

Fluorescence Measurement

Kemtrak FLO07

Main features:

- Extremely low detection - 10ppt fluorescein
- Oil traces down to 1ppm
- Fiber optics - all electronics in one box & inherently safe operation
- Automatic compensation for fouling & turbidity
- Robust measurement cell - no electronics, moving parts or heat
- Alarm signals for data and system failures
- ATEX I | 2 GD EExd-IIB-T5 I

The Kemtrak FLO07 is a state of the art industrial fluorescence photometer designed for the monitoring and control of fluorescent dyes and oil detection in industrial water systems saving time, money & wasted product.

Mineral oils and certain dyes will emit visible light when illuminated with UV light. This phenomenon is known as fluorescence. An advantage with fluorescence is extremely low concentrations can be detected – down to parts per trillion is possible.

Leak detection is accomplished by either adding an environmentally friendly fluorescent marker to the process stream, e.g. addition of fluorescein dye to the cooling water, or by detecting the natural fluorescence of oil. Trace amounts of contamination can be instantaneously detected allowing the operator to react immediately.

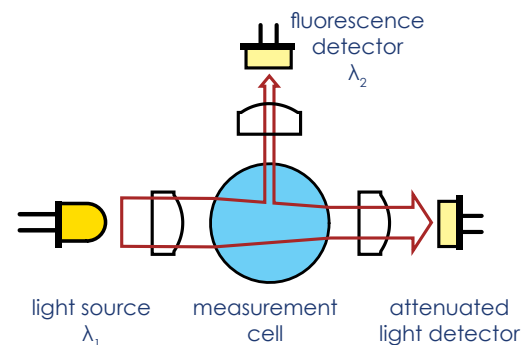
KEMTRAK

Typical Applications

- Heat exchanger leak detection
- Oil traces in condensate
- Oil traces in cooling water
- Oil traces in produced water
- Monitoring of oil separators
- Monitoring of drinking water



The Kemtrak FLO07 fluorescence photometer is not influenced by air bubbles, turbidity, particulates, or sediment, and window fouling is compensated from a monitoring of attenuated light. The FLO07 is not 'fooled' into false positive high readings while maintaining superior sensitivity and dynamic range.



Since optic fibers are used to pipe light to the measurement point and back, the measurement cell contains no electronics, moving parts or sources of heat. Kemtrak fiber optic measurement cells are perfectly suited for hazardous industrial environments. Standard measurement cells are machined in sanitary grade stainless steel with sapphire windows for superior resistance to abrasive and corrosive media.

All Kemtrak's products are made from the highest quality materials and are designed to the most demanding specifications to ensure long life and extremely low maintenance.

Housing

Glass-fibre reinforced polyester & polyester front panel
Captive lid screws & wall mounting brackets stainless steel
220 x 120 x 90 mm (8.66 x 4.72 x 3.54 inch) L x W x D
IP 65 / EN 60529

Display

16 x 2 alphanumeric dot matrix LCD display
LED background illuminated
Display update: 0.5 seconds
Display units: Pt/Co, Hazen, Apha, AU. User configurable.
LED 1 (green): power on
LED 2 (red): alarm
LED 3 (orange): clean

Operation

4 push buttons

Software Features:

- Auto gain: Gain switching is fully software controlled
- Auto zero: Automatic, local or remote zero
- Calibration: Concentration & mA output
- Damping: from 0 to 9999s with noise (air bubble / particle) filter
- Memory: Non volatile - configuration and data retained upon power failure
- Security: Alphanumeric password protection

Data Logger

- 6 900 data points (timestamp, average, max. & min.), ring buffer
- Configurable log time interval 1s to 24hr

Event Logger

- 10 000 events
- Alarms, zeroing, cleaning, calibration & system events (power, system failures, high/low system temperature)

