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Wi-Corr® Clamp

Easy-fit wireless corrosion and erosion monitoring

Monitoring asset integrity and lowering operational risk

Wi-Corr® Clamp is a revolutionary wireless monitoring system. Through a self-organising network of permanently or temporarily installed, wireless enabled sensors, accurate pipe wall thickness and temperature can be obtained cost-effectively, enabling corrosion and erosion to be precisely monitored. This information allows a proactive approach in planning of turnarounds and preventative action.

Corrosion and erosion-related failures of processing facilities are a major source of risk to upstream and downstream assets. Manual ultrasonic inspection of pipes gives poor reproducibility. Escalating costs are incurred by deploying inspection teams to facilities, obtaining work permits, preparing scaffolding, or in abseiling to access difficult locations.

In response to these challenges, Wi-Corr® Clamp has been developed in association with Ionix Advanced Technologies to revolutionise the way asset integrity is assessed.

- Re-positional sensors
- Reduces operational risk with non-intrusive sensors.
- Easy, quick, permanent or temporary installation on live plant. No hot work permits necessary.
- Earliest detection of metal loss with 0.01mm resolution.
- Low profile sensors, can be installed under insulation.
- +5 year battery life, live plant replacement.
- Automatic reporting and historical trending with easy-to-use software.
- Separate wireless and sensing modules provide flexibility in locating transmitter to maximise RF range and minimise repeaters
- Large or small scale deployments.

How does Wi-Corr® Clamp work?

Wi-Corr® Clamp uses ultrasonic sensors clamped directly on to metal surfaces. The sensors can transmit their measurements automatically or by user-selected command, giving full control of the system reporting. Measurements of the pipe wall thickness at each specific location are sent back to a central controller over the Radio Frequency (RF) mesh network. Automatically-processed wall thickness data and full ultrasonic waveforms (A-scans) can be requested from each sensor. Corrosion and erosion trends and safety margins can then be deduced. Via the Wi-Corr Trend user interface software, alarms can be set to warn the user of excessive metal loss. All this capability allows better process control and proactive planning of maintenance by the asset manager.

Self-organising network

The Wi-Corr® units use a 2.4GHz self-organising mesh network enabling coexistence with IEC 62591 (WirelessHART) and has been proven in highly cluttered environments. Data from 1000s of corrosion sensors can be sent back to a central control hub for user viewing and advanced control. No lengthy cabling is required. RF transceivers can be manually moved around a plant for connection to multiple sensors.

Measurement resolution

Wi-Corr® Clamp sensors are field-proven state-of-the-art devices, demonstrating thickness measurement resolution of better than 0.01mm (0.0004”). Sensors are applied easily to a wide range of pipe diameters. Metal surface temperatures to a resolution of +/- 0.5^0 C are reported as a standard feature.

Ease of installation

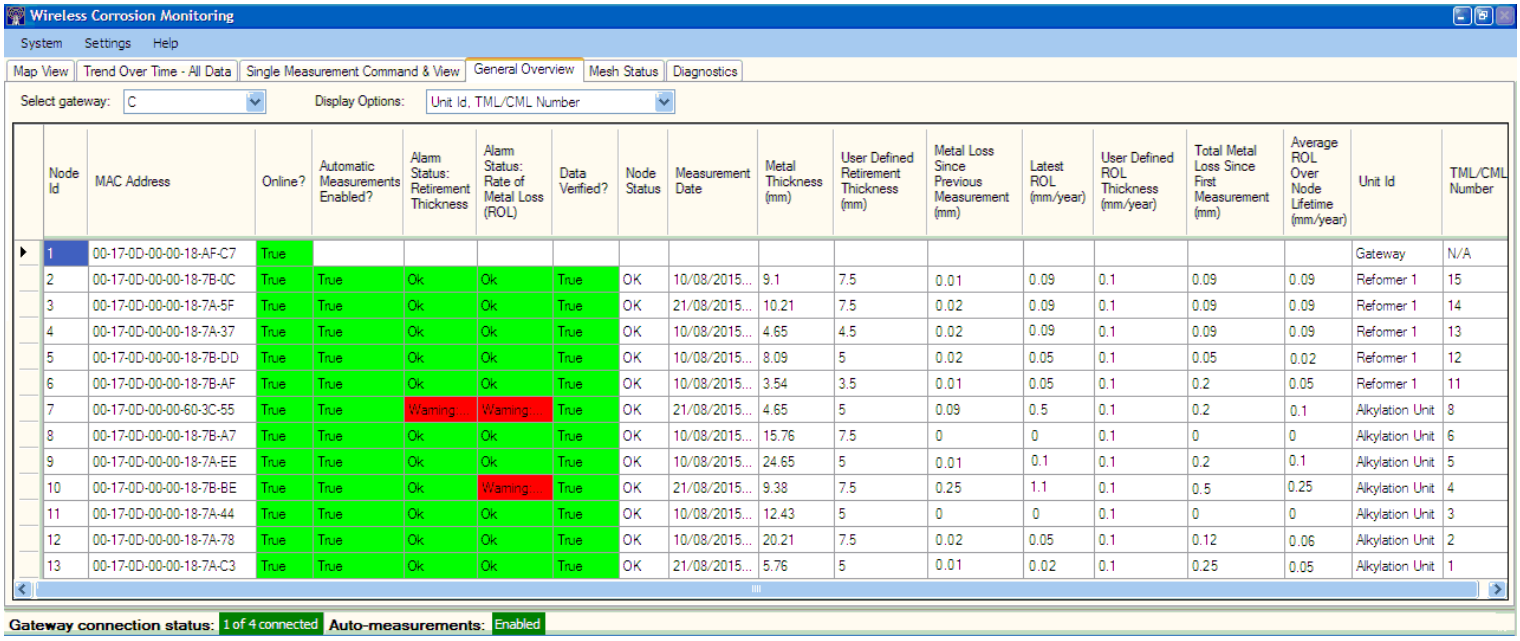
The Wi-Corr® Clamp sensors and network can be installed during normal plant operation, so no shutdown is required. Hand-held surface preparation techniques and the simple to use clamp system mean most sensors can be installed in just a few minutes, without needing special work permits. Sensors can also be easily repositioned.

