



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

Transducers



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

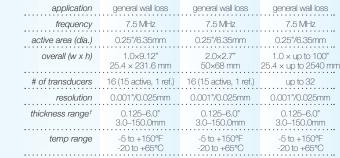


matPIMS™ 1×15 array permanently installed using viscoelastic putty to overcoat sensor strip and head before wrapping/backfill.

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| model no.         M-PIMS115, M-PIMS35           protocol/communication         Modbus / RS-485, 2-wire           power         10-24 VDC |  |  |
|--|--|--|
| UT system  | channels         16 ultrasonic           pulser voltage         ±5V bipolar square wave           analog frequency         1–10 MHz (-3dB)           gain         -10dB to +70dB           digitizer frequency         40 Msps   |  |
| 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)           weight         <1 lbs. (0.45 kg)           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 operating system  |  |
| connections<br>physical  | network power, data via RS-485-to-USB adapter drop/shock resistance  |  |

transducers



epoxy

M-PIMS115

model

attachment

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

epoxy

dimensions/weight . . . . . . . . 11.4" × 7.48" × 0.78" / 2.73 lbs.

M-PIMS35



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Custom

epoxy