DCP007
Process Photometer

Benefits:

- **Maintenance free**
- **High performance LED light source**
- **Real time in-line measurement**
- **Dual wavelength drift free operation**
- **Light source & wavelength easy to change**
- **Modbus TCP Ethernet data communication**

The Kemtrak DCP007 process analyzer is a high performance fiber optic coupled photometer for high resolution, real time, in-line concentration and color measurement. Modern LED light source technology ensures maintenance and drift free operation with exceptionally high precision.

Industrial grade measurement cells with scratch resistant sapphire windows, contain no electronics or moving parts making them ideal for both ordinary and hazardous area use. A validation & calibration accessory traceable to NIST standards is available to assure measurement confidence while saving valuable time and resources.

Integrated NIST validation accessory

Typical Applications:

- **Color Scales**
  - **Platinum Cobalt / APHA / Hazen**
  - **ASTM D-1500**
  - **Saybolt / ASTM D-156**
  - **ICUMSA**
- **Chemical concentration**
  - **Chlorine Dioxide, Hypochlorite, Chlorine**
  - **Metal ions** *e.g. iron, copper, chromium, cobalt*
  - **Aromatics & Hydrocarbons**
- **Leak, carryover & interface detection**

Standard features include 16 linearization tables for multiple product switching, remote zeroing, automatic cell cleaning cycle and signal filtering. A built-in graphical internet based interface allows remote operation, calibration, validation and data trending using a standard web browser.
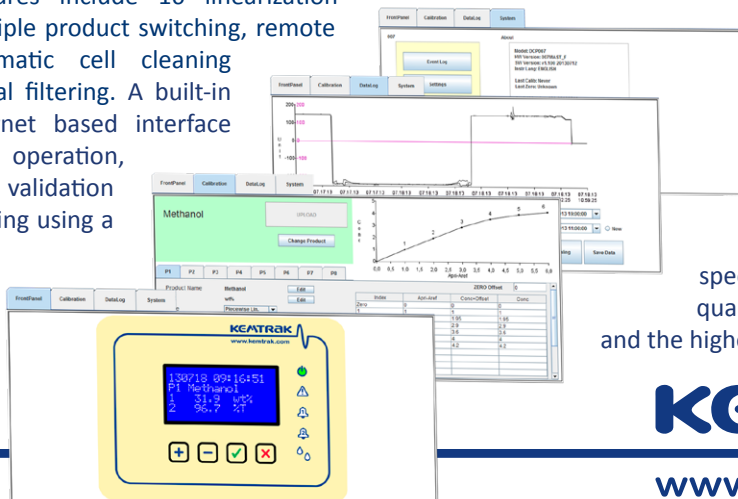
Dual wavelength operation automatically compensates for sample turbidity and/ or fouling of the optical windows. Four channel measurement technology ensures drift and trouble free operation.

All Kemtrak products are designed to meet the most demanding application specifications and are made from the highest quality materials to ensure exceptionally long life and the highest reliability possible.

KEMTRAK

www.kemtrak.com

Housing
Stainless steel EN 1.4301 (X5CrNi18-10), AISI 304 (V2A)
Captive lid screws & external mounting brackets stainless steel
244 x 215 x 105 mm (L x W x D)
IP 65 / EN 60529

Display
16 x 4 alphanumeric white on blue dot matrix LCD display
LED background illuminated
Measurement updates every second
LED 1 (green):   Power on
LED 2 (red):   System fault
LED 3 & 4 (orange):   Alarm 1 & Alarm 2
LED 5 (blue):   Clean / Hold

Operation
4 push buttons
Remote HTML/Java interface (TCP/IP connection via Ethernet port)

Software Features:
• Auto gain: Fully automatic photometer gain switching
• Auto zero: Automatically, locally or remotely activated zero
• Calibration: 16 linearization tables for concentration & mA output
• Damping: From 0 to 9999s with noise (air bubble / particle) filter
• Memory: Nonvolatile - all data retained upon power failure
• Security: Alphanumeric password protection

Data Logger
• >17000 data points (timestamp, average, max. & min.), ring buffer
• Configurable log time interval 1s to 24hr

Event Logger
• >16000 events, ring buffer
• Timestamp, alarms, zeroing, cleaning, product change, calibration & system events (power, system warning & error messages)

