SENSOR® NETWORKS, INC

Inspection, Testing & Asset-Integrity Solutions

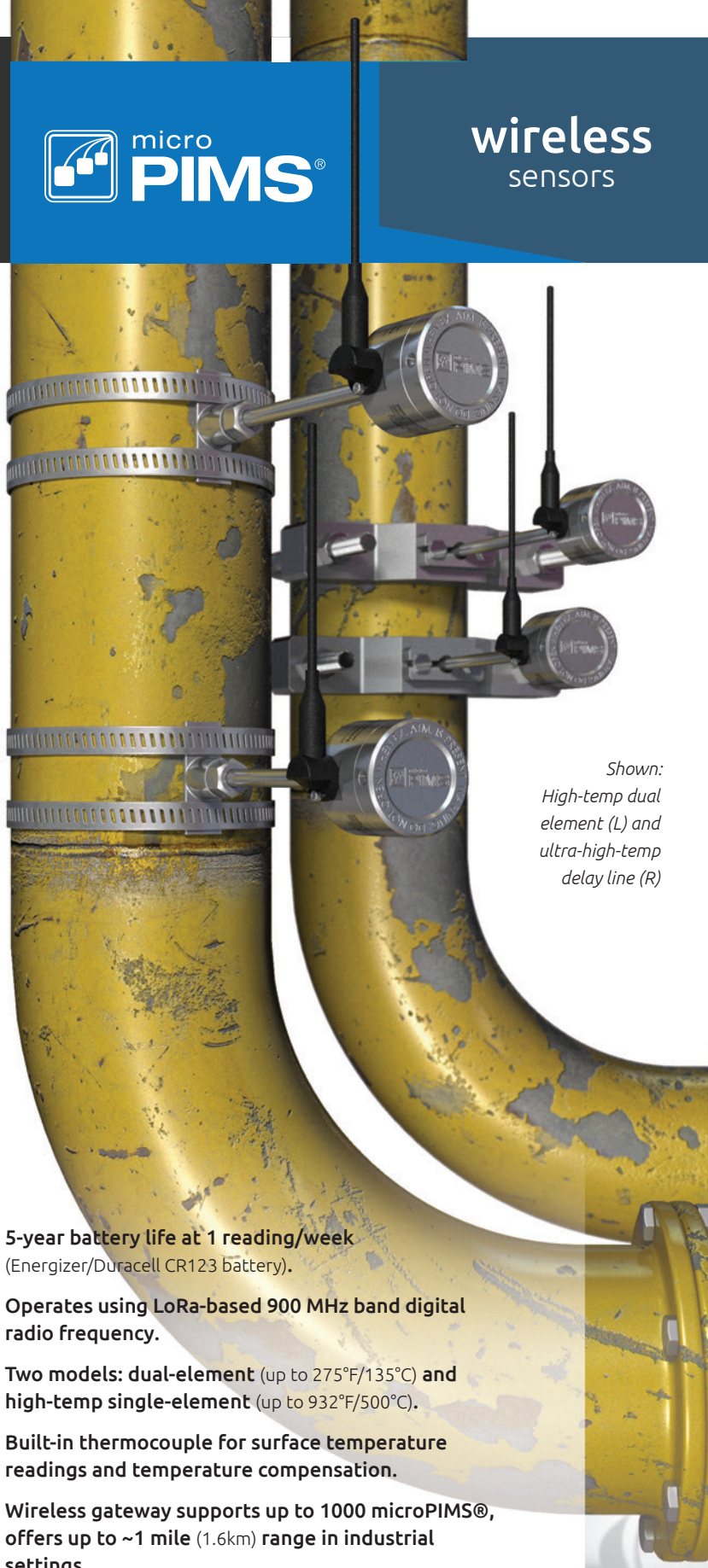
micro PIMS®

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 sub Gigi-hertz wireless connectivity. Each microPIMS sensor is programmed to take readings at any user defined time interval and automatically send data to webPIMS™, a cloud-based back-end web portal for analysis, trending and more. Use microPIMS® for:

- Applications where frequent thickness data is required to monitor corrosion/erosion rate issues.
- When short- or long-term corrosion rate data is needed to monitor crude-slate changes or to correlate operational system upsets.
- Areas not conducive to manual UT thickness surveys.
- Covering many discrete points with simple attachment.
- Situations where quick and easy installations are required.
- Easy repositioning—no welding required.



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

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 275°F/135°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 1000 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.

Measure It
Manage It

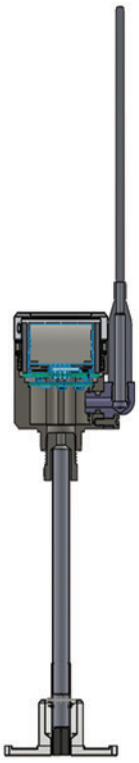
High-temp dual-element unit installed under insulation.

Dual-element unit installed using bands.

***New** High-Temp and Dual Clamps designed for easier and faster installation.*

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 275°F (135°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 . . . . . 1000 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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