

# Hach FP 360 sc Oil-in-Water Continuous Online Monitoring Sensor

Oil-In-Water

## Features and Benefits

### Lowest Cost of Ownership

The FP 360 sc is specifically designed to detect traces of mineral oils in water while providing the necessary value and benefits for a positive return on investment.

- **The Right Technology for the Right Price**

*Due to its unique combination of submersible probe design and UV fluorescence sensing technology, the FP 360 sc delivers the best technology and is priced below competitive UV fluorescent instruments to detect oil in water.*

- **Minimal Maintenance**

*The FP 360 sc has no tubes, pumps, or valves that can foul or require constant maintenance interventions. Maintenance is limited to occasional wiping of the sensor's measurement window, calibration once every two years, and Xenon lamp replacement every four years.*

- **Reduced Laboratory Testing**

*While laboratory testing is the ultimate method of measuring oil in water, it is a long and complex process that requires special equipment and trained lab personnel. The FP 360 sc provides a cost-effective, continuous on-line monitoring solution to maintain process control and avoid oil contamination with minimal laboratory testing.*

### High Sensitivity and Selectivity

The FP 360 sc can detect and measure polycyclic aromatic hydrocarbons (PAHs) from 1.2 ppb to up to 5000 ppb ( $\mu\text{g/L}$ ). This is approximately equivalent to a concentration of mineral oil between 0.1 to 150 ppm ( $\text{mg/L}$ ). Furthermore, the FP 360 sc method of detection makes it impervious to interferences by turbid water or natural organic and biological matter that impact online light scattering, UV absorbance, and VIS fluorescence instruments.

### Designed for Harsh Conditions

The FP 360 sc is available in stainless steel or titanium housing to provide oil-in-water measurement in the harshest of conditions.

*The FP 360 sc is the only online oil-in-water instrument that delivers the highest sensitivity and selectivity with the lowest total cost of ownership.*

DW

WW

PW

IW

### Full Featured "Plug and Play" with Hach Digital Controllers

There's no complicated wiring or set up procedures with the Hach family of controllers. Just plug the sensor to any Hach digital controller and it's ready to use because it's "plug and play."

- **One to Eight Sensors**

*The Hach Digital Controller Family can receive data from up to eight Hach digital sensors, including oil-in-water, suspended solids, turbidity, pH/ORP, dissolved oxygen, conductivity, ammonium, phosphate, SAC, and nitrate in any combination.*

- **Wide Range of Communications**

*Multiple alarm/control schemes are available using relays and current output contracts from the sc controller. Communications use analog 4-20mA and digital MODBUS<sup>®</sup>/RS485, MODBUS<sup>®</sup>/RS232, and MODBUS<sup>®</sup> TCP/IP protocols. Other digital protocols are also available.*

DW = drinking water WW = wastewater municipal PW = pure water / power  
IW = industrial water E = environmental C = collections FB = food and beverage



Be Right<sup>™</sup>

## Specifications\*

### Measurement Method

UV fluorescence method for polycyclic aromatic hydrocarbons (PAH)

### Light Source

Miniature xenon flashlamp with interference filter

### Detector

UV photodiode with interference filter;  
Compensation of daylight and flashlamp intensity fluctuations

### Excitation Wavelength

254 nm

### Measurement Wavelength

360 nm

### Measuring Range

Low Measuring Range:

0–50 ppb (µg/L) and 0–500 ppb (µg/L) (PAH)\*\*  
0.1–1.5 ppm (mg/L) and 0.1–15 ppm (mg/L) (oil)\*\*

High Measuring Range:

0–500 ppb (µg/L) and 0–5,000 ppb (µg/L) (PAH)\*\*  
0.1–15 ppm (mg/L) and 0.1–150 ppm (mg/L) (oil)\*\*

### Resolution

0.1 ppb (µg/L) (PAH) in the lowest measuring range  
Limit of Detection (LOD) is 1.2 ppb (PAH)

### Reproducibility

2.5% of measured value at constant temperature

### Response Time

10 s (T90)

### Calibration

Factory calibrated with UV fluorescence standard or process calibration with results of a grab sample analysis.