High temperature solution

The Wi-Corr® Clamp sensors are approved to be permanently or temporarily installed on pipes and vessels running at up to 380 °C (716°F).

Increased safety

Health and Safety standards and Control of Work Procedures increase the costs of making manual measurements on metal surfaces at height or in hard-to-reach locations. Installing a Wi-Corr® system will eradicate the need to repeatedly erect scaffolding, remove insulation and gain work permits in hazardous areas.



Node Id	MAC Address	Online?	Automatic Measurements Enabled?	Alarm Status: Retirement Thickness	Alarm Status: Rate of Metal Loss (ROL)	Data Verified?	Node Status	Measurement Date	Metal Thickness (mm)	User Defined Retirement Thickness (mm)	Metal Loss Since Previous Measurement (mm)	Latest ROL (mm/year)	User Defined ROL Thickness (mm/year)	Total Metal Loss Since First Measurement (mm)	Average ROL Over Node Lifetime (mm/year)	Unit Id	TML/CML Number
1	00-17-0D-00-00-18-AF-C7	True														Gateway	N/A
2	00-17-0D-00-00-18-7B-0C	True	True	Ok	Ok	True	OK	10/08/2015...	9.1	7.5	0.01	0.09	0.1	0.09	0.09	Reformer 1	15
3	00-17-0D-00-00-18-7A-5F	True	True	Ok	Ok	True	OK	21/08/2015...	10.21	7.5	0.02	0.09	0.1	0.09	0.09	Reformer 1	14
4	00-17-0D-00-00-18-7A-37	True	True	Ok	Ok	True	OK	10/08/2015...	4.65	4.5	0.02	0.09	0.1	0.09	0.09	Reformer 1	13
5	00-17-0D-00-00-18-7B-DD	True	True	Ok	Ok	True	OK	10/08/2015...	8.09	5	0.02	0.05	0.1	0.05	0.02	Reformer 1	12
6	00-17-0D-00-00-18-7B-AF	True	True	Ok	Ok	True	OK	10/08/2015...	3.54	3.5	0.01	0.05	0.1	0.2	0.05	Reformer 1	11
7	00-17-0D-00-00-60-3C-55	True	True	Warning:...	Warning:...	True	OK	21/08/2015...	4.65	5	0.09	0.5	0.1	0.2	0.1	Alkylation Unit	8
8	00-17-0D-00-00-18-7B-A7	True	True	Ok	Ok	True	OK	10/08/2015...	15.76	7.5	0	0	0.1	0	0	Alkylation Unit	6
9	00-17-0D-00-00-18-7A-EE	True	True	Ok	Ok	True	OK	10/08/2015...	24.65	5	0.01	0.1	0.1	0.2	0.1	Alkylation Unit	5
10	00-17-0D-00-00-18-7B-BE	True	True	Ok	Warning:...	True	OK	21/08/2015...	9.38	7.5	0.25	1.1	0.1	0.5	0.25	Alkylation Unit	4
11	00-17-0D-00-00-18-7A-44	True	True	Ok	Ok	True	OK	10/08/2015...	12.43	5	0	0	0.1	0	0	Alkylation Unit	3
12	00-17-0D-00-00-18-7A-78	True	True	Ok	Ok	True	OK	10/08/2015...	20.21	7.5	0.02	0.05	0.1	0.12	0.06	Alkylation Unit	2
13	00-17-0D-00-00-18-7A-C3	True	True	Ok	Ok	True	OK	21/08/2015...	5.76	5	0.01	0.02	0.1	0.25	0.05	Alkylation Unit	1

The Wi-Corr trend software shows clear and intuitive warnings when metal loss exceeds pre-defined thresholds