



LASER
DIAGNOSTIC
INSTRUMENTS

ROW (REMOTE OPTICAL WATCHER)

OIL SPILL
DETECTION SYSTEM
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COMPANY BACKGROUND

Laser Diagnostic Instruments



1991



Tallinn, Estonia



30+ years Remote
Sensing and Spectral
Fluorescence Analysis



R&D and Manufacturer

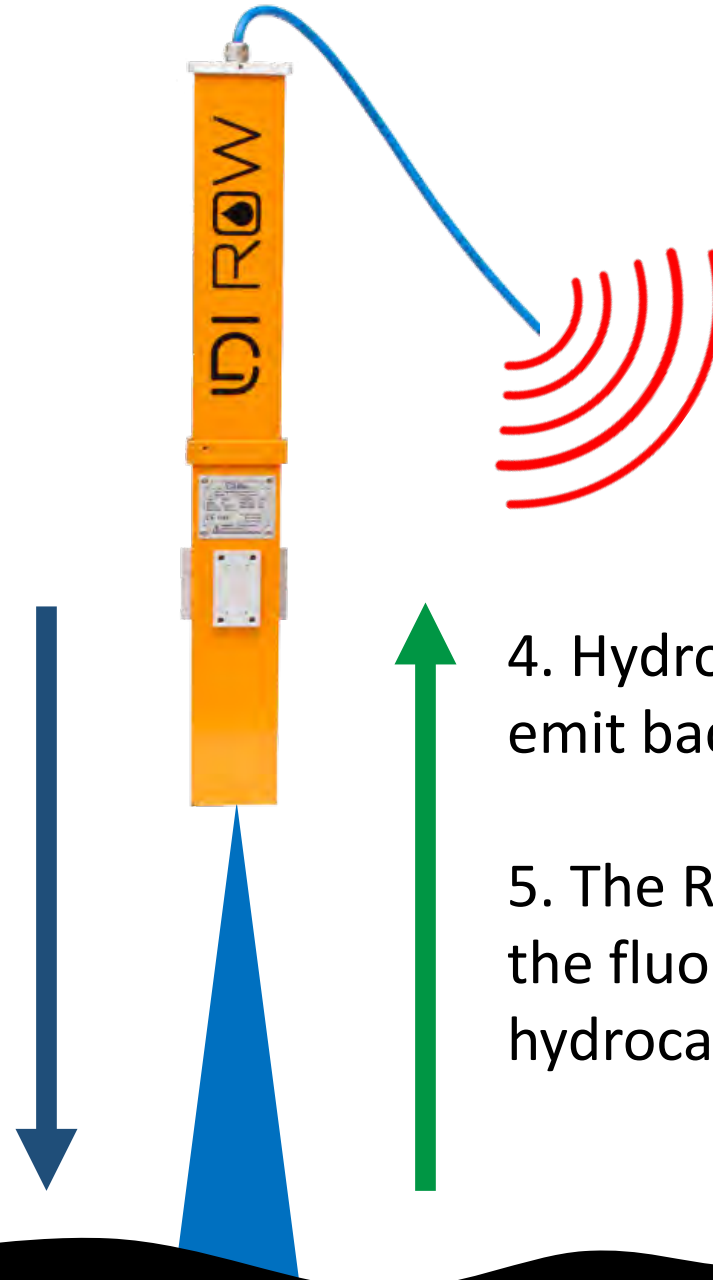


ISO 9001:2015
IECEx 2024

HOW DOES ROW WORK?

1. Pulses UV-C, UV-B, UV-A light using light-emitting diode (LED) as a light source

2. Excites hydrocarbons (the main component of all oils)



6. ROW sends an alarm

4. Hydrocarbons absorb UV light and emit back fluorescent light

5. The ROW registers and measures the fluorescent light from the hydrocarbons

WHAT IS ROW?