### Sample Temperature

33.8 to 104°F or 1 to 40°C

### Pressure Range

Max. 30 bar or 435 psia (measurement probe)

### Housing

Stainless steel 316Ti (1.4571) or titanium

### Dimensions

2.68" x 12.05" or 68 x 306 mm  
(D x H; without connector and suspension pin)

### Weight

Stainless Steel: 6.2 lbs or 2.8 kg

Titanium: 4 lbs or 1.8 kg

\*\*With Calibration Standard.

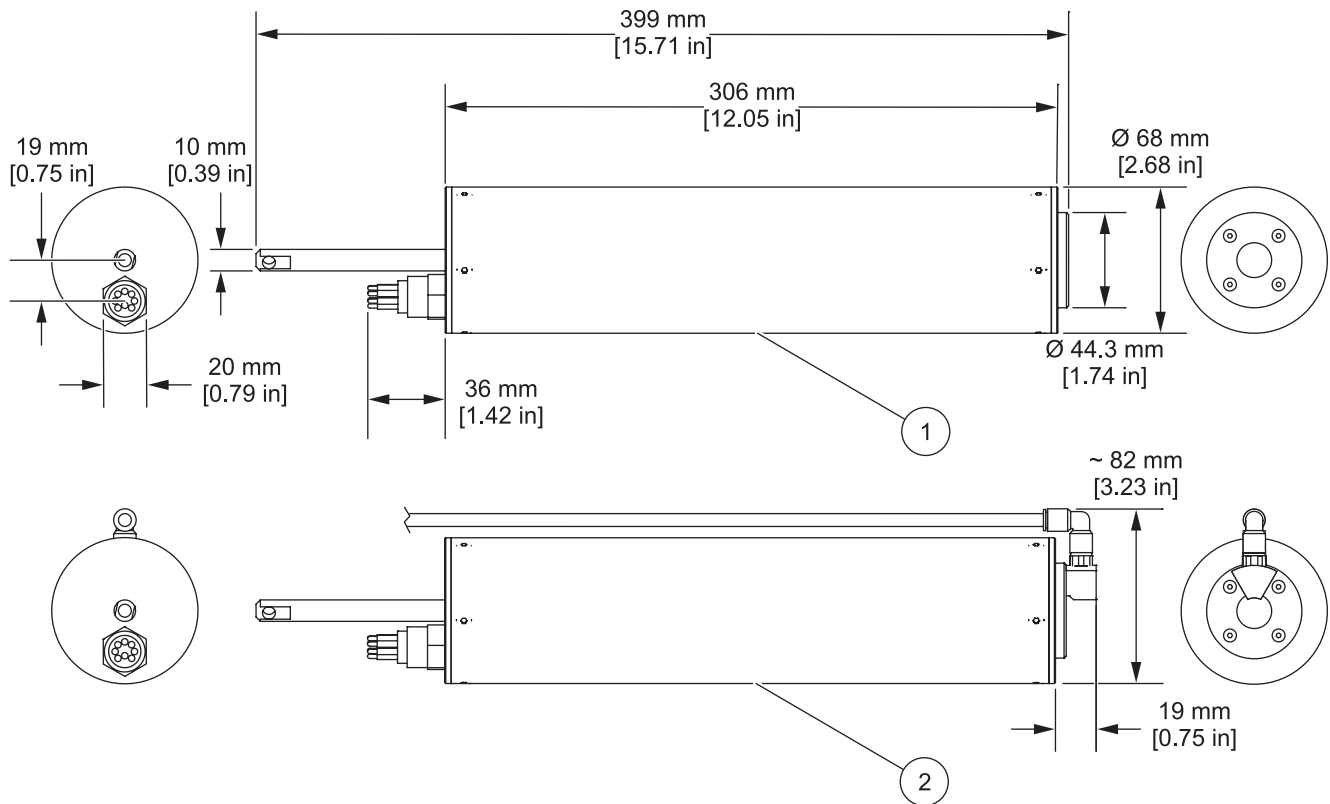
\*Specifications subject to change without notice.

