

EXaminer[®] CUI 310 E NB

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Corrosion under insulation (CUI) is one of the costliest and unavoidable problems facing the hydrocarbon processing industry today. CUI affects the steel piping, storage tanks, container vessels and other process equipment within the plants that are subject to temperature fluctuations.

Insulation applied to the pipe can mitigate the thermal cycling effects. But the presence of seams, gaps or other discontinuities in the protective cladding or in the insulation layer makes them susceptible to infiltration by outside humidity or from the process environment itself.

The wireless CUI sensor will report actual temperature, relative humidity and direct water presence from the section of the process pipe. These data can then be stored and analyzed in an IoT dashboard, to monitor status, show trends and adjust the necessary service/maintenance intervals. With use of the CUI sensor you can pay attention to most critical parts of the pipeline, as well as reduce HSE risk for the physical worker in the hazardous area. Inspection in dry areas can be avoided or postponed. This will give you the opportunity to go from a reactive maintenance plan to a preventive and predictive method, which will also be cost saving over time.



Typical applications:

Corrosion Under Insulation (CUI) applications calling for independent reporting of temperature, humidity data and direct water Presence

Features

- Low Power device based multi-protocol SoC
- Communication Narrow Band IoT, LTE-M
- Relative humidity range 0 – 100 %RH
- Temperature range -40 to + 80 °C
- Direct water presence detection, capacitive sensor
- Housing in UV stabilized POM
- IP67 according to IEC 60529
- Developed for robotized installation
- Disposable cutting tool for stainless steel integrated in the sensor
- The technology is patent pending; comprising the sensor design combining cutting/drilling and fixation in one operation, prepared for robotized installation
- The sensor is powered by two 3V Lithium Manganese Dioxide batteries in series.
 - Expected battery life: 9-11 years (0 - 40 °C, hourly measurements, daily transmissions). Lifetime is influenced positive and negative depending on environmental conditions as well as measurement and transmission intervals.

Explosion protection

Marking	Ex II 1G Ex ia IIC T4 Ga -40 °C≤Ta≤+80 °C
Certification	DNV 21 ATEX 73941X IECEX DNV 21.0037X
The following harmonized standards and technical specifications have been applied (pending):	
IECEX	IEC 60079-0:2017 IEC 60079-11:2011
ATEX Directive 2014/34/EU	EN IEC 60079-0:2018 EN 60079-11:2012
ROHS Directive 2011/65 EU	
EU - Radio Equipment Directive 2014/53/EU	ETSI EN 301 489-1 V2.1.1 ETSI EN 301 489-17 V3.1.1 ETSI EN 300 328 V2.1.1

