



Ex-tech

powered by 

We turn the internet of things
into operational data.



19 mm

19 mm

Who are we?

VISION

Ensuring the safety of both people and environment through Explosion Protection and Ex Compliance

MISSION

Combine expertise, experience and innovation to provide market leading products and solutions



Experience



Expertise



Innovation

THE BUSINESS

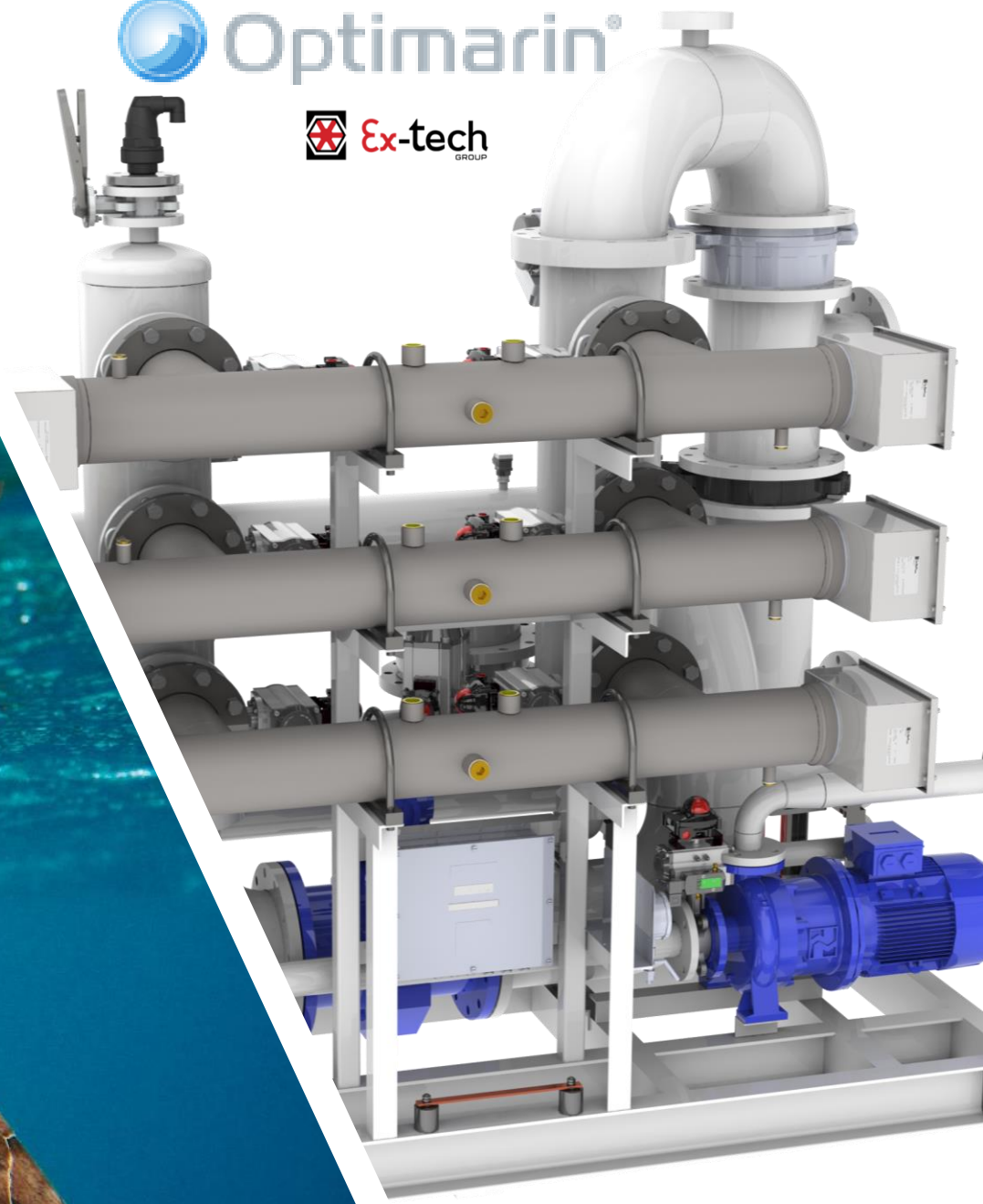


Leverage digitalization with Ex systems and products to offer full range solutions, from single components to whole machinery

