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.
High-temp dual-element unit installed under insulation.

Ultra-high-temp unit installed using pipe clamp.

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

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.

Specifications:

<table>
<thead>
<tr>
<th></th>
<th>high-temp</th>
<th>ultra-high-temp</th>
</tr>
</thead>
<tbody>
<tr>
<td>frequency</td>
<td>dual 5 MHz</td>
<td>single (delay line) 7 MHz</td>
</tr>
<tr>
<td>measurement range</td>
<td>0.040-6&quot; (1-150mm) up to 300°F (150°C)</td>
<td>0.125-1&quot; (3-25mm) up to 932°F (500°C)</td>
</tr>
<tr>
<td>temperature</td>
<td>12.2 oz. (345g)</td>
<td>17.6 oz. (490g)</td>
</tr>
<tr>
<td>weight</td>
<td>13½×2.0&quot; (343×50.4mm)</td>
<td>22×2.0&quot; (560×50.4mm)</td>
</tr>
</tbody>
</table>

- 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; 4 yr. @ 1 reading/day
- 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); 6.0 lb (2.7kg)

©2018 Sensor Networks, Inc. All rights reserved. smartPIMS™ is a registered trademark. microPIMS™, matPIMS™ and webPIMS™ are trademarks of SNI. Multiple patents pending. PIMS: Permanently Installed Monitoring System.

©2018 Sensor Networks, Inc. All rights reserved. smartPIMS™ is a registered trademark. microPIMS™, matPIMS™ and webPIMS™ are trademarks of SNI. Multiple patents pending. PIMS: Permanently Installed Monitoring System.