

Operating Principle

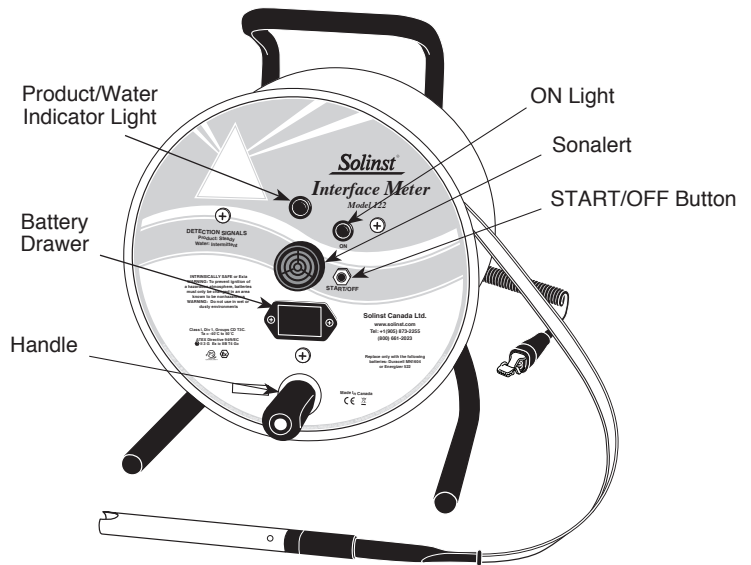
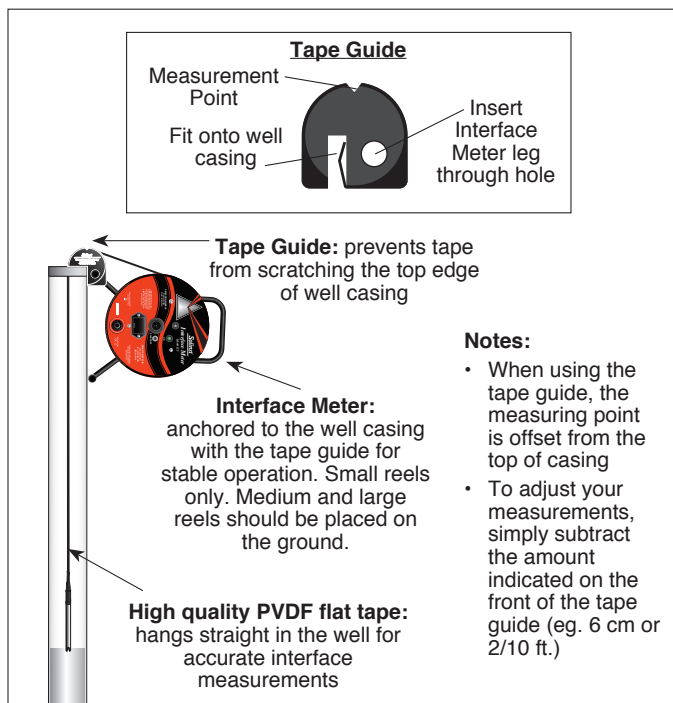
The Solinst Model 122 Interface Meter has a narrow 5/8" (16 mm) diameter probe and uses laser-marked PVDF flat tape. It is certified to CSA Standards, for use in hazardous locations Class 1, Div. 1, Groups C & D T3C, and is ATEX certified under directive 94/9/EC, as II 3 G Ex ic IIB T4 Gc. It has an infra-red circuit which detects the presence of a liquid. A conductivity circuit differentiates between conductive liquid (water) and non-conductive liquid (LNAPL or DNAPL product).

Equipment Check

Before beginning any measurements, check the electronics and battery condition by pushing the 'START/OFF' button. Five quick beeps with the green light flashing, indicates that the meter is functional. A flashing green light every second indicates the meter is on. It will automatically turn off after 5 minutes to preserve battery life.

Using the Tape Guide

1. The tape guide has been designed to: improve accuracy when reading interface measurements; to prevent the laser-marked PVDF flat tape being cut by well casing; and to allow the tape and probe to hang straight from the side of the well.
2. If interface measurements are being taken in a 2" dia well, then simply fit the small end of the tape guide onto the edge of the well casing.
3. Insert the leg of the Interface Meter into the hole on the Tape Guide (small reels only).
4. Once inserted, rest the Interface Meter on the side of the well casing.



Field Measurements

IMPORTANT

1. To meet safety requirements and to protect the electronics from damage, always ground the meter by attaching the grounding clip to the metal well casing or to a suitable ground rod.
2. Push the 'START/OFF' button. Five brief tones and green light indicate that the meter is functional and the flashing green light indicates that the meter is on. The meter automatically turns off after 5 minutes. Press the 'START/OFF' button as necessary during operation to turn the meter back on.
3. Place the slotted part of the tape guide onto the edge of the well casing. Lay the Interface Meter laser-marked PVDF flat tape into the groove on the top of the tape guide. Measurements are read at the V-notch on the tape guide.

