

ID-225 Oil Thickness Sensor

Applications

The Leakwise ID-225 sensor measures the thickness and monitors the buildup of hydrocarbons on water. Many petroleum and power companies use it for monitoring and control of oil layers in the following applications:

Remediation Control

On-line monitoring of oil thickness changes over time in groundwater wells to enable effective oil cleanup by using automated control of remediation.

Skim Tanks

In many processes, a skim tank is used to collect wastewater containing oil. The ID-225 may be inserted into a tank through an inspection hatch, enabling automatic start and stop of oil skimming operation.

Monitoring Oil / Water Separators

Environmental regulations require oil / water separators monitoring. An ID-225 can monitor oil layer buildup in the separator without human intervention.

Wastewater Sewer Monitoring

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

ID-225 Description

A Leakwise system consists of a controller and one or more sensors. The ID-225 sensor has a high frequency transmitter mounted on a float that maintains its position precisely at the liquid/air interface, despite fluctuations in the liquid level. The loading on the special vertical antenna changes linearly with the oil layer buildup, enabling accurate oil thickness measurement. The antenna quickly recovers after oil removal to allow continuous on-line oil layer measurement in skimming control applications.

The ID-225 requires a minimum water level of 30 cm (12.0 in) to operate, and can fluctuate with changing liquid levels up to 45 m (150 ft.). The sensor is controlled by the analog PS-220 Controller, which has two field-adjustable alarm points:

- Low oil alarm - Alarm of a first predefined layer thickness of hydrocarbons
- High oil alarm - Alarm at a second predefined oil thickness

The Controller relays can initiate both local and remote alarms, as well as control. A 4-20mA output indicates the oil thickness. Continuous built-in diagnostics monitor sensor operation. A stilling well is recommended for all ID-225 installations.



ID-225/100

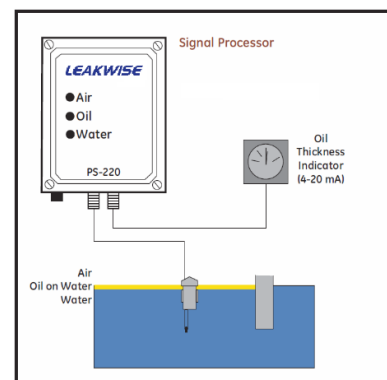
The Leakwise ID-225 is available in two sub-models according to maximum measured oil layer thickness:

- ID-225/100 for 1 - 100 mm (0.04 - 4.0 in)
- ID-225/200 for 1 - 200 mm (0.04 - 8.0 in)

Principle of Operation

The Leakwise sensors use a patented, high-frequency Electromagnetic Absorption technique. Each floating sensor houses a high-frequency electromagnetic energy transmitting and receiving antennas which continuously monitor the liquid surface. Since water absorbs more electromagnetic energy than hydrocarbons, changes in the absorption rate of water indicate the presence or buildup of hydrocarbons.

The Leakwise sensors can be used to detect and monitor the buildup of separated or emulsified non-soluble hydrocarbons on water and other aqueous solutions. No other oil sheen monitoring system does this.



Technical Specifications¹



ID-225 Sensor Specifications

Operation

Summary Floating sensor for monitoring thickness of hydrocarbons & organic solvents in wet sumps.

Operating Range

Oil Monitoring Range **ID-225/100:** 1 - 100 mm (0.04 - 4.0 in); **ID-225/200:** 1 - 200 mm (0.04 - 8.0 in)
Resolution 1 mm (0.04 in)
Water Level Variation Minimum: 30 cm (~12 in) (33 cm for ID-225/200) above well/tank/sump bottom;
Maximum: 45 m (~150 ft.).
Water Lateral Velocity ~20 cm/sec (~8 in/sec) when installed in a stilling well
Water Temperature 0 - 70° C (32 - 158° F); no freezing
Air Temperature -10 - 80° C (14–176° F)

Physical Specifications

ID-225/100 Diameter: 87 mm (3.43 in), height: 150 mm (5.9 in); fits into 96 mm (4.0 in) stilling well
ID-225/200 Diameter: 87 mm (3.43 in), height: 300 mm (11.8 in); fits into 96 mm (4.0 in) stilling well
Materials Hydrocarbon resistant polymers, 316 stainless steel.
Integral Cable 10 m (~33 ft.) supplied with sensor, additional length to order up to 50 m (164 ft.) total
Accessories Stilling well in 1 m and 2 m long sections, which can be assembled to any required length.

PS-220 Controller Specifications and Options

Specifications

PS-220 Description PS-220 Controller is an analog signal processor and power supply in a NEMA 4 enclosure, and supports a single ID-225 sensor.
Temperature Ambient temperature range: -40 - 85° C (-40 - 185° F)
Cable length to Sensor Up to 1,200 m (3,937 ft.) subject to hazardous area restrictions.
PS-220/RL/LI Two alarm relay dry contacts and one fail contact: SPDT rated 4A (3A for fail contact) at 250 VAC or 30 VDC, normally open and normally closed, and four indicating lights: Air/Oil/Water/Fail. Includes a built-in diagnostics feature.
Wiring Connections Terminal blocks: 14 AWG maximum for sensor and 4-20 mA output wires; 12 AWG maximum for power and relays wires.

Options

Enclosure Options **/N4** for NEMA 4X (IP65): 300 x 190 x 120 mm (12.0 x 7.5 x 4.7 in) (standard enclosure);
/N7 for NEMA 7: 278 x 259 x 166 mm (11.0 x 10.2 x 6.5 in);
/Exd for Ex d: 302 x 233 x 154 mm (12.0 x 9.2 x 6.1 in).
Input Power Options 220 or 110 VAC (50 - 60 Hz) or 9 - 36 VDC (@ 5 Watts); may also be solar powered.
/420 4-20 mA analog output proportional to hydrocarbon thickness up to 25 mm (1.0 in), current source
/420/BG Bar graph display (20 bars) of hydrocarbon thickness in addition to 4-20 mA analog output.
/CEN Zener Safety Barriers to allow installation of the sensor in hazardous areas.
/AUD Audio alarm option (available in weather-proof or explosion-proof enclosure).

Other Controllers – Refer to separate data sheets

SLC-220 Digital Signal Processor for Multiple (2 / 4 standard, more in a network) ID-220 Series sensor support, with various output options, including relay, lights, 4-20 mA, LCD, Modbus in RS-232 and RS-485 communication, and cellular remote connectivity.
WSP-220 Wireless communication – Point-to-Point data radio.

Sensor and PS-220 Controller Certifications

ID-225 Sensor ATEX Intrinsically Safe: II1G Ex ia IIC T4 Ga -40° C to +70° C. Also: IECEx and cETLus
PS-220 Enclosure For hazardous areas: North America - NEMA 7, Class I, Div 1, Groups B, C & D; NEMA 4 Europe – II2GD Ex d IIC T6 IP66
Combined System Approved for operation in hazardous location
Performance EPA - Conforms to Spill Prevention, Control and Countermeasure (SPCC) - Oil Pollution Prevention regulation (40 CFR part 112), and EPA/530/UST-90/009 - Leak Detection Methods TÜV - Type approval in accordance with WHG (Water Resources Law) § 19 h
Manufacturing ISO 9001:2015 Certified

¹ Specifications may be subject to change without prior notice.

For special applications, it may be possible to offer products that deviate from the above specifications.