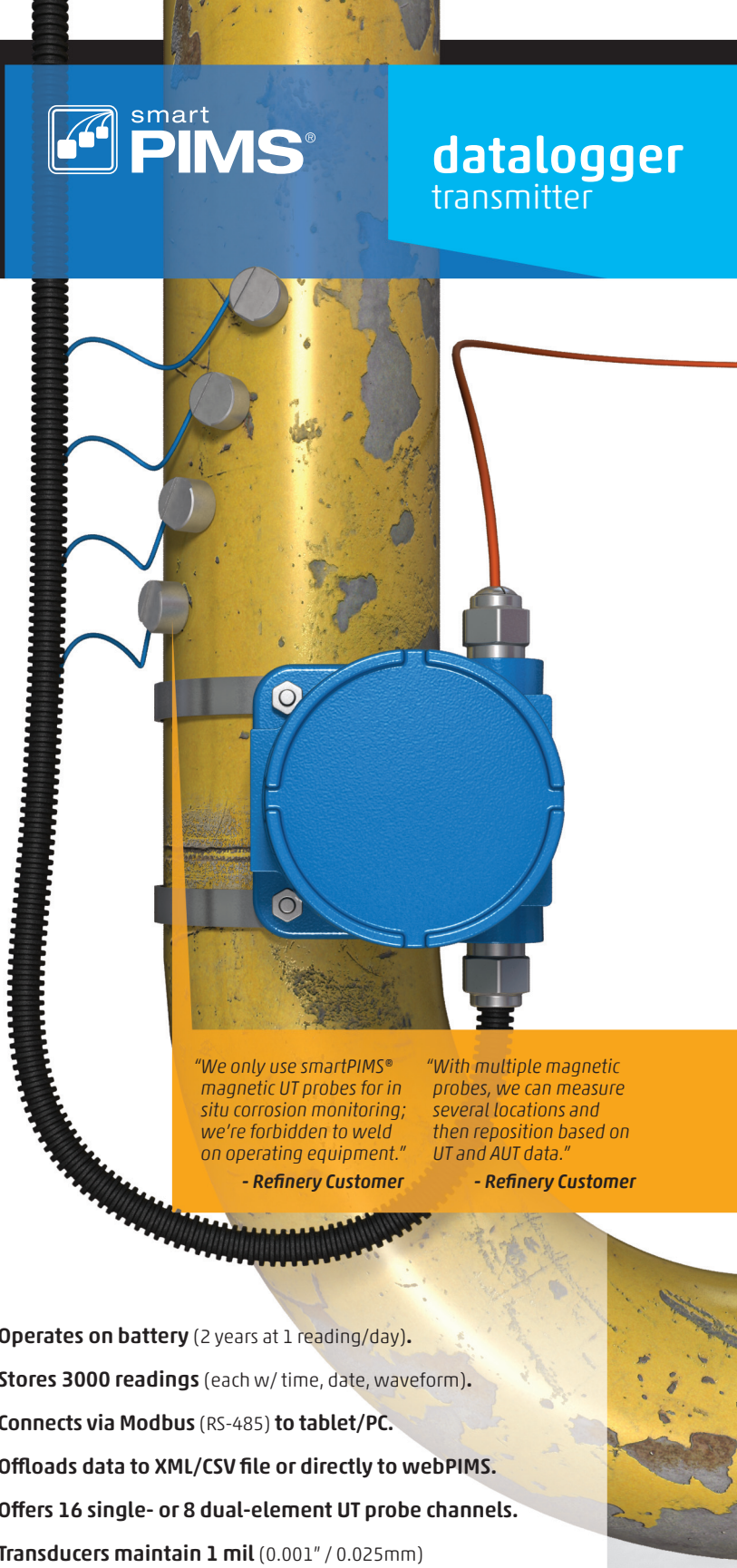
SENSOR® NETWORKS, INC
Inspection, Testing & Asset-Integrity Solutions

smart PIMS®

# datalogger transmitter



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

Sensor Networks' smartPIMS® Datalogger non-intrusive ultrasonic corrosion/erosion monitoring system is equipped with onboard battery and memory that can store up to 3000 thickness readings. It takes measurements at any user-defined time interval, storing them for manual offload to tablet or PC via RS-485 cable. Use smartPIMS® Datalogger for:

- Applications where frequent measurements are required, but wireless infrastructure is not available.
- Situations where wireless infrastructure is not available or not permitted.