Note: When using the tape guide, remember to subtract the compensation factor stamped onto the side of the guide from each measurement.

4. A steady tone and red light indicates a non-conductive liquid (e.g. product). An intermittent tone and red light indicates a conductive liquid (e.g. water).
5. For floating product (LNAPL), take the air/product interface measurement on the way into the liquid, and the water/product interface on the way up. When passing through product into water, some product may adhere to the probe sensors due to surface tension. Therefore, when water is detected below product, the probe should be raised and lowered rapidly in a short vertical motion to remove any product that may have been carried down with the probe.

6. The water/product interface should then be measured as the probe is raised very slowly back up. Once the interface is detected the probe can be raised and lowered in small increments to precisely determine the interface.
7. Repeat measurements to confirm water/product interface.
8. To determine the thickness of product, subtract the water/product interface from the product/air interface.
9. To determine if there is any sinking product (DNAPL) in the well, continue lowering the probe slowly. If steady signals activate, determine the top of the sinking layer by reading directly from the PVDF flat tape. Continue lowering the probe slowly until the tape slackens when the well bottom is reached. Read the level directly from the PVDF flat tape and subtract one from the other to determine thickness.
10. Upon completion of readings clean the tape and probe; as described in the Cleaning and Maintenance section.

Cleaning and Maintenance

After each use, the laser-marked PVDF tape should be wiped clean and carefully rewound onto the reel.

The probe should be cleaned as follows:

- Wash probe thoroughly with a non-abrasive mild detergent. **DO NOT USE ANY SOLVENTS.** Use a soft cloth around the pins on the end of the probe to remove all product. Use the brush provided to remove all product from inner part of the probe.
USE LUKE-WARM, NOT HOT WATER. DAMAGE TO THE PROBE MAY RESULT.
- Rinse probe thoroughly with distilled water, wipe dry.
- Return the probe to the holder.

Other suitable cleaning method:

- Steam clean the PVDF flat tape only.

Battery Replacement

Push the battery drawer in and up and then release. The battery drawer should eject slightly, allowing it to be pulled out. Replace the 9V alkaline battery.

Other General Tips:

1. The probe should be cleaned after each use.
2. Always use the grounding cable.
3. Do not drop probe: damage to probe tip may result.
4. If battery is weak, the start tone will not sound, and flashing "green" light will be off. Replace the 9V alkaline battery.
5. Where possible, use a Solinst tape guide to protect the tape from scraping on well casing.
6. Before storage, make sure the meter is turned off. If the Interface Meter is going to be stored for longer than two months, the 9V alkaline battery should be removed to avoid potential leakage.
7. The meter can be checked by placing the probe in distilled (non-conductive) water or pure phase product, for example lamp oil (**avoid bright sunlight during testing and resting the probe on the bottom of the container**). A steady tone and light should be observed.
8. To maintain Intrinsic Safety Certifications, do not splice the tape.

Note: In rare circumstances it is possible that the 122 might sound when directed toward sunlight, and not in a liquid. This is normal and does not affect proper operation in a monitoring well.

Troubleshooting

When instrument is turned 'ON' there is a solid red light (no tone)

1. Indicates a connection issue. Contact Solinst for further troubleshooting options.

Instrument will not turn 'ON' (no starting tone)

1. Replace the battery
2. Check the polarity of the battery in the drawer: make sure the + and - on the battery and the drawer match. The probe may be harmed by a reversed battery.
3. ON/OFF button could be faulty. Contact Solinst.

When instrument is turned 'ON', it immediately sounds product tone or intermittent water tone

1. Probe sensor may be dirty. Clean according to Cleaning and Maintenance instructions.
2. Water may have leaked into the probe. Carefully, remove the probe, keeping the wires connected. Dry out the probe, wipe and inspect the o-ring, replace if necessary and/or lubricate with silicone. To avoid any nicks, make sure the wires are tucked back into the probe body when replacing the probe. See Probe Replacement Instructions.
3. Tape may be damaged. Clean the tape and look for any cuts or nicks. If necessary, replace the damaged tape. To maintain the 122 Intrinsic Safety rating, do not splice or repair a damaged tape. Contact Solinst for assistance.

4. The reel or probe circuitry could be damaged. Contact Solinst.

Instrument does not detect liquid

1. Check battery. Replace if necessary.
2. Clean probe tip following the Cleaning and Maintenance instructions.
3. Probe may be damaged. Please contact Solinst.

Instrument detects "Product" as "Water"

1. Note that this can happen if the probe is pulled into product too quickly and therefore pulls water in with it. Thoroughly dry the probe tip or shake the probe and try again at a slower speed.
2. Product may have degraded or is now disturbed enough to become an emulsion. If it has a detectable level of conductivity, it will read water. Wait for it to settle and try again.

Instrument does not detect water

1. Clean the probe tip. Follow the Cleaning and Maintenance instructions.
2. The water could be pure and non-conductive or product may be coating the probe, in which case, shake the probe for a while in the water column to clean product from the probe.
3. The probe circuitry could be damaged due to high voltage (static) in the well. Always use a ground cable. Please contact Solinst.