

Alcohol Measurement

Kemtrak DCP007-NIR

Main features:

- 0-100 ± 0.1 % Ethanol in water
- Real time, in-line measurement
- Fiber optics - all electronics in one box & intrinsically safe operation
- Automatic compensation for fouling & turbidity
- Robust measurement cell - no electronics, moving parts or heat
- Alarm signals for data and system failures
- Data and event log for quality control and validation

The Kemtrak DCP007 is a state of the art industrial NIR photometer designed to accurately measure the concentration of alcohol in water solutions.

New NIR-LED lamp technology is utilized, providing substantial benefits over traditional halogen lamps. Besides long lifetimes (>10 years), the optical output of NIR LED lamps are very stable and consistent over time which substantially reduces drift and eliminates the need for re-calibration.

Thanks to a proprietary dual wavelength four channel measurement technique and advanced digital electronics design, a high measurement precision can be achieved. The primary "absorbing" wavelength measures any changes in the process medium, while



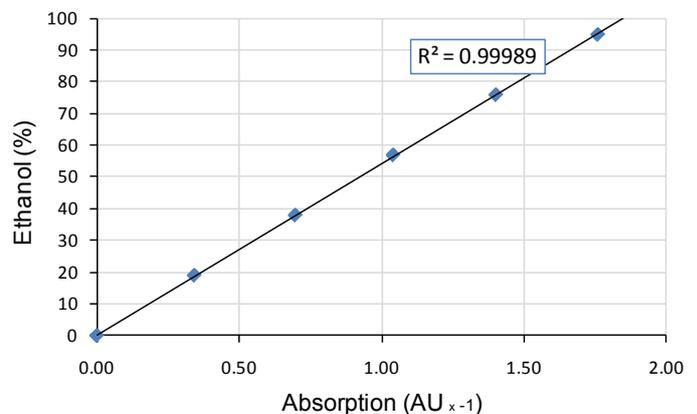
a second reference wavelength, which is not absorbed by the process medium, compensates for turbidity and/or fouling of the optical windows.

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.

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Typical Applications

- Solvent concentration
- Moisture content analysis
- Alcoholic beverage content monitoring & control
- Water in alcohol monitoring
- Chromatography control - solvent mixing
- Residual solvent concentration in pharmaceuticals



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: 280 - 1550nm
Full Width-Half Maximum (FWHM): ±5 nm
Central Wavelength (CWL) Accuracy: ±1nm
Typical NIR 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 2 AU (NIST 1930D filter): ±0.005 AU

Photometric Noise

At 1 AU, 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 / 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

Distributor

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.