

# Engineering Specification for Oil-in-Water Monitor

(HydroSense 4410-OCM)

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The ppm (mg/l) Oil in Water Monitor shall be a continuous slip-stream on-line flow through style using a UV Fluorescence technology to target hydrocarbon based oils in water. The operating range shall be user defined and selectable at site from 0 to 10 ppm (mg/l) up to 0 to 250 ppm (mg/l). A continuous sample flow will tap off the process line to the monitor under process pressure and flow rates. In cases where pressure and flow is not within instrument specifications, an approved regulator or pump is acceptable. The sample stream returns to the process or drain as per the drawings.

The sensing unit may be separated from the controller display unit up to 300 meters. The UV light source shall be LED for long life and stability. A turbidity sensor and optical fouling sensor shall be included to alert of upset process conditions or maintenance. A compressed air inlet at the sensor block shall be available to keep the optical flow tube free of condensation. A flow regulator at the stream inlet and pinch valve at the outlet shall be included to control the flow rate and back pressure at the sensor block to eliminate bubble release. The optical flow tube shall be readily accessible for inspection, cleaning and testing without tools.

The controller shall provide a 4-line LCD display of ppm or mg/l concentration. The display will also advise of diagnostic and control functions. An isolated 4-20 mA output signal will be standard and its range selectable through the keypad. An RS-485 Modbus communication shall be standard. Four 10 amp SPDT relays shall be available; two relays for alarm setpoints, each with full differential to eliminate control chattering and allow a concentrated stream to adequately clear prior to reset; one relay to alarm on a negative offset drift, and one relay to alarm on a maintenance requirement or fault condition. Relay time delay and output signal filtering shall be standard and selectable via the keypad.

The relays can be manually disabled and re-enabled via the keypad during operational checks and other routine interventions. The 4-20 mA output can be simulated through the keypad to set up and verify remote interconnected devices. Continuous self-diagnostics will warn of a signal failure, negative offset drift, over-range, lamp failure, or calibration failure.

Calibration shall be done on-line and under normal process flow and power conditions. Unknown calibration values can be corrected to an outside laboratory result by a simple keypad entry.

The controller and sensor chamber shall be housed in Type 4 (IP66) metal housings. Optional 316SS housings may be required if the application dictates.

The unit shall be third party approved for electrical safety. The unit shall be manufactured in an accredited ISO 9001 facility.

The system shall be as the HydroSense Model 4410-OCM from Arjay Engineering Ltd.