*"We only use smartPIMS® magnetic UT probes for in situ corrosion monitoring; we're forbidden to weld on operating equipment."*
***- Refinery Customer***

*"With multiple magnetic probes, we can measure several locations and then reposition based on UT and AUT data."*
***- Refinery Customer***

### 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

**Operates on battery** (2 years at 1 reading/day).

**Stores 3000 readings** (each w/ time, date, waveform).

**Connects via Modbus** (RS-485) **to tablet/PC.**

**Offloads data to XML/CSV file or directly to webPIMS.**

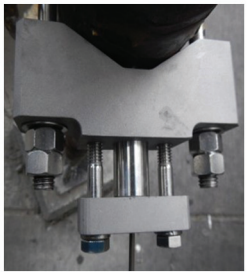
**Offers 16 single- or 8 dual-element UT probe channels.**

**Transducers maintain 1 mil** (0.001" / 0.025mm) **resolution and 0.040"** (1mm) **minimum wall thickness.**

**Transducers withstand -22°F** (-30°C ) **to 932°F** (500°C).

**Sensors install buried or above-ground, temporarily or permanently.**

**ATEX, IECEx, UL/CSA and Japanese hazardous-area certifications.**



*Clamped high-temp probe monitors ~640ºF line. • Dual-element probes monitor individual pits. • Datalogger cable runs to enclosure for data collection.*

# specifications

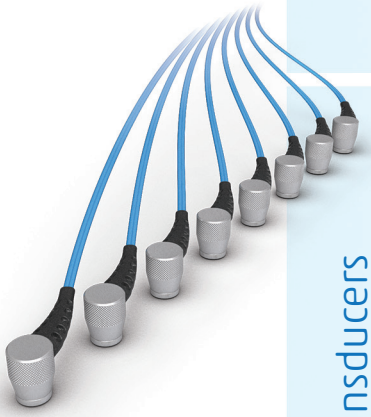
## digital sensor interface

### transmitter

**model no.** . . . . . smartPIMS® Datalogger
**protocol/communication** . . . . . Modbus / RS-485, 2-wire, max. 1000′ (305m)
**battery type** . . . . . Li D-cell, 3.6 VDC, qty. 2
**battery life** . . . . . 2 years (typical, based on 1 reading/day)
**storage capacity** . . . . . 3000 readings (FIFO)
**UT 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
Ⓔx II 3G, Ex ec IIC T4 Gc, $T_{amb}$ -20ºC to +60ºC
**enclosure**
*type* . . . . . instrumentation housing
*material / rating* . . . . . cast aluminum / NEMA 4X, IP66
*temperature range* . . . . . -4°F to + 140°F (-20°C to +60°C)
*dims./wt.* . . 5.44×5.63×5.13″ (138×143×130mm) / 5.2 lb (2.36 kg)

### tablet datalogger

**performance**
*processor* . . . Intel i5-4200U 1.6GHz w/ 3MB L3 cache (dual-core)
*memory / storage* . . . . . 8 GB RAM / M2-SATA SSD, 64 GB
*operating system* . . . . . Windows 10
**connections** network power, data via RS-485-to-USB adapter
**physical**
*environ. ratings* . . . IP65, MIL-STD-810G, 14–131°F (-10 to +55 °C)
*dimensions/weight* . . . . . 11.4″ × 7.48″ × 0.78″ / 2.73 lbs.



## transducers

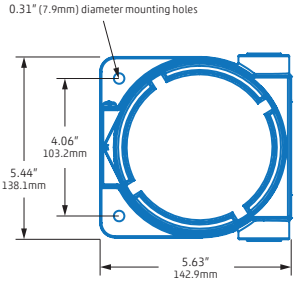
### transducer cable

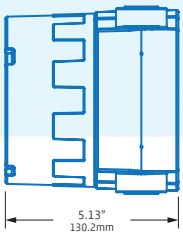
**type** . . . . . coaxial, ¼″ dia.
**maximum length to transducer** . . . . . standard 10′ (3.0m) and 25′ (7.6m), custom to 50′ (15.2m)

### transducers

| | single-element contact | dual-element contact | delay-line contact |
|---|---|---|---|
| *model* | XD-101 | XD-301 | XD-201 |
| *application* | general purpose | severe pitting | ultra-high-temp |
| *frequency* | 5 MHz | 5 MHz | 7 MHz |
| *active area (dia.)* | 0.25″/6.35mm | 0.375″/10mm | 0.375″/10mm |
| *overall (dia. x h)* | 1.0 × 1.0″<br>25.4 × 25.4 mm | 0.75 × 0.75″<br>19 × 19 mm | 0.8 × 2.25″<br>20.3 × 57.2 mm |
| *# of transducers* | 1–16 | 1–8 | 1–16 |
| *resolution* | 0.001″/0.025mm | 0.001″/0.025mm | 0.001″/0.025mm |
| *thickness range†* | 0.200–6.0″<br>5.1–150.0mm | 0.040–6.0″<br>1.0–150.0mm | 0.125–1.0″<br>3.0–25.0mm |
| *temp range* | -22 to +150°F<br>-30 to +65°C | -22 to +300°F<br>-30 to +150°C | -22 to +932°F<br>-30 to +500°C |
| *attachment* | magnet/adhesive | magnet/adhesive | mechanical clamp/ gold foil |

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



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