ROW (REMOTE OPTICAL WATCHER) is an autonomous, non-contact sensor for oil spill detection and surface water monitoring, based on the fluorescence principle:

- **24/7 Monitoring**

Day or night, the ROW provides early detection against oil spills so that you can react immediately

- **Low Maintenance**

Robust IP68 enclosure allows installation in the toughest environments

- **Off-Grid Design**

Using < 2 W, the ROW can deploy offshore and connect to your wireless telemetry

- **Specificity**

Detection is based on the principle of UV-induced natural fluorescence of oils (from edible to crude oils)



WHAT IS ROW?

Types of oils

- Standard ROW (available in aluminum, stainless steel, ex-proof enclosure) can detect most heavy and medium oil fractions.
- Light Fraction ROW (available in stainless steel, ex-proof enclosure) can detect light fraction oils such as jet fuel, using a LED with different wavelength

Disturbances

- ROW can work in total darkness. Sunlight reflection has minimal effect on the readings. Reflection caused by plastics can be filtered out automatically.
- Water level changes of more than 1,5m can have a negative effect on the readings performance; in this the addition of an ultrasonic level sensor is recommended
- Heavy turbulence does not allow an oil film to form on the surface, therefore the sensor should be installed on quieter waters



WHAT IS ROW?

Remote Optical Watcher

1

Aluminum: 2kg, used mostly in non-corrosive environments

2

Stainless steel: 8kg, suitable for marine applications, extreme environments

3

Ex proof: fully certified system for Zone 1 applications

3 MAIN MODELS:



Aluminum ROW



Stainless Steel ROW



ATEX EXD ROW

WHY EARLY DETECTION?



Reduce Damages



Reduce Losses



Reduce Costs



Reduce Downtimes

APPLICATIONS

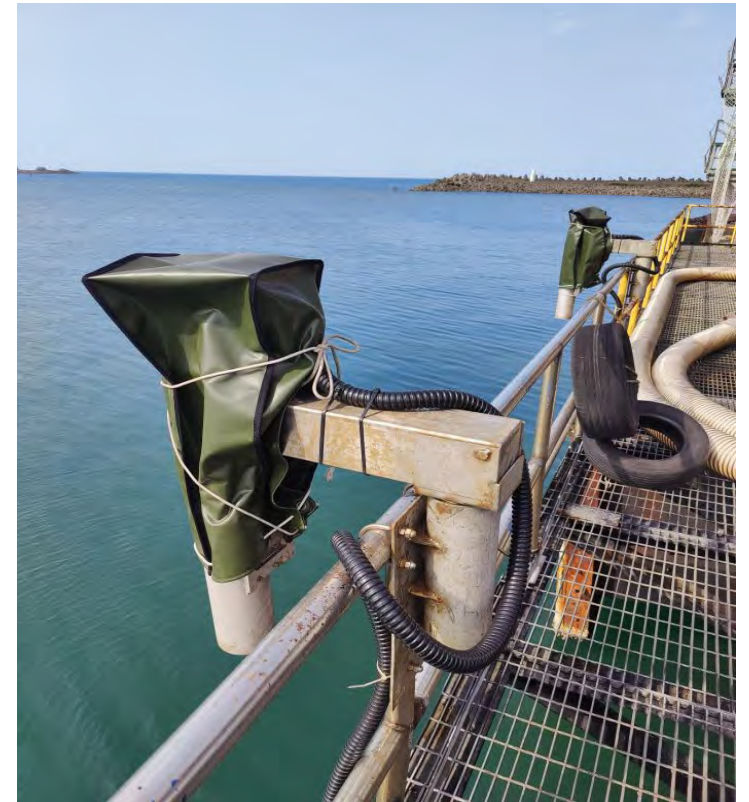
OIL&GAS



Refinery, Slovakia



River near oil fields, China



Oil Terminal, Taiwan

APPLICATIONS

Industries, Sewers and Water Systems



Sewer, France



Steel Mill, Italy

APPLICATIONS

Storm waters



APPLICATIONS

Power Plants



Power Plant, Poland



Power Plant, Malaysia

ROW: OFF-GRID INSTALLATIONS



ROW END USERS' INDUSTRIES

- OIL&GAS

Refineries, oil terminals, tank farms use ROW to receive early warnings of oil leaks that might occur across different process stages.

