

SUBSEA LEAK DETECTION

Subsea Local Leak Detection

The Naxys Local Leak Detector (LLD) is an ultrasensitive instrument within the category DNV* is referring to as “point sensing sensors”. By use of active acoustics, the LLD detect even miniature gas bubbles at the sensor head and provide instantaneous detection as well as leak rate trending information.

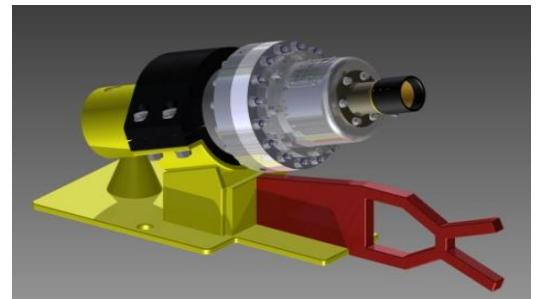
A limitation to “point sensing sensors” is that direct contact with the leaking medium is required. Seawater currents or buoyancy effects may lead the leaking medium away from the sensor. This can be solved by either installing multiple sensors, typical one in each corner of the structure or installing a collector for hydrocarbons above the area considered critical and the LLD mounted at the top of the collector, see illustration. If combined with a collector, the LLD will provide leak rate in liters/minute.

*DNV RP 302

Capable of detecting miniature bubbles spreading from the main plume



Configured for installation at top of XT roof / collector structure



Installation of sensor and collector

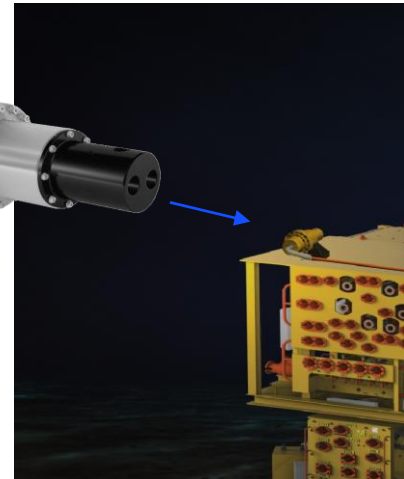


FEATURES

- High sensitivity to gas
 - Miniature bubbles spreading from the plume
- Mounting:
 - Anywhere high up on the structure
 - Collector mounting provides leak rate in liters/minute
- Early warning



Bulk-head version installed on top of protection structure



General	
Type:	Subsea Leak Detector – Point sensor
Name:	Naxys LLD
Manufacturer:	Naxys Technologies
Operating temperature range:	-5°C to +40°C
Operating pressure:	300 bar
Test pressure:	330 bar
Mounting:	Subsea by ROV or topside before subsea deployment
Weight:	25kg in air
Dimensions (LxØ):	600x200mm
Standards:	API 17F
Design Life:	30 years
Leakage Detector	
Sensitivity:	Gas: Very high – Single bubble sensitivity Oil: Good – droplet sensitivity, depends on density Mixture of gas & oil: Very high even for GOR close to 0
Response time	Continuous monitoring, instant alarm
Accuracy:	Indication of leakage flow rate by trending the leakage over time
Redundancy:	
Directivity pattern:	Point sensor defined by collector aperture
Features:	Detection and trending of leakage Monitoring of natural seepage (background leakage) – historical trending, avoiding false alarms due to background natural seepage Built-in self-diagnostics

Housing	
Material:	Titanium grade 2
Sensor	
Naxys Acoustic Sensor	Dual Piezo elements
Termination	
Connector type:	ROV wet-mateable
Connector manufacturer:	Tronic/ODI
Model:	Digitron/Nautilus
Signal and Power	
Signal output:	SIIS Level 2 CanOpen SIIS Level 1 4-20mA (optional)
Electrical power supply:	24V DC nominal (18 to 34V DC)
Current drain:	100mA @ 24V DC (CanOpen) Loop powered (4-20mA)
Inrush current:	120% of rated steady state current for <500ms
Installation	
Method:	ROV installable/retrievable
Mounting support:	Funnel