# KEMTRAK

# FL007
# Oil in Water Analyzer



## FEATURES

- Simultaneous UV fluorescence and turbidity measurement
- Ø12 mm PG 13.5 immersion probe
- Real time inline measurement
- Calibration for 16 different oil types
- Suitable for hazardous area use
- Alarm, 4-20 mA and Modbus TCP communications



The Kemtrak FL007 is a fiber optic probe based oil in water analyzer. Its state-of-the-art combined fluorescence and turbidity measurement assures reliable continuous monitoring of oil and hydrocarbon contamination in water.

Each oil has its own unique fluorescence intensity resulting from its specific PAH content. The combined fluorescence from both dissolved and dispersed oil in water is measured and correlated to the oil content. Entrained gas and solids present in the stream will not fluoresce and therefore do not affect the measurement.

Oils or hydrocarbons low in aromatic content that may not fluoresce are detected using simultaneous turbidity measurement. Operators are instantly informed of all leaks assuring a high measurement confidence.

Environmentally friendly, mercury-free LED light technology assures drift-free operation with exceptionally high precision. The immersion probe has the same dimensions as industry standard Ø12 mm PG 13.5 pH sensors, allowing a range of standard fittings and retractable probe holders to be used. Scratch-resistant sapphire optics, the absence of onboard electronics, and no moving parts make it suitable for both ordinary and hazardous area use.

Standard features include 16 separate linearization/calibration tables for multiple product operation, remote zeroing, automatic cleaning cycle operation and advanced signal filtering. An on-board graphical internet based configuration utility allows remote operation, calibration, validation, and data trending using a standard PC.

All Kemtrak products are designed to meet the most demanding application specifications and are made from the highest quality materials to ensure exceptionally long life and the highest reliability.

## TYPICAL APPLICATIONS:

- Trace oil in water
- Leak detection
- Cooling water & condensate return
- Drinking water
- Wastewater monitoring
- Environmental monitoring
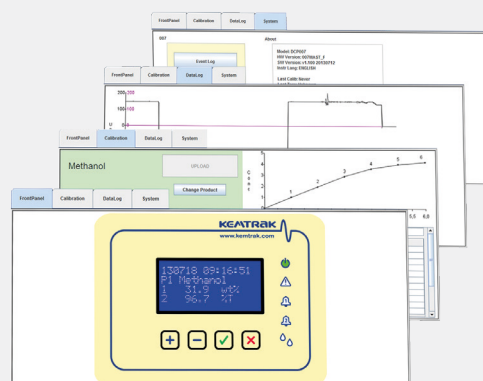
# FL007
# Oil in Water Analyzer

## TECHNICAL DATA

### HOUSING

Stainless steel EN 1.4301 (X5CrNi18-10), AISI 304 (V2A)
Cam lock with double bit insert & external mounting brackets
224 x 215 x 125 mm (L x W x D)
IP 65 / EN 60529

### DISPLAY

16 x 4 alphanumeric white on blue dot matrix LCD display
LED background illuminated
Measurement updates every second

| | |
|---|---|
| LED 1 (green): | Power on |
| LED 2 (red): | System fault |
| LED 3 & 4 (orange): | Alarm 1 & Alarm 2 |
| LED 5 (blue): | Clean / Hold |

### OPERATION

Menu based with 4 operator buttons
Remote HTML/Java interface (TCP/IP connection via Ethernet port)

### SOFTWARE FEATURES

| | |
|---|---|
| Auto gain: | Fully automatic signal gain controller |
| Auto zero: | Automatically, locally or remotely activated zero |
| Calibration: | 16 linearization tables for concentration & mA output |
| Damping: | From 0 to 9999 s with noise (air bubble / particle) filter |
| Memory: | Nonvolatile - all data retained upon power failure |
| Security: | Alphanumeric password protection |

### DATA LOGGER

>17000 data points (timestamp, average, max. & min.), ring buffer
Configurable log time interval 1 s to 24 hr

### EVENT LOGGER

>16000 events, ring buffer
Timestamp, alarms, zeroing, cleaning, product change, calibration &
system events (power, system warning & error messages)

### AUTOMATIC CLEANING CONTROL

Automatic cleaning sequence, triggering dedicated relay output
Manual trigger or external trigger via digital input
Configurable automatic cleaning interval, 15 min to 2 months
Configurable cleaning duration from 0 to 9999 s
Auto-zero after clean option
Hold value during clean 0 to 9999 s
Hold value after clean (to equilibrate) 0 to 9999 s

### PID CONTROLLER

Control method: Pulse width modulated relay output or
0/4-20mA output

| | |
|---|---|
| Control period: | 2 - 99 s |
| Proportional gain: | 0.0000 - 999999 |
| Integral time: | 0.0000 - 999999 s |
| Derivative time: | 0.0000 - 999999 s |

