WMS-INT

User Manual

Oil/Water Interface Meter

Ver.01.2023

Table of Contents

P.A.S.I srl – via Galliari 5/E – 10125 TORINO – Italy
Tel. +39 011 650.70.33 – Fax +39 011 658.646 - E-mail sales@pasisrl.it
www.pasisrl.it

Important Notice

Information about warranty and safety notes

Read the instructions carefully before using the product:

This device has been designed and built to measure the level of liquid and oil/water interface inside water well and piezometer. A careful reading of this manual is recommended before proceeding with use.

- Warranty will be void if the product is used in any ways that is in contradiction with the instructions given in this manual.

- Warranty will be void if the instrument has been tampered with.

- The device must only be used only according to the instructions described in this manual. Faultless and safe operation of the device can be guaranteed only if the transport, storage, handling and operation of the device is appropriate.

- To avoid damage, use only original accessories or approved by PASI srl.

- When a suitable location has been selected for the device, it must be ensured that no water can get into the device under any conditions. Only the probe and the cable can be submerged in water. Direct sunlight is also to be avoided for long periods. It is not recommended that the instrument is installed on a strongly vibrating surface.

1.Introduction

PASI WMS-INT it's a water-oil interface meter and a water level meter.

The water level is readable on the millimetre cable. The device in made of an acoustic indicator that notify the entrance and the exit in a liquid and with a LED indicator on the front panel.

The LED Indicator also provide low battery signal.

The System is made of:

- Cable reel with a specified cable length and with a Probe for liquid indication
- 9V Battery included

2.Technical Specification

Millimeter Cable

Flat Millimeter cable with steel ribbon core and 2 copper conductors (10x2 mm), covered with a transparent scratchproof Polyurethane sheath.

The millimeter black indication is present all over the length of the cable, centimeters and decimeters in black color, meters indication in red color.

Probe

FIGURE 1 PROBE DETAIL

Main Characteristic

Probe sensors	Optical and electrical conductivity sensor
Probe diameter	19mm
Probe length	220mm
Materials	Body and protective cap made of stainless steel; Prism and cable clamp made of photopolymer resin.

Level Indicator

Oil Indicator	Pulsing tone and pulsing LED indication
Water Indicator	Continuous tone and continuous LED indication

Power supply

Batteries	Duracell alkaline battery MN1604 User-replaceable
Battery Life	Up to 70h (depends on usage)
Auto Off	After 10min

NOTE:

When the battery is low, the LED indicator will flash 10 times with a frequency of 1 second and then turn off automatically.

User interface

Button	Single button for power on, power off and setting settings

Cable reel

Materials	PVC and metal
Weight	1.5Kg, 2.1Kg, 3.1Kg
Cable lenghts	30m, 50m, 100m

3.User interface, functionality, and maintenance

The instrument probe is equipped with two sensors for liquid detection:

1. Optical sensor
2. Electrical conductivity sensor

The optical sensor consists of a prism and an infrared emitter-receiver pair. This sensor can identify whether the probe is immersed or not in a liquid, however it cannot discern the type of substance.

The electrical conductivity sensor is activated when the optical sensor senses the presence of a liquid. If it detects a conduction of electricity, the instrument will signal that the probe is in the presence of water. If there is no passage of electricity, the instrument will signal that the probe is immersed in oil.

If the probe is immersed in a liquid consisting of two phases, an underlying aqueous phase and an overlying oily phase, the instrument will first signal the presence of the nonconductive supernatant with the emission of a pulsing sound and light, then switch to signal the conductive aqueous phase with constant sound and light.

Panel

The instrument panel displays information about the instrument and its features.

FIGURE 2 PANEL DETAIL

Interface

The user interface consists of a single button with which all functions can be performed. The instrument detects the number of pushes or the press time to perform specific function:

- Power on;
- Power off;
- Deactivation of the sound indicator;
- Auto-off counter reset.

Power on:

To turn the instrument on, you must press and hold the ON/OFF button until a pulsing sound is made, indicating that the instrument is active and ready to work..

Power off:

Turning off is done by prolonged pressure; when the instrument beeps an intermittent sound you can stop pushing the button and the instrument will turn off.

Deactivation of the sound indicator:

If the instrument is submerged and you prefer to turn off the audible indicator leaving only the optical indicator active, you simply push the button once, while you are using the instrument. This operation it is the reset when the instrument it is not in the liquid.

Auto Power Off:

Each time the ON/OFF button is pressed, the auto-off counter resets. The instrument will only turn off after 10 minutes of inactivity.

Features

- Water phase detected: continuous sound and light emission from LED indicator;
- Oil phase detected: intermittent sound and light emission from LED indicator;
- Auto-off for 10 minutes if no power button presses are detected;
- If the battery is low, the LED indicator will flash 10 times with a frequency of 1 second and then turn off automatically.

Precautions for field use

The instrument may not be able to distinguish desalinated water from an 'Oil' as it is poorly conductive.

In the case of a particularly viscous oil component, it is important to keep in mind that the accuracy of the interface level measurement may be compromised by the presence of oil on the electrodes used to measure water. A useful expedient to improve the measurement is to measure the transition from water to oil and not vice-versa. For example, if we are in the presence of water plus floating oil phase, it is preferable to dip the probe through the oil while waiting for the instrument to indicate the presence of water, then slowly pull the probe upward and measure the interface as the instrument transitions from water to oil. To have a more accurate measurement of the oil floating over water, it is best to consider the immersion measurement as the most reliable measurement and not the extraction measurement, because a very thick liquid may continue to coat the prism for a few moments after its surfacing.

Maintenance

To keep your instrument in perfect condition, remember to clean the cable and probe thoroughly and dry them with a soft cloth after use.

To keep the measuring sensor clean and precise it is recommended to clean it on regular bases.

To clean the probe, we recommend to use denatured ethyl alcohol and then rinse it in distilled water.