



**SENSOR**  
NETWORKS, INC

Inspection, Testing & Asset-Integrity Solutions



wireless  
sensors

## non-intrusive ultrasonic sensors for corrosion/erosion monitoring

microPIMS® is a fully wireless, non-intrusive, ultrasonic corrosion/erosion monitoring system. Powered by battery, it operates using long range (900 MHz) wireless connectivity. Each microPIMS sensor is programmed to take readings at any user-defined time interval and send data to webPIMS™, a cloud-based back-end web portal for analysis, trending and more. Use microPIMS® for:

- Applications where frequent data is required to resolve corrosion/erosion rate issues.
- When short- or long-term corrosion rate data is needed for crude-slate changes or to map operational excursions.
- When quick and easy installations are required.
- Easy repositioning—no welding required.
- Areas not conducive to manual data collection.
- Covering many discrete points with simple attachment.

### monitor corrosion rate

accurate to 0.001" (0.025mm) • high-risk areas • historically problematic locations

### monitor "low spots"

post-NDE screening of pits to monitor remaining thickness • measures down to 0.040" (1.02mm)

### replace/augment intrusive methods

validation of coupons, ER probes, etc.

### reduce costs

reduce scaffolding and insulation removal/refitting for internal corrosion monitoring • more accurate/reliable data improving operations

**5-year battery life at 1 reading/week** (Energizer/Duracell CR123 battery).

**Operates using LoRa-based 900 MHz band digital radio frequency.**

**Two models: dual-element** (up to 300°F/150°C) and **high-temp single-element** (up to 932°F/500°C).

**Built-in thermocouple for surface temperature readings and temperature compensation.**

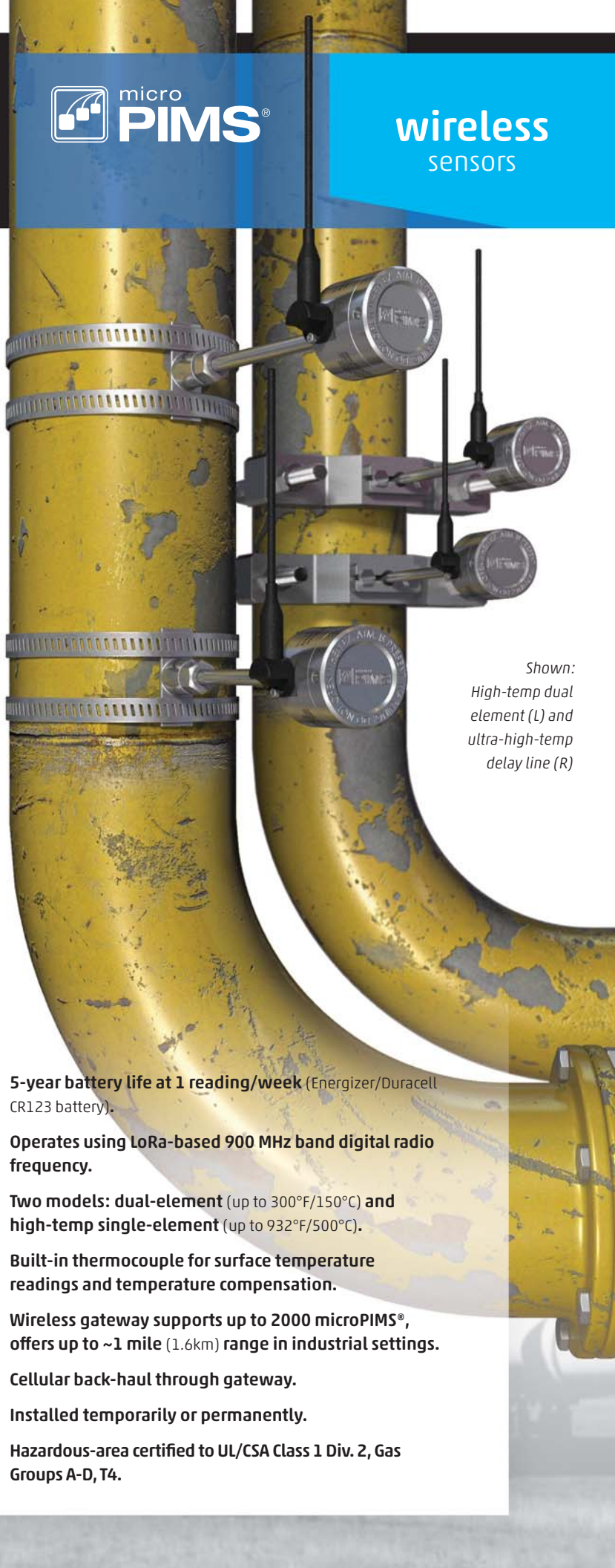
**Wireless gateway supports up to 2000 microPIMS®, offers up to ~1 mile (1.6km) range in industrial settings.**

**Cellular back-haul through gateway.**

**Installed temporarily or permanently.**

**Hazardous-area certified to UL/CSA Class 1 Div. 2, Gas Groups A-D, T4.**

Shown:  
High-temp dual  
element (L) and  
ultra-high-temp  
delay line (R)



measure it  
manage it



High-temp dual-element unit installed under insulation.



High-temp dual-element unit installed using pipe clamps.



Ultra-high-temp unit installed using pipe clamp.



webPIMS™ cloud-based data portal offers all available information including corrosion rate and temperature-corrected thickness data.



microPIMS® complete kit—including sensors, gateway and software—is only available with a subscription-based cellular/cloud solution.



Cross-sectional view of high-temp dual-element microPIMS® sensor.

specifications

	high-temp	ultra-high-temp
elements	dual	single (delay line)
frequency	5 MHz	7 MHz
measurement range	0.040-6" (1-150mm)	0.125-1" (3-25mm)
temperature	up to 300°F (150°C)	up to 932°F (500°C)
weight	12.2 oz. (345g)	17.6 oz. (490g)
size (height × housing dia.)	13½×2.0" (343×50.4mm)	22×2.0" (560×50.4mm)

- hazardous location rating . . . . . Class I, Div 2, gas groups A-D, T4; IP65 rated
- element diameter . . . . . 0.375" (10mm)
- resolution . . . . . 0.001" (0.025mm)
- battery life (typical) . . . 5 yr. @ 1 reading/week; 3.5 yr. @ 1 reading/day at 68°F (20°C)
- construction . . . . . 303 stainless steel
- mounting . . . . . mechanical strap; clamp for ultra-high-temp
- data . . . . . digital thickness, RF waveform, temperature, time/date stamp
- data access . . . . . cloud-based via webPIMS™ portal
- local network . . . . . LoRa-based wireless STAR network (node to gateway)
- connectivity . . . . . gateway to cloud: cellular
- node count . . . . . thousands of microPIMS units per gateway
- gateway\* . . . . . outdoor; cast alum.; 11×8×4.5" (280×204×115mm); 6.0lb (2.7kg)

\* without antennas

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