### REMOTE INPUT

5 x Digital input (potential free contact) for:

| | |
|---|---|
| Input 1-3: | Product/range selection |
| Input 4: | Zero, instant zero, clean or clean & Zero |
| Input 5: | Hold (freeze output), data log or light source control |

### LIGHT SOURCE

High performance UV light emitting diodes (LEDs)
Typical lamp lifetime >10000 hrs

### FLUORESCENCE

| | |
|---|---|
| Measuring principle: | UV fluorescence |
| Excitation: | 280 nm |
| Detection: | 360 nm |
| Nominal Range: | 0 – 5000 µg/L PAHphe |
| | ca. 0 – 200 ppm oil in water* |
| Detection limit: | 1 µg/L PAHphe |

### TURBIDITY

| | |
|---|---|
| Measuring principle: | Backscatter turbidity |
| Nominal Range: | 0 – 10000 FTU |
| | ca. 0 – 20000 ppm oil in water* |
| Resolution: | Typically < ± 0.5 FTU |

\* Oil in water response is dependent on oil type
  Up to 16 oils can be customer calibrated

### ACCURACY

Typically   <±2 % of reading

### mA OUTPUT

1 x selectable 0 – 20 mA / 4 - 20 mA
NAMUR NE43 compliant
Galvanically isolated, 500 VDC

| | |
|---|---|
| Accuracy: | <0.1 % |
| Resolution: | 0.025 % |
| Load: | 0 – 600 Ohm |

### RELAY OUTPUTS

1 x 1 A 240 VAC Failsafe output (active when system is ok)
2 x 1 A 240 VAC User configurable (alarm, PID)
1 x 1 A 240 VAC Automatic cleaning control
Fuses: 4 x 1 A (type: MXT), max 100 A breaking capacity
LED status indicators flash when relays are active

### FAIL-SAFE

Dedicated relay output, 1 A 240 VAC
mA output value used to signal a system fault
mA outputs compliant to NAMUR NE43

### NETWORK INTERFACE
### (REMOTE COMMUNICATIONS)

TCP/IP, 10Base-T and 100Base-TX Link
Connector: RJ45
Protocol:
1. HTML interface using native protocol over TCP/IP
   Java® version 8 update 202 or later required
2. MODBUS slave over TCP/IP (V1.1b3 compliant)
   Functions: (0x03, 0x04, 0x2B/0x0E - conformity 0x01)

### OPERATING CONDITIONS

| | |
|---|---|
| Ambient temperature: | 0 °C to +50 °C (32 °F to 122 °F) |
| Transport: | -20 °C to +70 °C (-4 °F to 158 °F) |

### POWER SUPPLY

100 - 240 VAC, 50-60 Hz & 22 - 30 VAC/VDC
Mains fuse: 1A (type MST), Max breaking capacity 35A

### POWER CONSUMPTION

25 VA (max.)

### CERTIFICATES

CE & RoHS compliant

## PROCESS MEASUREMENT PROBE

### PROCESS CONNECTION

Compatible with industrial pH sensor
dimensions
DIN 19263:2007-05, Ø12 mm, PG13.5.
Standard probe length 120±2 mm,
225 mm, 325 mm & 425 mm
Custom lengths available on request

### MATERIALS

Wetted surfaces in Stainless EN 1.4435
(316L) or Hastelloy C-22

### WINDOW

Sapphire

### SURFACE FINISH

Ra <0.38 µm (polished)

### ELASTOMERS

FPM (FKM/Viton®, FDA), FFKM (Chemraz®/
Kalrez®, FDA), EPDM (FDA)

### OPERATING CONDITIONS

Ambient & process temperatures
up to 200 °C (392 °F)
Process pressure from 10 mbar
to 50 bar (0,14 – 725 psi)
Operating conditions subject to material
and design in use

### FIBER OPTIC CABLE

Silica core photonic fiber with Kevlar®
reinforced flexible LZSH coated stainless
steel jacket.
Fully-interlocked stainless steel conduit for
use above 85 °C (185 °F).
Terminated with SMA 905 connectors.
Lengths up to 5 m (16 foot)

### PROTECTION

IP66 / EN 60529

Kemtrak is the leading manufacturer of
high performance LED based industrial
photometers and automation products for
the process engineering industry.

Kemtrak provides tailor made solutions
to meet the needs of a wide range
of industries including chemical,
petrochemical & offshore, biotech,
pharmaceutical, food & beverage, pulp and
paper and water & environment.

Kemtrak has trained representatives and
support personnel globally and is certified
according to ISO 9001:2015.