

Leakwise*

ID-223 Oil Sheen Monitoring System

Principal of Operation

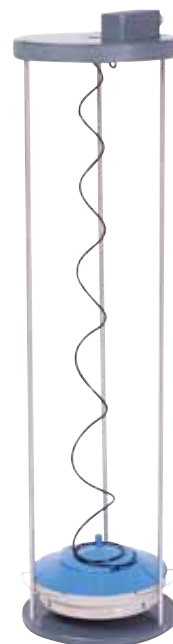
The Leakwise* ID-223 Oil Sheen Monitoring System uses an industry leading technology of Electromagnetic Energy Absorption. The instrument consists of a very high frequency transmitter connected to a mismatched antenna. The antenna is immersed in the monitored fluids. The higher the energy absorption of the fluid, the more the loading on the antenna. Since water absorbs more energy than do hydrocarbons and air, the loading in 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 the detection of small layers of oil. This technique also enables continuous monitoring of oil layer buildup and the measurement of its thickness.

ID-223 Description

The high frequency transmitter antenna is mounted on a patented float built in a guiding cage. The floating detector maintains its position precisely at the liquid/air interface, despite fluctuations in the liquid level. It has two field adjustable alarm points for:

- Low oil alarm — upon detecting the presence of a first predefined layer of hydrocarbons
- High oil alarm — upon detecting when the hydrocarbon layer has continued to build up to a second predefined thickness

The ID-223 can detect as little as 0.3 mm layer of oil on water reliably, repeatedly and without false alarms. It can also monitor on-line changes in oil layer thickness up to 25 mm. 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 and/or turbulence.

A stilling well can be used for extreme conditions. A built-in test feature is continuously monitoring failure free system operation.

Applications

The following ID-223 models are available: ID-223/500, ID-223/2000 and ID-223/2500. The ID-223 models can be installed in dry or wet sumps detecting oil leakage or spillage from:

- Above-ground oil storage
- Transformer sumps in switchyards and remote power distribution substations
- Wastewater discharge monitoring after treatment

Other available applications with hydrocarbon detection and monitoring: sewer systems, wastewater treatment systems, oil/water separators, cooling water trenches, canals, storm water run-offs, retention ponds, and boiler condensate tanks.



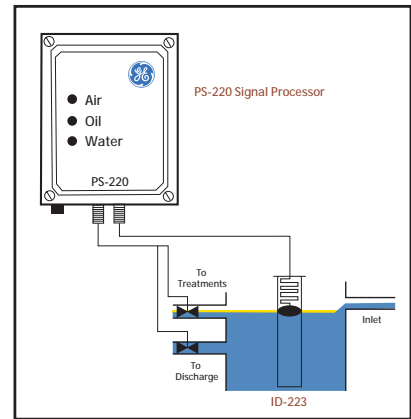
ID-223 Technical Specifications

Operational and Design Information

Operation Floating detector capable of monitoring hydrocarbons and other organic solvents on flowing water and in dry and wet sumps

Operating Range

Resolution 0.3 mm of hydrocarbon on water or brine
Measuring Range 0.3–25 mm of hydrocarbon on water or brine
Water Level Variation Various ranges are available:
 Minimum: 40–70 mm, Maximum: 2500 mm (higher ranges available)
Temperature Detector: 0° C to 70° C, higher temperatures available; PS-220 Enclosure: -40° C to 85° C



Materials

Detector Hydrocarbon resistant polymers, 316 stainless steel

Dimensions

Detector Model	ID-223/500	ID-223/2000	ID-223/2500
Detector Floating Range (other ranges available)	40–500 mm	70–2000 mm	70–2500 mm
Guiding Cage Diameter	180 mm	560 mm	280 mm
Detector Diameter	160 mm	160 mm	160 mm
Signal Processor Encl.	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, built-in diagnostics feature

Output Options

420 4-20 mA signal proportional to hydrocarbon thickness up to 1 inch (25 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 — Conforms to EPA/530/UST-90-009 for groundwater monitoring systems
 TÜV — Type approval in accordance with WHG (Water Resources Law) § 19 h
Manufacturing ISO 9001 Certified

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