- ENERGY

Power plants (thermal, Hydro, Gas, Nuclear) use ROW to detect turbine, transformer oil spills

- WATER SYSTEMS

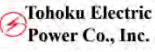
ROW is installed on drinking water treatment plants intakes, to make sure contaminated water is detected instantly. Wastewater treatment plants install ROW to reduce damages and shut-down costs caused by oil spills.

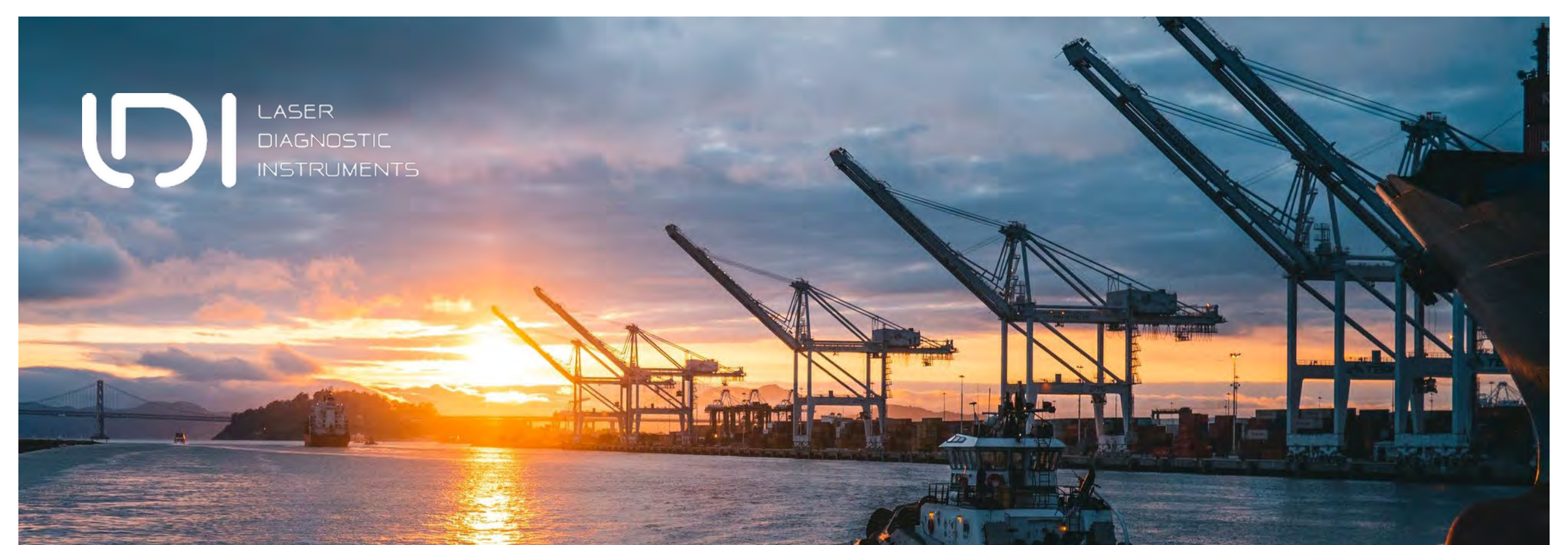
- INDUSTRIAL

Steel mills, cement factories, chemical plants etc. are using the ROW all over the world, in order to reduce damages, costs, and fines. Oil leaks may affect multiple industries,



SOME OF OUR END USERS

The background of the slide is a photograph of a port at sunset. Several large gantry cranes are visible along the waterfront, silhouetted against a bright orange and yellow sky. The sun is low on the horizon, reflecting on the water. A small boat is in the foreground, and a bridge is visible in the distance on the left.

THANK YOU!

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