Automatic Cleaning Control

- Automatic cleaning sequence with dedicated relay output
- Manual trigger or external trigger via digital input
- Configurable automatic cleaning interval, 15min to 24hr
- Configurable cleaning duration from 0 to 9999s
- Auto-zero after clean option
- Hold value after clean (to equilibrate) 0 to 9999s

PID Controller

Control method: Pulse width modulated relay output or 0/4-20mA output
Control period: 0 - 99s
Proportional gain: 0.0000 - 999 999
Integral time: 0.0000 - 999 999s
Derivative time: 0.0000 - 999 999s

Light Source

High performance near infra-red (NIR) light emitting diode (LED)

Wavelength range: 250 - 1050nm
Full Width-Half Maximum (FWHM): ±5 nm
Central Wavelength (CWL) Accuracy: ±1nm
Typical lamp lifetime >100 000 hrs
Note: Measurement wavelengths must be factory installed.

Photometric Range

At 1500 nm, 10mm OPL: 0.000 - 5 AU

Photometric Accuracy

At 1 AU (NIST 930D filter): ±0.001 AU
At 2AU (NIST 1930D filter): ±0.005 AU

Photometric Noise

At 1AU, 25°C, 500nm: ±0.0001 AU

Linearity

± 0.5% of respective measuring range

Remote Input

- 1 x Digital input (potential free contact) for:
- Auto clean
 - Zero
 - Hold output

mA Output

1 x 0/4 - 20 mA galvanically isolated
Accuracy: <0.2%
Resolution: < 0.05%
Load: 0 - 400 Ohm

Relay Outputs

2 x 0.5A 240VAC User configurable (alarm, PID, system fault)
1 x 0.5A 240VAC Automatic cleaning control
PTC resistor fuses in series with the relays
LED status indicators flash when relays are active

Fail-Safe:

Relay output & 0/4-20mA value

PC Communications

USB (mini-USB connector)

Operating Conditions

Ambient temperature: -10°C to +50°C (14°F to 122°F)
Transport: -20°C to +70°C (-4°F to 158°F)

Power Supply

115/230V AC selectable, 50-60Hz, 1A

Power Consumption

25 VA (max.)

Certificates

CE, ISO 9001:2000, EN 61326-1:2006, ATEX I I 2 GD EExd-IB-T5 I (option)

Manifolds

Standard designs include DIN Flange (DIN 2633), Tri-Clamp® (ISO 2852 & DIN 32676), Sanitary Thread SC (DIN 11851), Straight Pipe Thread (DIN ISO 228 BSP). Line size up to DN100.

Materials

Standard material stainless steel EN 1.4435 / 316L.
Other materials include Titanium Gr 2, Hastelloy C-276, PEEK, PVDF (Kynar), PTFE C25 (TFMC, carbon filled Teflon) & PVC-C

Window

Sapphire

Elastomers

NBR (nitrile),FKM (FPM, Viton®, Fluorel®), EPDM (FDA), Silicone, FEP (PTFE/Teflon®) Encapsulated Viton® (FDA) and others

Operating Conditions

Ambient & process temperatures up to 200°C (392°F)
Process pressure from 10 mbar to 100 bar
Operating conditions subject to material and design in use

Fibre Optic cable

Hard clad silica photonic fiber with fully-interlocked flexible stainless steel jacket and Kevlar® reinforcement.
Terminated with SMA 905 connectors.
Operating temperature -20°C to +125°C (-4°F to +257°F), Autoclave.
Lengths up to 50m (164 foot).
Higher temperatures available on request.

Protection

IP66 / EN 60529, ATEX (option)



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We reserve the right to make changes without previous notice

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Kemtrak is a leading manufacturer of fiber optic measuring and automation products for the process engineering industry. The Company provides tailor made solutions to meet the needs of a wide range of industries including pulp and paper, food & beverages, chemical, petrochemical, pharmaceutical and water & environment. With its headquarters in Stockholm, Sweden, Kemtrak has distributors in over 15 countries around the world. The main manufacturing facility in Gothenburg, Sweden is certified according to ISO 9001:2000.