## Engineering Specifications

- The oil-in-water probe comes with a rugged corrosion resistant metal housing and that allows for continuous submersed operation.
- The oil-in-water probe shall be a continuous-reading sensor that utilizes a UV-fluorescence technology with excitation at 254 nm and emission detection at 360 nm wavelength.
- The measurement range shall be 0 to 5,000 ppb in relation to PAH calibration standard, corresponding to 0.1 to 150 ppm of oil, depending on model.
- The response time (T90) shall be 10s or less. Limit of Detection is 1.2 ppb of PAH or less.
- The sensor shall be equipped with a stain resistant measuring window.
- The sensor shall compensate for the interference effects of ambient light and UV lamp output fluctuations.
- The sensor shall provide reagent-free operation without the requirements of sample conditioning in the range from 0 to 200 ppm total suspended solids.
- The sensor shall be compatible with optional Hach air blast cleaning system.
- The sensor shall be warranted for one full year against defects in material and workmanship.
- The sensor shall be the FP 360 sc UV Fluorescence Sensor for oil-in-water detection and measurement, manufactured by Hach Company.

## Dimensions

Figure 1 shows the sensor without the cleaning unit. Figure 2 shows the sensor with the cleaning unit.



## Principle of Operation

The FP 360 sc measures intensity of fluorescence light at a wavelength of 360 nm emitted by polycyclic aromatic hydrocarbons (PAH) after UV irradiation of the sample at 254 nm. Since PAHs are components of most mineral oils, the FP 360 sc can detect the presence of oil contamination in surface, process, or industrial waters. In addition, since the intensity of the emitted light is proportional to the PAHs concentration, the FP 360 sc can be calibrated to measure oil concentration in stable matrices.

## Ordering Information

<b>LXV441.99.11102</b>	0–500 µg/L, stainless steel, 32.8 ft or 10 m cable without cleaning unit
<b>LXV441.99.11202</b>	0–500 µg/L, stainless steel, 32.8 ft or 10 m cable with cleaning unit
<b>LXV441.99.11302</b>	0–500 µg/L, stainless steel, 5 ft or 1.5 m cable without cleaning unit
<b>LXV441.99.12102</b>	0–500 µg/L, titanium, 32.8 ft or 10 m cable without cleaning unit
<b>LXV441.99.12202</b>	0–500 µg/L, titanium, 32.8 ft or 10 m cable with cleaning unit
<b>LXV441.99.12302</b>	0–500 µg/L, titanium, 5 ft or 1.5 m cable without cleaning unit
<b>LXV441.99.21102</b>	0–5,000 µg/L, stainless steel, 32.8 ft or 10 m cable without cleaning unit
<b>LXV441.99.21202</b>	0–5,000 µg/L, stainless steel, 32.8 ft or 10 m cable with cleaning unit
<b>LXV441.99.21302</b>	0–5,000 µg/L stainless steel, 5 ft or 1.5 m cable without cleaning unit
<b>LXV441.99.22102</b>	0–5,000 µg/L, titanium, 32.8 ft or 10 m cable without cleaning unit
<b>LXV441.99.22202</b>	0–5,000 µg/L, titanium, 32.8 ft or 10 m cable with cleaning unit
<b>LXV441.99.22302</b>	0–5,000 µg/L, titanium, 5 ft or 1.5 m cable without cleaning unit

Note: Probes with cleaning unit cannot be operated in combination with the flow cell, Product Number: LZY669.

### Recommended Accessories

Mounting Hardware:

<b>LZX914.99.11110</b>	SS chain mounting set
<b>LZY669</b>	Flow cell with mounting panel

## To complete your Oil-In-Water measurement system, choose from these Hach controllers...

### Model sc200 Controller

(see Lit. #2665)

The sc200 Universal Controller is the most versatile controller on the market. The new sc200 controller is the only controller that allows the use of digital and analog sensors, either alone or in combination, to provide compatibility with the broadest range of sensors. It replaces the Hach sc100 digital and GLI53 analog controllers with advanced features for easier operator use.



### Model sc1000 Controller

(see Lit. #2403)

Get the same great features as the sc200 Controller above—"plug and play", all digital operation and communication—but with the Hach sc1000 Controller, up to eight Hach sensors can be used with one controller in any combination. The sc1000 Controller is also expandable and upgradeable to easily adapt to your needs.



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In the interest of improving and updating its equipment, Hach Company reserves the right to alter specifications to equipment at any time.

**At Hach, it's about learning from our customers and providing the right answers. It's more than ensuring the quality of water—it's about ensuring the quality of life. When it comes to the things that touch our lives...**

**Keep it pure.**

**Make it simple.**

**Be right.**

**For current price information, technical support, and ordering assistance, contact the Hach office or distributor serving your area.**

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