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.
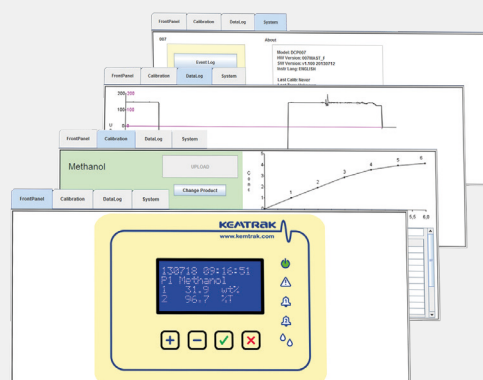
Standard features include 16 separate linearization/calibration tables for multiple product operation, remote zeroing, automatic cleaning cycle operation and advanced signal filtering. An on-board graphical internet based configuration utility allows remote operation, calibration, validation, and data 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
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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 second to 24 hours

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 hours

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.