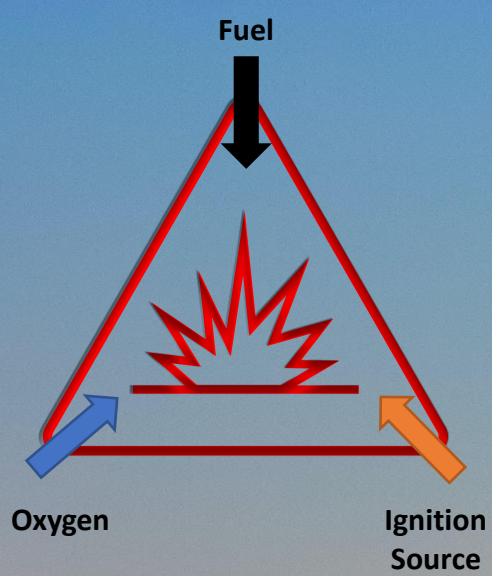


 Optimarin®

 Ex-tech
GROUP



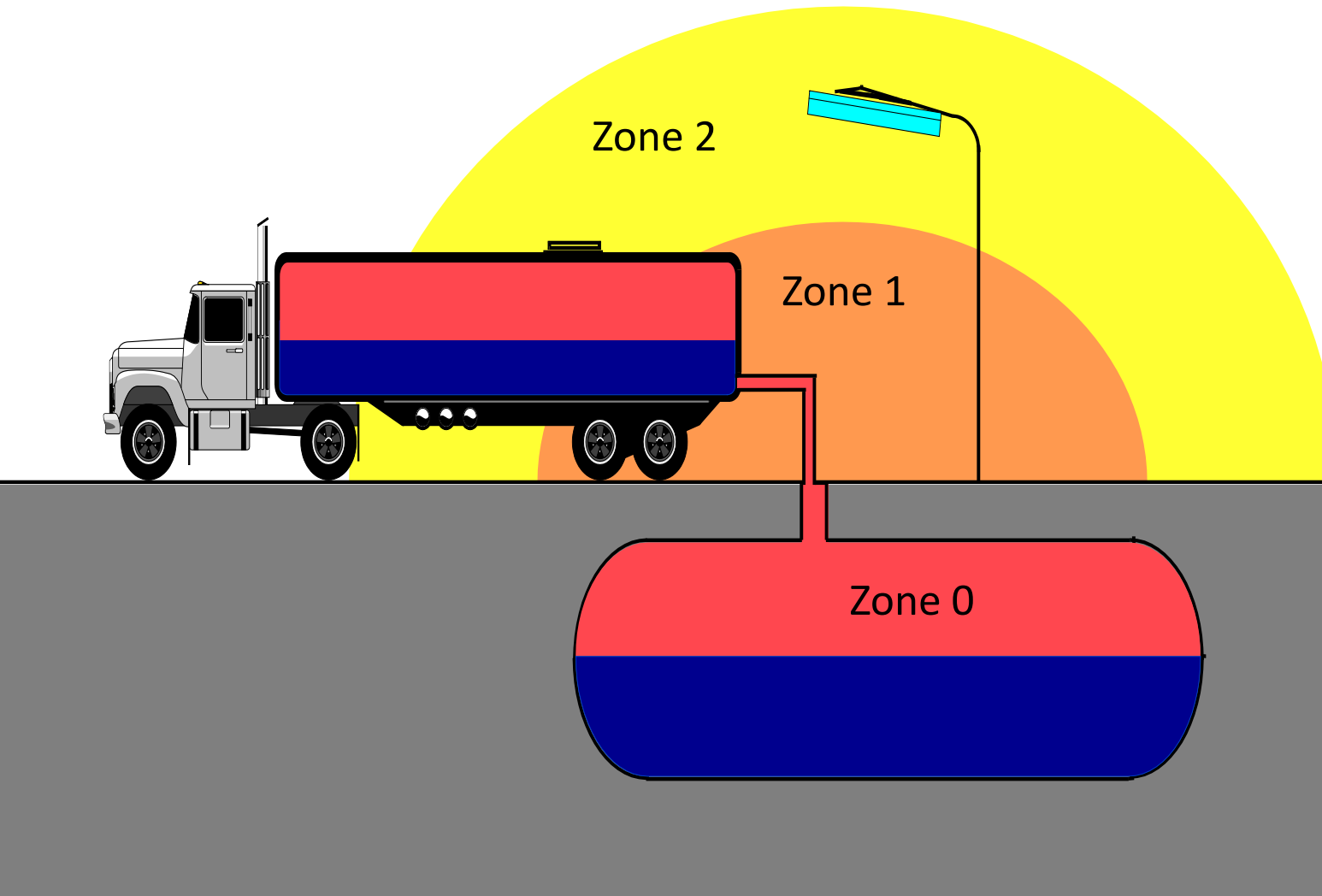
A brief intro to EX



Examples of ignition sources

- Electrical sparks
- Mechanical sparks
- Electrostatic discharge





Safety Level			
	Category	EPL	Fault
	3	c	Normal operation
	2	b	Safe with 1 fault
	1	a	Safe with 2 faults



- **Zone 0:** Explosive atmosphere > 1000h/yr
- **Zone 1:** Explosive atmosphere for between 10 and 1000 h/yr
- **Zone 2:** Explosive atmosphere for > 10h/yr, but still sufficiently likely as to require controls over ignition sources.

Minimum Ignition Energy	European Groups	Gas e.g.
< 20 μ Joules	C	Acetylene, Carbon disulphide
= 20 μ Joules		Hydrogen
< 60 μ Joules	B	Ethyl ether, Ethylene
< 180 μ Joules	A	Acetone, Butane, Ethanol, Gasoline, Hexane, Methanol, Methane, Naphtha, Propane



