Moisture in Methanol

Kemtrak DCP007-NIR

Main features:

- **0-100 ± 0.1 % / 0-10 ± 0.01 % moisture in methanol (water in methanol)**
- **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 moisture in methanol.

New NIR-LED lamp technology is utilized, providing substantial benefits over traditional halogen lamps. Besides long lifetimes, 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 moisture (water) content of 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.

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.

Typical Applications:

- Chromatography control - solvent mixing
- Solvent recovery
- Residual moisture concentration
- Replace Karl-Fischer titration

---

![Graph](https://via.placeholder.com/150)
Technical Data

DCP007 Control Unit

**Process Flowcell**

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

**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

**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 999999s with noise (air bubble / particle) filter
- Memory: Non volatile - configuration and data retained upon power failure
- Security: Alphanumeric password protection

**Data Logger**
- 9 900 data points (timestamp, average, max. & min.), ring buffer
- Configurable log time interval 1s to 24hr

**Event Logger**
- 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

**Fail-Safe**
- Alarm: Local or remote
- Power failure
- Auto-zero: Automatic, local or remote
- Auto-gain: Gain switching is fully software controlled

**Photometric Range**
- A1 1500 nm, 10mm DPL: 0.000 - 5 AU

**Photometric Accuracy**
- A1 1AU (NIST 930D filter): ±0.001 AU
- A1 2AU (NIST 1930D filter): ±0.005 AU

**Photometric Noise**
- A1 1AU, 25°C, 300mm: ±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

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

**Power Consumption**
- 25 VA (max.)
- USB (mini-USB connector)

**Protection**
- IP66 / EN 60529

**Manifolds**
- Standard designs include DIN Flange (DIN EN 1092-1), 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 316L (EN 1.4435 & EN 1.4404).
- Other materials include Titanium Gr 2, Hastelloy C-22 & C-276, Monel 400, PEEK, PVDF (Kynar), PTFE C25 (TFMC, carbon filled Teflon) & PVC-C

**Window**
- Sapphire

**Elastomers**
- NBR (nitrile), FKM (FPM, Viton®, Fluorel®), EPDM (FDA), Silicone, Kalrez® (high temperature & FDA) and others

**Operating Conditions**
- Ambient & process temperatures up to 250°C (482°F)
- Process pressure from 10 mbar to 200 bar
- Operating conditions subject to material and design in use

**Fibre Optic cable**
- 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 feet).
- Higher temperatures available on request.

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.