



matPIMS area monitoring

# Non-Intrusive Ultrasonic Sensors for Corrosion/Erosion Monitoring

Sensor Networks' matPIMS™ non-intrusive corrosion-monitoring sensor array (array, matrix, etc.) collect thickness data over a surface area. Data is transmitted to a SCADA/DCS system via Modbus (RS-485) for frequent polling, or manually offloaded using a PC/laptop. Use matPIMS™ for:

- Large area monitoring post fix/repair (midstream).
- Directly assessing trouble spots (midstream).
- Sand and slurry erosion monitoring (upstream).
- Slurry and mixing asset erosion (mining).
- DOT monitoring requirements.

## 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.

Up to 32 matPIMS and/or smartPIMS single units connect on a multi-drop network extending as far as 1000' (305m).

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

Available in 1×15, 3×5 and custom arrays, each with one reference calibration sensor mounted in head shell.

Transducers rated to -5°F (-20°C) to 150°F (65°C).

Sensors permanently installed, either buried or above-ground.

Powered by laptop or hard-wired.

Not hazardous-location rated.



matPIMS™ 3×5 matrix permanently installed with RS-485 cable back to surface for data collection, pre-overwrap.

Transmitter

**Tablet** 

Datalogger



Fully coated and wrapped installation with RS-485 cable mounted in test station for data collection.



matPIMS™ 1×15 array permanently installed using viscoelastic putty to overcoat sensor strip and head before wrapping/backfill.

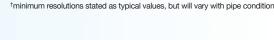
Modbus

protocol/communication . . . . . . . . . . . . . . . . . Modbus / RS-485, 2-wire UT system *pulser voltage* . . . . . . . . . . . . . . . . ±5V bipolar square wave *gain* . . . . . -10dB to +70dB enclosure *type* . . . . . custom material . . . . . Delrin temperature range . . . . . . . . -5°F to + 150°F (-20°C to +65°C) *dimensions* . . . . . . . . . . . . 3.1×2.6×1.15" (78.7 ×66×29.2mm) cable . . . . . . . . standard 25' (7.6m) / max 1,000' (305m) performance processor . . Intel i5-4200U 1.6GHz w/ 3MB L3 cache (dual-core) memory / storage . . . . . . 8 GB RAM / M2-SATA SSD, 64 GB connections network power, data via RS-485-to-USB adapter physical

transducers

# Transducers

model	M-PIMS115	M-PIMS35	Custom
application	general wall loss	general wall loss	general wall loss
frequency	7.5 MHz	7.5 MHz	7.5 MHz
active area (dia.)	0.25"/6.35mm	0.25"/6.35mm	0.25"/6.35mm
overall (w x h)	1.0×9.12" 25.4 × 231.6 mm	2.0×2.7" 50×68 mm	1.0 × up to 100" 25.4 × up to 2540 mm
# of transducers	16 (15 active, 1 ref.)	16 (15 active, 1 ref.)	up to 32
resolution	0.001"/0.025mm	0.001"/0.025mm	0.001"/0.025mm
thickness range <sup>†</sup>	0.125-6.0" 3.0-150.0mm	0.125-6.0" 3.0-150.0mm	0.125-6.0" 3.0-150.0mm
temp range	-5 to +150°F -20 to +65°C	-5 to +150°F -20 to +65°C	-5 to +150°F -20 to +65°C
attachment	epoxy	epoxy	epoxy





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