

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 (Cirusense), 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.



EXaminer® CUI 310 E NB is a smart sensor designed to measure relative humidity, temperature and water presence inside insulation of cladded piping. Being the first of its kind, EXaminer® CUI 310 is a long-life, non-intrusive IIoT sensor with one goal in mind: reduce costs related to CUI monitoring and maintenance.

Features

- Relative humidity (RH), temperature (T) and direct water presence (DWP) measurements
- Low power 4G/5G cellular connectivity utilizing LTE-M or NB-IoT
- NFC or QR for quick commissioning and identification
- Relative humidity range 0 – 100 %RH
- Temperature range -40 to + 120 °C
- Direct water presence detection, capacitive sensor
- Housing in UV stabilized POM
- IP67 according to IEC 60529
- Developed for robotized installation
- Sensor design combining cutting/drilling and fixation in one operation
- Expected battery life: 15 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.

Certifications and compliance

Marking	Ex II 1G Ex ia IIC T4 Ga, Tamb -40°C to +80°C
Certification	DNV 21 ATEX 73941X IECEX DNV 21.0037X
Radio compliance	Band 3/20 SE-RED-2002458 Ed.1D
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

Technical data

RH measurement range	0-100% RH
RH measurement accuracy	± 2% RH
T measurement range	-40 to 120 °C
T measurement accuracy	± 0.2°C
Default sample interval	1 hour
Default transmission interval	24 hours
Radio certification	Band 3 and 20

