-volatile memory allows for long term historical measurement comparison that facilitates "at a glance" alarming changes in structure integrity.

The system also features a "calibrate in place" feature that allows the installer to set a zero-offset after the strain sensor is adhered to the structure to be monitored.

Easy to collect long-term structural data allows for condition-based maintenance—reducing structural failures.



KEY FEATURES



- Structural Health Monitoring Strain Gauge and Temperature Sensor
- High Strain Sensitivity and Range.
 - +/- 1000 micro-strain
 - 15 micro-strain resolution.
- On-board temperature sensor can be used for strain compensation.
- Read with a standard Intermec or ThingMagic UHF EPC RFID reader.
- Wireless communication allows for multiple embedded installation options:
 - Metal mount
 - Inside wall
 - Under concrete
- Battery-free sensor allows for long life with no maintenance.
- On-board non-volatile read/write memory can store customized information about the sensor or structure.
- Zero-offset, temperature compensated and time-stamped data.
- Read multiple tags with one reader.
- Small form factor for tight spaces or moving applications.
- Custom versions available for specific environments.

installed in minutes | battery-free | wireless | embedded



Innovative Wireless Sensing™



PC and Handheld Based User Interface Available.

Experts in RFID Sensing Technology ...that We Invented.



Questions? Custom Requirements? Call 1-866-608-6168

SHM Strain Sensor

Physical

Reader
Reader Antenna
Size—demonstration sensor

Environmental:

Reader & RF Specifications

Operating frequency
Read/Write Range
Reader Power
Protocol
Reader Radiated Power
PC Connection

Sensor Performance*

Temperature Sensing Range
Strain Sensor Range
Temperature Accuracy
Strain Sensor Resolution
Calibration
ID

Zero Offset Functionality

Software

UHF RFID Specifications (Passive)

Intermec Hand Held Reader or ThingMagic Vega desktop.
Desktop—typical = 7.5" x 7" x 1". Chosen per order.

"Credit Card" demonstration sensor— 2.75 x 1.77 x .125 inches.

Sizes, form factors and mounting can be customized per customer requirements.

Desktop ThingMagic Reader: IP 52: Indoor or Outdoor use, dust and drip tight.

Strain Sensor Demonstration Tag: Circuit board or simple plastic enclosure. Production enclosures are customized to order.

902-928 MHz Band (USA) (All countries are available.)

Demonstration tag: 6 inches w hand held reader. Longer read ranges are available with different tag antenna.

100 - 240V, 10W power supply included.

EPC Global Cl1, Gen 2 (ISO 18000-6C) with Anti-Collision.

FCC certified. Desktop adjustable up to 4 watt EIRP.

Desktop USB or Ethernet connection to reader.

Temperature Sensor: -20°F to +220°F (-29°C to +105°C)

Strain Sensor: +/- 1000 micro-strain.

±2°F (+/-1°C) typical. Greater accuracy is available at additional cost.

Resolution of ~15 micro-strain.

Tags are individually calibrated. Calibration factors stored onboard.

Unique ID number with each RFID sensor.

Hand Held Reader software supports adding a zero-offset after installing the sensor.

Demonstration software available for the Intermec Hand Held Reader. Windows test software available for desktop ThingMagic Vega reader.

***UHF SensTAGs are highly configurable. We specialize in custom RFID Sensors. Call us with your unique sensing challenges.**

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