Metal Samples along with Sensor Networks Inc., offers the smartPIMS® Modbus non-intrusive ultrasonic corrosion/erosion monitoring system which connects directly to a PC or laptop to take isolated measurements, or integrates with your SCADA/DCS system for polling at any user-defined time interval. Data can be readily transmitted to webPIMS™, a cloud based back-end for analysis and trending, or simply exported to XML or CSV as necessary for reporting purposes. The smartPIMS® Modbus is used for:

- Infrequent data collection (mid-stream applications).
- Hardwiring to a plant’s control system (downstream or offshore).
- Service companies collecting data (refineries).
- Manual data collection (power generation).

**monitor corrosion rate**
resolution 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

- Connects via Modbus (RS-485) to tablet/PC or SCADA/DCS.
- Outputs data to XML or CSV file, or directly to webPIMS.
- Up to 32 units connect on multi-drop network extending as far as 1000’ (305m).
- Offers 16 single- or 8 dual-element UT probe channels.
- Transducers available to withstand -22°F (-30°C ) to 932°F (500°C).
- Maintains 1 mil (0.001” / 0.025mm) resolution and 0.040” (1mm) minimum wall thickness.
- Sensors install buried or above-ground, temporarily or permanently.
- ATEX, IECEx, UL/CSA and Japanese hazardous-area certifications.
## Technical Specifications

### Digital Sensor Interface

**Transmitter:**
- Model: smartPIMS® Modbus
- Protocol/Communication: Modbus / RS-485, 2-wire, max. 1000’ (305m)
- Power: 10-24 VDC

**Ultrasonic System:**
- Channels: 16 ultrasonic, 1 temperature
- Pulser Voltage: ±5V bipolar square wave
- Analog Frequency: 1–10 MHz (-3dB)
- Gain: -10dB to +70dB
- Digitizer Frequency: 40 Msps
- Certification: Class I, Div. 2, Groups A-D, T4, Class 1, Zone 2, IIC, T4 II 3G, Ex ec IIC T4 Gc, Tamb -20°C to +60°C

**Enclosure:**
- Type: Instrumentation housing
- Material/rating: Cast aluminum / NEMA 4X, IP66
- Temperature Range: -4°F to + 140°F (-20°C to +60°C)
- Dimensions: 5.44 × 5.63 × 5.13” (138 × 143 × 130mm)
- Weight: 5.2 lb (2.36 kg)

### Tablet Datalogger

**Performance:**
- Processor: Intel i5-4200U 1.6GHz w/ 3MB L3 cache (dual-core) (min.)
- Memory / Storage: 8 GB RAM / M2-SATA SSD, 64 GB (min.)
- Operating System: Windows 10

**Connections:**
- Network power, data via RS-485-to-USB adapter

**Physical:**
- Environmental ratings: IP65, MIL-STD-810G, 14 to 131°F (-10 to +55 °C) *
- Dimensions: 11.4” × 7.48” × 0.78” *
- Weight: 2.73 lbs. *

* due to model changes, actual size/weight may change

### Transducers

**Transducer Cable:**
- Type: Coaxial, ¼” dia.
- Max. Length to Transducer: Standard 10’ (3.0m) and 25’ (7.6m), custom to 50’ (15.2m)

**Transducers:**

<table>
<thead>
<tr>
<th>Dual-Element Contact</th>
<th>Delay-Line Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model:</strong> XD-301</td>
<td>XD-201</td>
</tr>
<tr>
<td><strong>Application:</strong> Severe pitting</td>
<td>Ultra-High-Temp</td>
</tr>
<tr>
<td><strong>Frequency:</strong> 5 MHz</td>
<td>7 MHz</td>
</tr>
<tr>
<td><strong>Active Area (dia.):</strong> 0.375” (10mm)</td>
<td>0.375” (10mm)</td>
</tr>
<tr>
<td><strong>Overall (dia. x h):</strong> 0.75” x 0.75” (19 x 19mm)</td>
<td>0.8” x 2.25” (20.3 x 57.2mm)</td>
</tr>
<tr>
<td><strong># of transducers:</strong> 1-8</td>
<td>1-16</td>
</tr>
<tr>
<td><strong>Resolution:</strong> 0.001” (0.025mm)</td>
<td>0.001” (0.025mm)</td>
</tr>
<tr>
<td><strong>Thickness range</strong>: 0.040 - 6.0” (1.0 - 150.0mm)</td>
<td>0.125 - 1.0” (3.0 - 25.0mm)</td>
</tr>
<tr>
<td><strong>Temp. range:</strong> -22 to +275°F (-30 to + 135°C)</td>
<td>-22 to +932°F (-30 to 500°C)</td>
</tr>
<tr>
<td><strong>Attachment:</strong> magnet / adhesive</td>
<td>mechanical clamp</td>
</tr>
</tbody>
</table>

* minimum resolutions stated as typical values, but will vary with pipe condition