Pall Corporation

New: Pall WS09 Series Water Sensor

For measurement of water content in oil

The Pall WS09 Series portable water sensor is an ideal, low-cost method for measuring dissolved water content in hydraulic, lubricating and insulating fluids.

Specifically designed for use in industrial environments, readings are shown on an LCD display and can be used as a key component in the predictive maintenance of plant and machinery.

Features

- A sensing probe directly immersed in the fluid to monitor dissolved water content and temperature
- Water content output in % saturation or PPM
- Temperature in °C or °F
- 'Plug and play' connectivity
- Simple to operate and calibrate
- Robust housing and sensing probe designs.

The Effect of Water in Oil

Water contamination in fluids can cause numerous problems such as additive depletion, oil oxidation, corrosion, reduced lubricating film thickness, microbial growth, and reduction of dielectric strength. These costly problems can be averted with continuous monitoring of oil water content so that timely action can be implemented. Hydraulic, lubricating and insulating fluids should be operated without the presence of free water and with dissolved water levels at 50 % saturation or considerably lower in the case of insulating oils.

Water content measurement in oil

PPM

The common industry practice has been to report water content in oil in terms of parts per million (PPM). Most fluids can tolerate a certain degree of water contamination, but at what level is it considered excessive? 200 PPM of water in a phosphate ester based oil would be excellent. However, the same amount would be catastrophic in a transformer oil.

% Saturation

An alternative way to report water content is as a percentage of the water saturation level of the fluid for a given temperature. One advantage of this method is that it provides a better measure of how close the water content is to the water saturation level of the oil and hence, the formation of free water in the fluid. The WS09 water sensor reports the presence of dissolved water in oil in the range of 0 % to 100 % of saturation. If an oil is cloudy due to free water contamination at the measurement temperature, the WS09 Water Sensor will display 100 % saturation, until steps are taken to bring the water content below the saturation point.

The % saturation can be converted to water concentration in PPM by programming the unit with constants that are specific to the fluid; contact Pall Corporation for details.

Simple use

Specifically designed for industrial environments the WS09 Water Sensor features a thumb-wheel for simple on-site adjustment and calibration, and interchangeable sensor options.

Applications

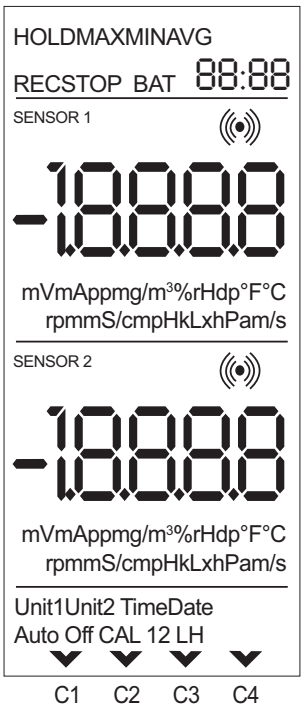
There are numerous applications for the WS09 Water sensor, including:

- **Primary Metals**
  - Rod Mill High Speed Lube Systems
  - Cold Mill Tandem Mill
  - Tilt Furnace HPU's
- **Power Generation**
  - Gear Box Lube Oil
  - Turbine Lube Oil
  - Transformer Oil
- **Pulp and Paper**
  - Dryer Section Lube Systems
  - Wet End Lube Systems
  - Press Section Hyd/Lube Systems
  - Powerhouse - Steam Turbine Lube Systems
- **Marine**
  - Main propulsion lubrication
  - Hydraulic active fin stabilization
- **Industrial In-plant**
- **Automotive**
- **Offshore / Petrochemicals**

Specification

Dimensions	85mm W X 145mm L X 37mm D (3.3" W X 5.7" L X 1.5" D)
Supply Voltage	4X 1.5V Alkali-Manganese Battery IEC LR6 AA.
Battery Life	200 Hours
Temperature	
Sensing Probe Tip	-40 °C to 120 °C (-40°F to 248 °F)
Grip of Sensing Probe	0 °C to 50 °C (32°F to 122 °F)
Hand Held Display	0 ºC to 50 ºC (32ºF to 122 ºF)
Fluid Compatibility	Petroleum based and synthetic fluids. The water sensor is not to be used in water based fluids or aerospace phosphate ester hydraulic fluids.
Probe Cable Length	2 m (6.6 ft)
Accuracy Saturation	± 2 % 0 to 90 % RH and ± 3 % 90 to 100 % Traceable to international standards, administered by NIST, PTB, BEV
Accuracy Temperature	± 0.2°C (±0.36°F) at 20°C (68°F) ± 0.7°C (±0.9°F) at -40°C (-40°F) ± 0.7°C (±0.9°F) at 100°C (248°F)
Enclosure / Protection	ABS /IP 40
Weight	0.43 kg (0.95 lb)
CE Compatibility	EN61000-6-4, EN61000-6-2, EN55011, EN61000-4-2, EN61000-4-3
Display	Liquid Crystal Display, 90 X 50mm (3.5" X 2"), Illuminated
Calibration Services	Available from Pall; contact your local representative

The display



◀ Upper menu with date and time

◀ Measurement value indication and units of sensor 1

◀ Measurement value and units of sensor 2

◀ Lower menu for configuration and calibration

Ordering Information

Water Sensor (handheld unit and probe) with case:	**WS09DS**
Water sensor, case and optional calibration kit:	**WS09DSC**
Probe only:	**WS09S**
Callibration kit:	**WS09CALK**
Callibration salts only:	**WS09CALS**
Connecting cable:	**WS09CABLE**

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