

Leakwise*

ID-225 Oil Thickness Monitoring System

Principal of Operation

The Leakwise* ID-225 Oil Thickness Monitoring System uses the industry leading technology of Electromagnetic Energy Absorption. The instrument consists of a very high frequency transmitter connected to a mismatched antenna. The antenna is immersed in the monitored fluids. The higher the energy absorption of the fluid, the more the loading on the antenna.

Since water absorbs much more energy than hydrocarbons and air, the loading in the water is higher. If the antenna is surrounded by an oil layer or oil/water mixture, the loading is reduced in proportion to the reduction in water content. This unique, patented technique enables continuous monitoring of oil layer build-up, the thickness measurement, and measurement of oil/water mixtures across the full range of 0 to 100%.

ID-225 Description

The high frequency transmitter antenna is mounted vertically on a patented float, which maintains its position precisely at the liquid/air interface, despite fluctuations in the liquid level. The loading on the vertical antenna changes linearly with the oil layer build-up enabling accurate measurement of the thickness of the oil layer. A fast recovery time of the antenna after oil removal enables oil skimming control applications.

The signal processor relays can initiate both local and remote alarms, as well as control. Delay in the relays' response time enables reliable detection, regardless of occasional waves or turbulence. A stilling well can be used for extreme turbulent conditions. Continuous built-in diagnostics monitor sensor operations.



Applications

Remediation Control

- Monitoring changes in oil thickness over time in groundwater wells to enable effective oil removal methods
- Monitoring effectiveness of remediation techniques
- Implementing automatic on/off control

Skim Tanks

In many processes, a skim tank is used to collect entrained oil in wastewater. The ID-225 is inserted into a tank through an inspection hatch, enabling the user to automatically start and stop the skimming operation.

Monitoring Oil/Water Separators

Environmental regulations require oil/water separators to be covered. An ID-225 can monitor oil layer thickness build up in the separator without human intervention.

Wastewater Sewer Monitoring

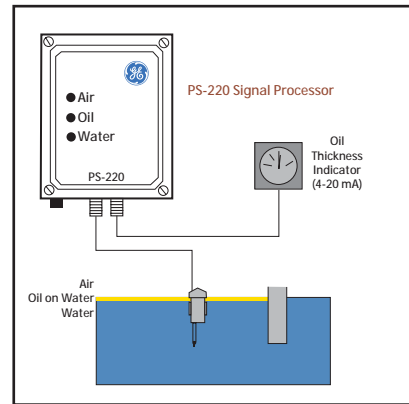
An ID-225 installed in the sewer near the process area will detect and control hydrocarbon leaks at source, reducing load from the treatment plant and preventing spills.



ID-225 Technical Specifications

Operational and Design Information

Operation	Floating detector capable of monitoring the thickness of hydrocarbons and other organic solvents on water
Operating Range	
Oil Thickness	1–100 mm of hydrocarbon on water or brine (standard); other ranges are available on request
Resolution	2 mm of hydrocarbon on water or brine
Water Level Variation	Minimum: 30 cm from the bottom of a well/tank/sump; Maximum: more than 10 m
Temperature	Detector: 0° C to 70° C, higher temperature available PS-220 Signal Processor: -40° C to 85° C



Materials

Detector Hydrocarbon resistant polymers, 316 stainless steel

Dimensions

Cable 10 m standard with detector, additional length to order
Detector Diameter 87 mm, height 150 mm, Fits into 4 inch (96 mm) still wells
PS-220 Enclosure NEMA 4X (IP-65): 275 x 230 x 130 mm; NEMA 7: 215 x 260 x 175 mm
EEx d: 305 x 235 x 190 mm

Electrical Rating

Wiring Connections 18 AWG Maximum
Input Power Options 220/110 VAC, 12/24 VDC (@ 3.5 Watts), 12/24 VDC Solar Powered
Distance to PS-220 Up to 1200 m subject to hazardous area restrictions
Wireless See Leakwise WL data sheet for battery powered wireless operation
PS-220/RL/LI Basic Analog Signal Processor and power supply including: Two Alarm Relay Contacts, SPDT Rated 3A at 220 Volts, normally open and normally closed; and three indicating lights: Air/Oil/Water, diagnostics feature

Output Options

420 4-20 mA Linear signal proportional to hydrocarbon thickness up to 4 in. (100 mm) current source
420/BG Bar-Graph display (20 Bars) of hydrocarbon thickness and 4-20 mA output
AUD Audio Alarm
WL Wireless communication (see Leakwise WL data sheet)
DSP-220 Digital Signal Processor for multiple ID-220 series sensor control with data logging capabilities and various output options, including: Relays, lights, 4-20 mA and RS-232 or RS-422 communications (see DSP-220 data sheet for more details)

Certifications

ID-221 Detector Intrinsically Safe — EEx ia IIC T4
PS-220 Enclosure Explosion Proof: North America – NEMA 7, Class I, Div. 1, Groups C & D; Europe – EEx d IIC T6
Combined System Approved for operation in hazardous location
Performance EPA — Certified in accordance with EPA/530/UST-901009 for groundwater monitoring systems TÜV — Type approval in accordance with WHG (Water Resources Law) § 19 h
Manufacturing ISO 9001 Certified

* Trademark of General Electric Company; may be registered in one or more countries.



Calgary: 403-255-2921
Edmonton: 780-437-0244



300 00098 Rev A
MC05-132