



Floating layer thickness meter

11.08.07 Floating layer thickness meter

The floating layer thickness meter gives clear and accurate measurements of product level and thickness in wells and tanks.

Determination of both **L**ight (floating) **N**on-**A**queous **P**hase **L**iquids (LNAPL) and **D**ense (sinking) **N**on-**A**queous **P**hase **L**iquids (DNAPL) is quick and easy. The factory-sealed probe is pressure proof. Standard tape length is 30 m. The 16 mm (5/8") diameter probe allows easy access through tight spaces and into narrow wells. The probe is designed for use in various monitoring applications.

Hazardous locations use

The floating layer thickness meter has been approved by the Canadian Standards Association (CSA) for use in explosive environments. It is suitable for use in hazardous locations Class I, Groups C&D. The grounding strap is a safety essential when the meter is used in potentially explosive environments. It also ensures that the electronics are properly protected.

Operating principles

Product (Non-conductive liquid) = Steady light and tone

Water (Conductive liquid) = Intermittent light and tone

To detect liquids, the meters uses an infra-red beam and detector. When the probe enters a liquid the beam is refracted away from the detector which activates an audible tone and light. If the liquid is a non-conductive oil/product the signals are steady. If the liquid is water (conductive liquid greater than 50 $\mu\text{S}/\text{cm}$), the conductivity of the water completes a conductivity circuit. This overrides the infra-red circuit, and the tone and light are intermittent.

Both sensors use exactly the same zero point, giving accuracy as good as 1.0 mm (or 1/200 ft). The high accuracy enables the sensors to detect the slightest sheen of oil on the surface of the water; this is indicated by a rapid intermittent tone.

Accurate, reliable, robust

- Designed for rugged field use
- Stable electronics with automatic circuitry testing
- Laser-marked flat tape; easy to decontaminate; resists strains
- Tape uses stranded stainless steel and copper coated steel conductors:
 - high in tensile strength; electrical efficiency
 - non-stretch; does not corrode
- Sturdy free-standing reel with carrying handle

High Quality Design

The state-of-the-art electronics include automatic circuitry testing when the 'On' button is used; 120 hours of on-time battery life; clear signals; and high accuracy. Infra-red refraction is used to detect liquids and conductivity to distinguish water. Both optical and electronic sensors are precisely aligned at the same zero point. A steady light and tone indicate product. Water is indicated by intermittent signals.



All it takes for environmental research



The factory sealed probe does not need to be accessed by the user. An integral stainless steel shield protects the sensors. It is set permanently into place, yet allows for easy cleaning. The circuits are powered by 1 standard 9V battery which is housed in easy-access drawers in the faceplate of the reel.

Features

- Sensor accuracy to 1.0 mm (or 1/200 ft)
- Certified intrinsically safe
- 16 mm (5/8") diameter probe
- Easy access 9 V battery
- Automatic shut off after 5 minutes
- Easy to splice and repair
- 3 year warranty

Obtaining product measurements

To measure the thickness of a product layer, lower the probe into the well until the signals activate. If there is an oil/product layer on the top of the water (LNAPL), the light and tone will be steady, indicating an air/product interface.

Read the depth off the permanently marked tape. Lower the probe further into the water, where the signals become intermittent, then pull back up and take a reading at the product/water interface. The thickness of the product layer is then determined by subtracting the first reading from the second.

If there is only water in the well and no product, there will only be intermittent (water) signals.

The presence or absence of dense (sinking) non-aqueous layers (DNAPL) is determined by continuing to lower the probe to the bottom of the well. If the steady tone and light return, this indicates a non-conductive liquid. Measure the depth and continue lowering the probe until it touches bottom and the tape goes slack.

To determine the thickness of the DNAPL layer, subtract the first reading from the bottom depth.

Probe

Diameter 16 mm (5/8") stainless steel. The beam is emitted from within a Hydex cone-shaped tip. The tip is protected by an integral stainless steel shield. This probe is excellent for the vast majority of product monitoring situations.

Tape

The easy-to-read markings (meters and centimeters: with markings every mm) on the tape are permanently laser-marked into the tape. The dog bone shaped tape avoids adherence to wet surfaces in wells. It is resistant to most chemicals, and the smooth surface of the tape is easy to decontaminate, and easy to handle.

Standard equipment

Each standard meter is provided with a grounding clip, cleaning brush, a convenient carrying bag with shoulder strap, and a tape guide/datum. The tape guide may be used to provide support for the reel on the well casing. It acts as a datum allowing repeatably accurate measurements; ensures that the probe hangs in the centre of the well; and protects the tape from damage. It is essential to use the grounding clip to ensure safety and proper function of the electronics in all applications

