HotSense™ enabled wall thickness monitoring solutions for in-service corrosion and erosion monitoring

Minimise operational risk and maximise productivity with enhanced asset intelligence.

Non-invasive, automated and wireless ultrasonic monitoring solutions for applications across refining, oil & gas, nuclear and process sectors.

Keywords: corrosion, erosion, in-service monitoring, extreme environments, high temperatures.

FLEXIBILITY

- **Increase what can be monitored**: HotSense™ transducers allow for deployment directly to hot assets for measurements from -55°C to +550°C (-67 to 1022 deg F).
- **Reduced maintenance**: Multiple transducers per measurement node to minimise batteries. Service packages available.
- **Improved network stability**: Transducers and node may be positioned independently to allow for ease of access for battery change or to maximise wireless signal.
- **Increased area usage**: Intrinsically safe for deployment across your whole facility.

AUTOMATED

- **Automated**: thickness measurements, temperature measurements and corrosion rates transmitted directly to your control room.
- **Security**: Advanced data management software on local server or data direct to you DCS and PIMS – data never leaves your site.
- **Configurable alarms**: Robust and reliable measurements for determination of wall loss rates absolute thickness.
- **Inhouse data access**: Make data available to both maintenance and operations teams to better optimise plant productivity.
- **Built-in calibration**: Measurements may be validated using HotSense™ transducer integrated calibration block.

WIRELESS

- **WirelessHART certified for integration into your operations**.
- **Remote measurement configuration and maintenance**.
- **Battery life is transmitted allowing maintenance and data collection scheduling**.
**PARAMETER** | **VALUE**
---|---
**MEASUREMENT**
Temperature Range | -55 °C to +550 °C
Resolution | 0.010 mm (0.4 mil)* to 0.025 mm (1 mil)
Thickness range | See transducers
**SYSTEM**
Channels per node | 1*-4
Thermocouples | Integrated into transducer or standalone
Certification | IS/Class I, Division 1, Groups A/B/C/D; Ex ia IIC T4 for -55°C ≤ Ta ≤ +55°C; Ex ib IIC T4 Gb (Ta = -40°C to +70 °C)*
Rating | IP65*/IP66
Battery type | Lithium D
Battery life | 5 years
**WIRELESS**
Communication protocol | WirelessHART (IEC 62591)
Security | 128-bit AES encryption
Max units per gateway | 100
Maximum total number to devices | 30,000
Data collection frequency | 1 hour +
**SOFTWARE**
Data output | Thickness, wall loss rate (short & long), temperature, battery, A-scan
Export | Whole database or subset, .csv
Data storage and access | Local server, DCS, PIMS etc
Protocol | EtherNet/IP, Modbus RTU/TCP, OCP
Diagnostics | Remote diagnostics of transducer, node, network and measurement
Calibration | At install and manual online
Battery remaining life | As a function of usage or voltage

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**STANDARD SYSTEM SPECIFICATION**

Ionix, with our system and global service partners can provide planning and pre-installation surveys, as well as ongoing system service and data health packages tailored to your requirements.

**STANDARD TRANSDUCER SPECIFICATION**

<table>
<thead>
<tr>
<th></th>
<th>HOTSENSE SINGLE ELEMENT</th>
<th>BONDED SINGLE ELEMENT*</th>
<th>DUAL ELEMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>3 MHz</td>
<td>3 MHz</td>
<td>5 MHz</td>
</tr>
<tr>
<td>Application</td>
<td>All</td>
<td>Low temperature vessels</td>
<td>Low temperature, thin walled</td>
</tr>
<tr>
<td>Thickness range</td>
<td>&gt;2.5 mm</td>
<td>&gt;2.5 mm</td>
<td>&gt;1 mm</td>
</tr>
<tr>
<td>Continuous</td>
<td>-55 °C to + 380 °C</td>
<td>-40 °C to + 200 °C</td>
<td>-55 °C to +150 °C</td>
</tr>
<tr>
<td>temperature</td>
<td>550 °C by request</td>
<td></td>
<td></td>
</tr>
<tr>
<td>range</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deployment options</td>
<td>Straps, welded studs</td>
<td>Epoxy</td>
<td>Straps + epoxy</td>
</tr>
<tr>
<td>Cable length</td>
<td>0.325 m high temperature</td>
<td>15 m standard</td>
<td>2 m</td>
</tr>
<tr>
<td></td>
<td>+ 2 m flex</td>
<td>(3 or 6 m by request)</td>
<td></td>
</tr>
</tbody>
</table>

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Want to discuss your demanding environment needs?

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Full online monitoring service and data health check packages available:
- Remote or on-site
- Review of system set-up and data outputs
- Sensor and network stability check
- Battery levels and health
- Training