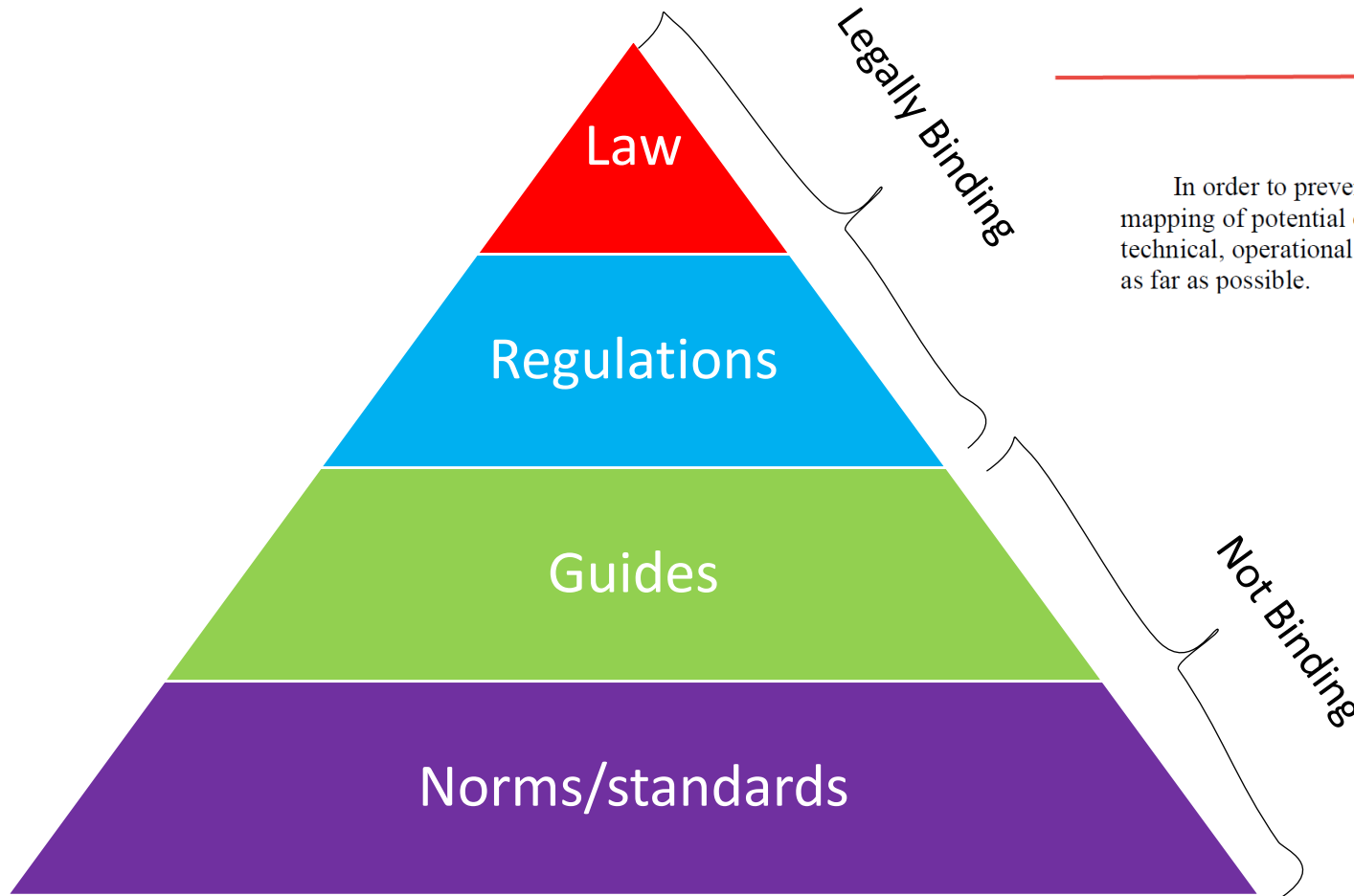
Temperature Class	Maximum Surface Temp. (at max. Ambient temp.)
T1	450°C
T2	300°C
T3	200°C
T4	135°C
T5	100°C
T6	85°C

**REGULATIONS RELATING TO
DESIGN AND OUTFITTING OF FACILITIES, ETC. IN THE PETROLEUM
ACTIVITIES
(THE FACILITIES REGULATIONS)**

(Last amended 16 December 2020)



PETROLEUM SAFETY AUTHORITY
NORWAY



Section 10a

Ignition source control

In order to prevent and protect against ignition of combustible liquids and explosive gases, a systematic mapping of potential electric **and non-electric ignition sources** shall be performed. In addition, the necessary technical, operational and organisational measures shall be implemented so as to reduce the risk of ignition as far as possible.

Common misunderstanding within the business to view guides, norms and standards as the law

4.4.2 Fixed installations

The grade of inspection and the interval between periodic inspections shall be determined taking account of the type of equipment, the manufacturer's guidance, if any, the factors governing its deterioration (see 4.3.1.1, Note 3), the area classification and/or the EPL requirements and the results of previous inspections. Where inspection grades and intervals have been established for similar equipment, installations and environments, this experience shall be used in determining the inspection strategy.

The interval between periodic inspections shall not exceed three years without seeking expert advice. The basis for changing the inspection period shall be documented.

Intervals between periodic inspections exceeding three years should be based on an assessment including relevant information.

Once an interval has been fixed, the installation should be subjected to additional interim

sample inspections to support or modify the proposed interval and grade of inspection.

