

# Kemtrak

## DCP007

### Complete Colour & Concentration Control

#### Main features:

- Real time in-line colour & concentration measurement of liquids & gasses
- 350 – 2500nm (UV-VIS-NIR)
- Zero maintenance
- Extensive range of industrial manifolds
- Simple menu based interface
- Data & event logger for quality control
- Integrated PID controller
- Remote process control functions
- Alarm signals for data and system

The Kemtrak DCP007 is an advanced dual wavelength photometer designed to accurately measure the concentration of light absorbing substances from 350 to 2500 nm (UV-VIS-NIR).

A primary "absorbing" wavelength measures changes in the process medium, while a second reference wavelength, that is not absorbed by the process medium, compensates for turbidity and/or fouling of the optical windows. The resulting measurements are accurate with low drift and long-term calibration stability.

Optic fibers are utilized to pipe the light from within the DCP007 enclosure to the sampling point and back permitting safe operation in even the most hazardous of environments.



# KEATRAK

#### Typical Applications

**Food & Beverage** Colour monitoring (ICUMSA), blending & dilution control, centrifuge and filtration control, extractor monitoring, ion exchange monitoring, post resin bed colour monitoring, heat exchanger leak detection, process & effluent water monitoring, product quality control.

**Chemical** Chemical concentration (cadmium, chlorine, chlorine dioxide, chromium, cobalt, copper, nickel), fuel colour (ASTM, Saybolt), oil/water interface detection, heat exchanger leak detection, effluent water monitoring.

**Pharmaceutical** Centrifuge, filtration & phase separation control, water measurement in organics (acetone, alcohols, isopropyl benzene, propanol & methyl-isobutyl ketone).

**Water & Environment** Chlorine dioxide, chlorine/hypochlorite disinfection, raw water colour (APHA, Hazen Pt/Co).



#### Housing

Glass-fibre reinforced polyester (polyester front panel)  
Captive lid screws & external mounting brackets stainless steel  
220 x 120 x 90 mm (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  
LED 1 (green): power on  
LED 2 (red): alarm  
LED 3 (red): clean

#### Operation

4 push buttons

#### Software Features:

- Auto zero: locally or remotely activated zero
- Calibration: concentration & mA output
- Damping: from 0 to 999s with spike (air bubble) rejection filter
- Memory: Non volatile - configuration and logged data retained upon power failure

#### Data Logger

- 10 000 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, temperature)

#### Automatic Cleaning Control

- Automatic cleaning sequence, triggering 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
- Freeze 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 band: 0.00 - 999.99  
Integral time: 0.00 - 999.99s  
Derivative time: 0.00 - 999.99s

#### Light Source

350 - 2500nm high performance LED or Laser Diode  
Full Width-Half Maximum (FWHM): 10nm ±2nm  
Central Wavelength (CWL) Tolerance: ±2nm  
Typical lamp lifetime 350-400nm: >10 000 hrs  
>400nm: >100 000 hrs

Note: Measurement wavelengths must be factory installed.  
Typical specifications provided for 350-1000nm LED

#### Photodetector

Silicon photodiode (UV-VIS)  
InGaAs photodiode (IR)

#### Repeatability

< ±0.05% of respective measuring range

#### Accuracy

< ±0.5% of respective measuring range

#### Linearity

< ±1% of respective measuring range (application specific)

#### Remote Inputs

- 1 x Digital input (potential free contact) for:
- Auto clean
  - Zero
  - Freeze 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 0.2A 240VAC User configurable (alarm, PID, system fault)  
1 x 0.7A 240VAC Automatic cleaning control  
PTC resistor fuses protect short circuit  
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  
Transport: -20°C to +70°C

#### Power Supply

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

#### Power Consumption

25 VA (max.)

#### Certificates

ISO 9001:2000, CE

#### Manifolds

Standard designs include ANSI Flange, DIN Flange, Tri-Clamp, Straight Pipe Thread DIN ISO 228/1 G, Sanitary Thread (DIN 11851). Line size up to 4" (DN100).

#### Materials

Wide selection available - including 316 Stainless Steel, TFMC (carbon-filled Teflon®), Kynar®, PEEK, PCTFE, Monel®, Hastelloy C®, Titanium

#### Window

Quartz & sapphire glass

#### Elastomers

Viton®, EPDM, Kalrez®, NBR, Fluoraz 797®, Silicone, and others

#### Operating Conditions

Ambient & process temperatures up to 250°C  
Process pressure from 10 mbar to 150 bar  
Operating conditions subject to material and designs in use

#### Fibre Optic cable

Stainless steel monocoil or Kevlar reinforced PVC for strain relief and protection. Terminated with SMA 905 connectors  
5m (standard) to 50m (max.), Up to 250°C max. operating temperature depending upon configuration.

#### Protection

IP66 / EN 60529, ATEX (option)



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