

# Pt/Co, Hazen, Apha Color Control

## Kemtrak DCP007

### Main features:

- 0 - 1 000 ± 0.2 Hazen, Pt/Co or Apha
- Real time, in-line measurement
- Fiber optics - all electronics in one box
- Robust measurement cell - no electronics, moving parts or heat
- Extensive range of industrial sensor designs
- Alarm signals for data and system failures
- Factory calibration determined according to ASTM D 1209, BS 5339:76 (1993), DIN 53409 and ISO 6271-1:2004(E)

The Kemtrak DCP007 is an industrial UV-VIS-NIR photometer designed to accurately measure the color of liquids. Results are displayed in units of Pt/Co, Hazen or APHA.

The Kemtrak DCP007 uses a combination of long life, solid state LED lamps with fiber optics that provide a measurement with very high precision. Thanks to a proprietary dual wavelength four channel measurement technique, high concentration to ppm trace analysis is no problem. The primary "absorbing" wavelength measures any changes in the process medium, while the 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 that result in condensation on the optical surfaces. Furthermore, standard measurement cells are machined in sanitary grade stainless steel and use sapphire windows to withstand the harshest of environments.

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.

## KEATRAK

*"Very reliable for continuous analyzing"*

Our customer wanted a solution to replace maintenance intensive batch wise titration units used to control the filtration stages that keep the color of water below 5 Platinum Cobalt (Pt/Co) or Hazen color units.

The Kemtrak DCP007 color analyzer was configured to monitor 0 - 5 ± 0.2 ppm Pt/Co using a robust long pass flow-cell and a reference wavelength to compensate for fouling and turbidity. The analyzer was factory calibrated and only required zeroing before it could be used. The installation was simple and in just over one hour our customer was continuously monitoring their water.

*"Very reliable for continuous analyzing in an unmanned process where 100% up-time / availability and no maintenance is needed"*

*"No drift over period of months; a very stable reading"*

*Brabant Water, The Netherlands.*



**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 (red): 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 light emitting diode (LED)

Wavelength range: 280 - 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.  
Typical specifications provided for 500nm*

**Photometric Range**

At 500nm, 10mm OPL: 0.000 - 5 AU

**Photometric Accuracy**

At 1AU (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**

ISO 9001:2000, CE, 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, Hastelloy C-276, PEEK, TFMC (TFM 25% Carbon), PCTFE, PVC-C, PVDF

**Window**

Sapphire

**Elastomers**

NBR (nitrile),FKM (FPM, Viton®, Fluorel®), EPDM, Silicone, Neoprene (CR) 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 with fully-interlocked flexible stainless steel jacket or Kevlar® reinforced PVC jacketing.  
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 15 countries around the world. The main manufacturing facility in Gothenburg, Sweden is certified according to ISO 9001:2000.*