

# smartPIMS® Transducers

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

Metal Samples along with Sensor Networks Inc., offers the smartPIMS® product line with 2 different ultrasonic transducer types: dual-element and delay-line.

Each “sensor” type should be selected based largely on temperature range, number of point to be monitored and the severity of the expected metal loss.

### **monitor corrosion rate**

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

### **monitor “low spots”**

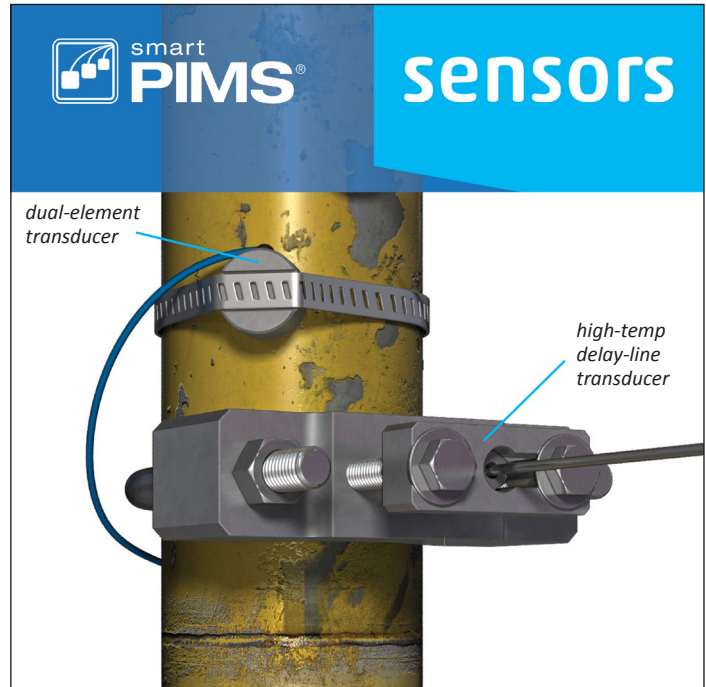
post-NDE screening of pits to monitor remaining thickness • measures down to 0.040" (1.02mm)

### **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



- Transducers available to withstand -22°F (-30°C) to 932°F (500°C).
- Maintains 1 mil (0.001" / 0.025mm) precision 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.



XD-301 attached with magnets



XD-301 attached with hose clamp



Non-magnetic vessel monitoring with “duals” via stud-welded brackets



XD-201 attached with U-bolt



XD-201 probes attached with clamp

# Technical Specifications

## Transducers

### Type:

#### High-Temp Dual-Element

#### Ultra-High-Temp Single-Element Delay-Line

Model:	XD-301	XD-201
Application:	Severe corrosion	Ultra-High-Temp
Overall (dia. x h):	1.25" x 1.0" (31.8 x 25.4mm)	0.8" x 2.4" (20.3 x 61.0mm)
Probe face (dia.):	0.43" (11mm)	0.6" (15.2mm)
Active area (dia.):	0.375" (10mm)	0.375" (10mm)
Cable exit:	90 deg. (side)	0 deg. (top)
Rigid stem length:	n/a	13" (330mm)
Resolution:	0.001" (0.025mm)	0.001" (0.025mm)
Thickness range*:	0.040 - 6.0" (1.0 - 150.0mm)	0.125 - 1.0" (3.0 - 25.0mm)
Temp. range:	-22 to +275°F (-30 to +135°C)	-22 to +932°F (-30 to +500°C)
Frequency:	5 MHz	7 MHz
Cable protection:	plastic conduit, high-temp spiral wrap, steel armored cable	high-temp spiral wrap, steel armored cable
Cable length:	10' (3m), 25' (7.62m), 50' (15.24m)	10' (3m), 25' (7.62m), 50' (15.24m)
Weight (w/ housing):	7 oz. (200 g)	varies with clamp size
Coupling:	temporary: Stopaq (<200°F / <93.3°C) semi-permanent epoxy	temporary/permanent
Hazardous rating:	UL-CSA Class I Div II, Groups A-D, T4, ATEX/IEC Ex Zone 2 and Japanese Certified	
Mounting:	magnet and/or band clamp	U-bolt or band clamp

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

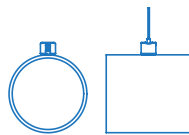
## Epoxies (for use with high-temp dual element only)

#### EA-9394

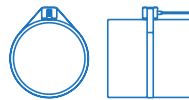
#### EA-9394 C2

Cure temp.:	77-200°F (25-93°C)	200-350°F (93-177°C)
Operating temp.:	-20 to +300°F (-28 to +150°C)	-20 to +400°F (-28 to +204°C)
Misc.:	mixing solution for up to 8 sensors	mixing solution for up to 8 sensors

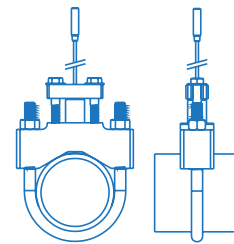
## Mounts



**Magnetic**



**Banded Clamp**



**U-Bolt Clamp**

### Type:

### Attributes:

Ease of installation  
& relocation

Stability, ease of  
installation & relocation

Ultra-high temps,  
maximum stability

### Dimensions:

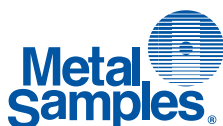
5.9" x 1.95" x 2.9"  
(150 x 50 x 74mm)

9.25" x 1.75" x 2.6"  
(235 x 44.5 x 66mm)

### Weight:

6 lbs (2.75 kg)

10 lbs (4.54 kg)



### Metal Samples Company

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