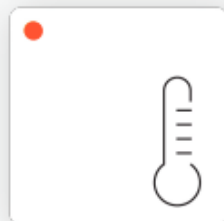
Ongoing review of the results of inspections will be required to justify the interval between, and grade of inspections.

A typical inspection procedure is shown diagrammatically in Annex A.

When large numbers of similar items such as luminaires, junction boxes, etc. are installed in a similar environment, it may be feasible to carry out periodical inspections on a sample basis provided that the number of samples in addition to the inspection frequency is subjected to review. It is, however recommended that all items be subjected at least to a visual inspection.

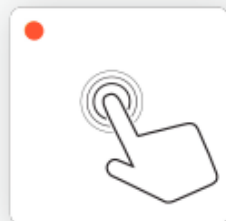
What do we offer?

Sensor Types



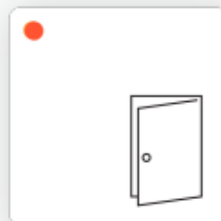
Temperature

Sends a temperature reading every 15 mins.



Touch

Sends an event whenever it is touched.



Proximity

Triggers when something is within a 4 mm range.



Water Detector

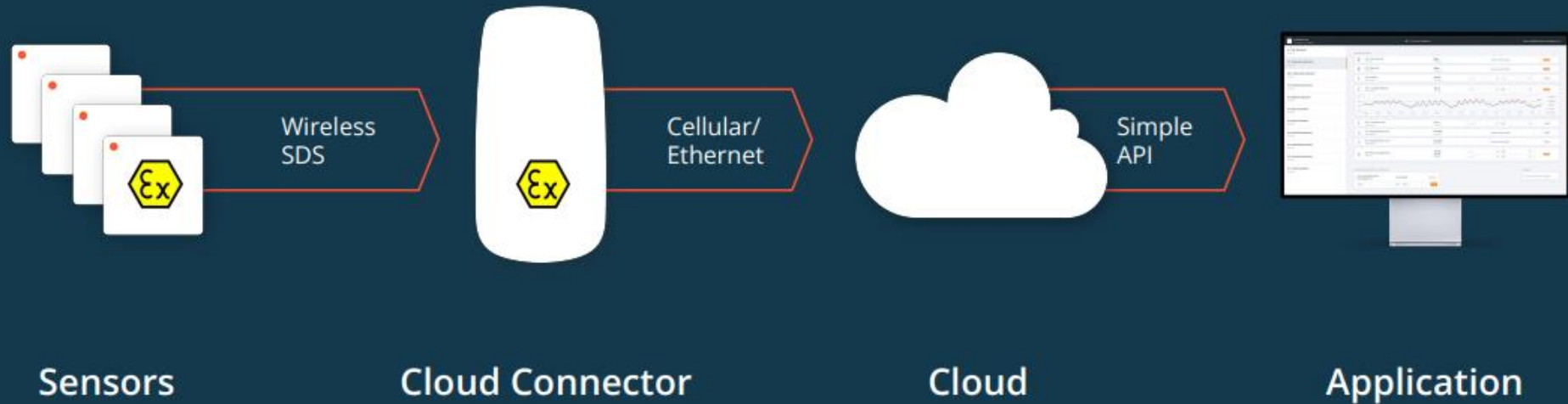
Reports the presence of water on the sensor.



Humidity

Reads relative humidity and temperature every 15 mins.

System overview



The heart of our solution. Small ingenious sensors that deliver data from anywhere.

The sensors' connection to the cloud. A truly plug and play gateway.

The conductor that continually ensures all components play well together.

View and manage data via Studio software, one of many partner portals, or a custom integration.

Where can we
provide value?

