

Oil pollution detector

Introduction

This device could be used for the detection of oil pollution of the surface or subsurface waters.

It is useful to check the oil pollution of wells nearby chemical factories, power plants, oil refineries, tank farms, transformer substations.

The device house is mountable to the end of the pipes stubs of the wells, and connected with the sensing element by a flat flexible cable (FFC).

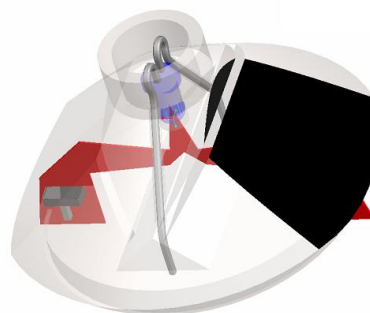
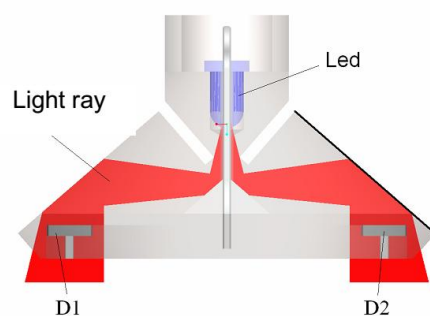
The optical sensing element of the device is floating on the water surface, and continuously following the level change of the water.

Operating principle

The patented oil pollution detector is made of a Plexiglas's sensor and a display unit.

The sensor is a conical body of rotation, which is enlightened from above by a blue LED. There are two photo diodes (D1, D2 as sensing element) on the bottom of the sensor. The prism is coated at the D2 side by a light non passing layer. The cone angle of the sensor is designed so, that the light of the LED remains in the conic prism in case of clear water, namely it is reflexed from the polarized side, and reach both of the photo diodes in equally.

If there is oil pollution in the conic prism, then the light ray is emitted from the surface of the prism (surface dispersion), namely fewer light reach the D1 photo sensor. This light difference points to the fact of the oil pollution. The usage of two photo sensor is in order to eliminate the brilliance change caused by the changing external light.



Versions

There are different versions of the device according to the varying needs:

- Protection:
 - Normal version (IP 65)
 - Explosion-proof version
- Operation time, power supply:
 - Continuous operation with line power
 - Periodic operation with battery power
- Pollution display:
 - displayed by LED
 - displayed by LED, and the time of the pollution is displayed on alpha numeric display.
- Data storage:
 - no data storage (only display)
 - storage of time of pollution
 - full reporting (on central computer)
- Communication:
 - no communication
 - wired communication with central computer or hand held terminal
 - wireless communication

Type selection