Enabling data to detect and diagnose potential problems

Prepared to prevent accidents, equipment malfunctions, fires and other costly tasks as inspection

Attractive customer value proposition

Predictive maintenance

Catch faulty components before they break down



Increase the life-time value of the asset



Create a radically simple and secure sensor solution that delivers useful insights to enable safe, efficient and sustainable operations in regular industry, Hydrogen, PetroChemical, Pharmacy and the Oil & Gas sector



Operational efficiency

Faster response when there is a fault



Reduce time spent on periodic manual inspections





WEST BOLLSTA
STAVANGER

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Ex-JBox for Led
Humidity Sensor

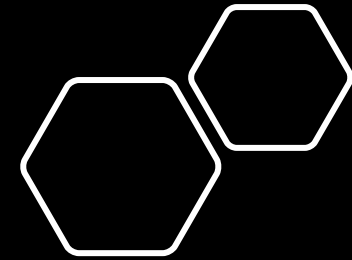
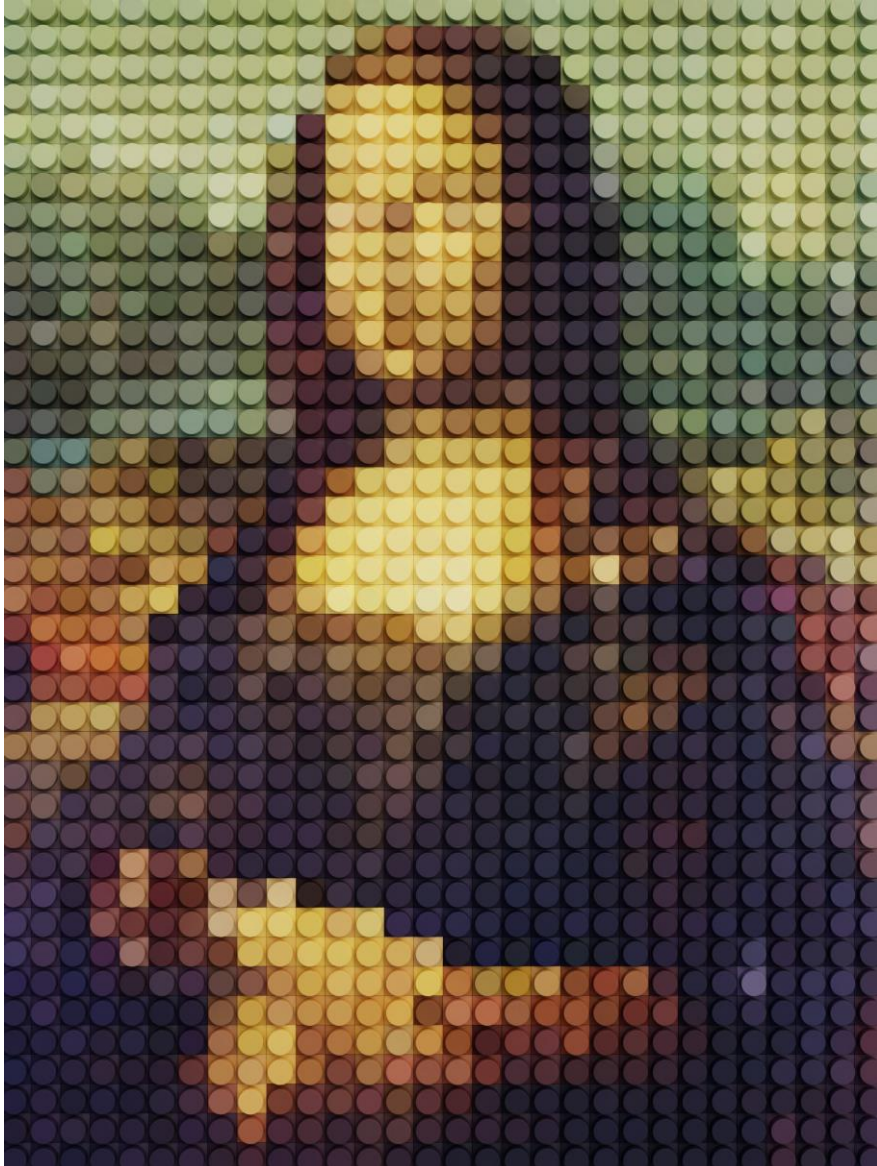
99 %RH at 17.80°C
a few seconds ago



Our main challenge







To create dataflow between systems that enable the client to reduce inspections and be able to document the operational status.

Other use cases

Maintenance management - corrosion under insulation

On commission from the Petroleum Safety Authority Norway (PSA), DNV has conducted a study which identifies CUI (corrosion under insulation) activities with regard to hazard and accident risk, risk elements, compensatory measures and maintenance management in the petroleum industry.

Published: 25 January 2022

Maintenance management

Operators and owners in the Norwegian petroleum sector shared their knowledge in this activity.

Background

A review of data in the incident register from 1998 to 2016 showed that corrosion under insulation (CUI) is a substantial contributor to major accident risk.

The PSA is working assiduously to improve our risk-based follow-up of activities. Follow-up of corrosion under insulation in the design engineering and operation of offshore installations and onshore facilities is a priority topic.

We have previously investigated leaks from pipes associated with CUI, such as a steam leak in 2012, a hydrogen leak in 2016, and naphtha leaks in 2017 and 2020.



Water Detector

Reports the presence of water on the sensor

Detect if there is water on the floor or if the water level is critical

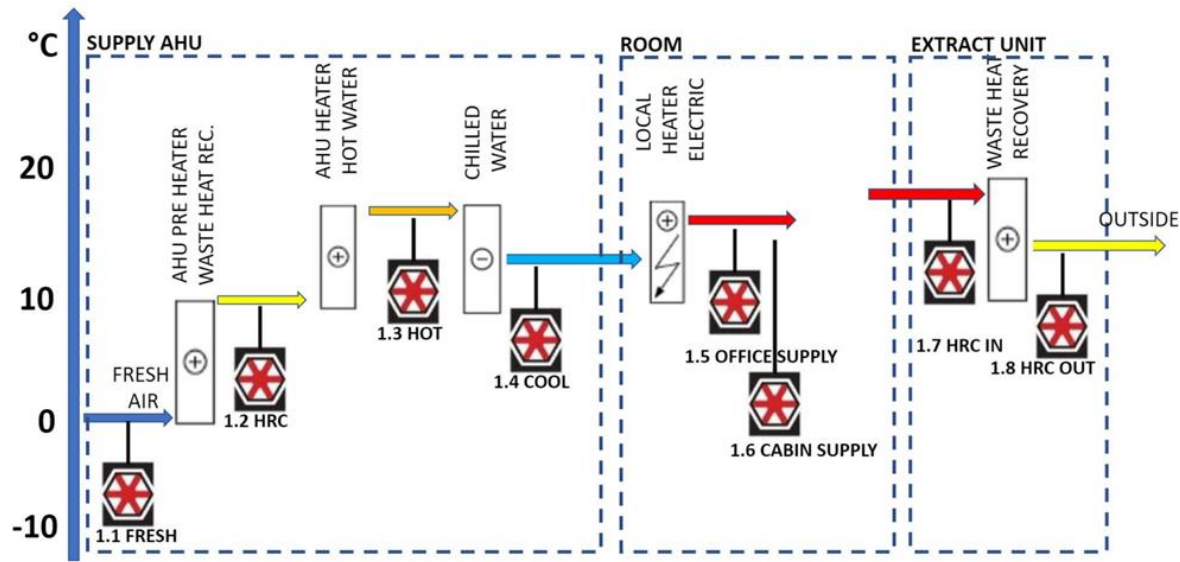


Humidity

Reads relative humidity and temperature every 15 minutes

Measure the humidity and temperature of any room





Energy optimization

- Push within the rig market to ensure energy optimization
 - HVAC
 - HEAT TRACE
 - Optimization of waste energy

Want to bring your solution into
an EX area?

Please do not hesitate to
contact us



Ensuring the safety of both people and the environment – Offshore and Onshore