Automatic Cleaning Control
• Automatic cleaning sequence, triggering dedicated relay output
• Manual trigger or external trigger via digital input
• Configurable automatic cleaning interval, 15min to 2months
• 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: 2 - 99s
Proportional gain: 0.0000 - 999999
Integral time: 0.0000 - 999999s
Derivative time: 0.0000 - 999999s

Remote Input
5 x Digital input (potential free contact) for:
• Input 1-3:   Product/range selection
• Input 4:   Zero, instant zero, clean or clean & Zero
• input 5:   Hold (freeze output), data log control or light source control

Analogue Input (optional)
mA or 3-wire PT100
Range: -20 to 200°C (-4 to 392°F)
Resolution: 0.07°C (0.126°F)

Light Source
High performance light emitting diode (LED)
Wavelength range: 350 - 1050nm
Full Width-Half Maximum (FWHM):   10nm
Central Wavelength (CWL) Accuracy: ±1nm
Typical lamp lifetime: >100000hrs
*Note: Measurement wavelengths must be factory installed.
         Typical specifications provided for 500nm*

Photometric Range
0.000 - 5AU at 500nm, 10mm OPL

Photometric Accuracy
±0.001 AU at 1AU

Photometric Noise
±0.0001 AU at 1AU

Linearity
± 0.5% of respective measuring range

mA Output
1 x selectable 0 – 20mA / 4 - 20mA (NAMUR, max 21.6mA)
Optional second mA output
Galvanically isolated, tested during final inspection to 500 VDC
Accuracy: < 0.1%
Resolution: 0.025%
Load: 0 – 600Ohm

Relay Outputs
1 x 1A 240VAC Failsafe output (active when system is ok)
2 x 1A 240VAC User configurable (alarm, PID)
1 x 1A 240VAC Automatic cleaning control
Fuses: 4 x 1A (type: MXT), max 100A breaking capacity
LED status indicators flash when relays are active

Fail-Safe:
Dedicated relay output, 1A 240 VAC
mA output value used to signal a system fault (NAMUR <3.6mA or >21.0mA)

Network interface (remote communications):
TCP/IP, 10Base-T and 100Base-TX Link
Connector: RJ45
Protocol:
1) HTML/Java interface using native protocol over TCP/IP
   Software: Web browser with Java version 6 or later
2) MODBUS server (slave) over TCP/IP (V1.1b3 compliant)
   Functions: (0x03, 0x04, 0x2B/0x0E - conformity 0x01)

Operating Conditions
Ambient temperature: 0°C to +50°C (32°F to 122°F)
Transport: -20°C to +70°C (-4°F to 158°F)

Power Supply
100-240VAC, 50-60Hz, & 22 - 30VAC/VDC
Mains fuse: 1A (type MST), Max breaking capacity 35A

Power Consumption
25VA (max.)

Certificates
ISO 9001:2008, CE, ATEX Ex d IIB + H2 T5 IP66 Category ⟨Ex⟩ II 2 G (*option*)

Flow Cells and Process Connections
Standard designs include DIN Flange (DIN 2633), ANSI (ASME B16.5), Tri-Clamp® (ISO 2852 & DIN 32676), Straight pipe thread (DIN ISO 228 BSP), NPT tapered pipe thread (ANSI B 1.20.1)
Line size up to DN200 / 8"

Materials
Standard material stainless steel 316L (EN 1.4435 or EN 1.4404)
Other materials include Titanium Gr 2, Hastelloy C-276 & C-22, Monel 400 & PTFE C25 (TFMC, carbon filled Teflon®)

Window
Sapphire

Surface Finish
Ra <0.38µm (electropolishing available on hygienic measurement cells)

Elastomers
FPM (FKM, Viton®), EPDM (FDA), Silicone, FFKM (Kalrez® Spectrum 6375, Kalrez® 6230 FDA)

Operating Conditions
Ambient & process temperatures up to 275°C (527°F)
Process pressure from 10mbar to 200bar (0,14 – 2900psi)
Operating conditions subject to material and design in use

Fibre Optic cable
Silica core photonic fiber with Kevlar® reinforced flexible
LZSH coated stainless steel jacket
Fully-interlocked stainless steel conduit for use above 85°C (185°F)
Terminated with SMA 905 connectors.
Lengths up to 100m (328foot)

NIST-Traceability
NIST-traceable validation accessory (option)

Protection
IP66 / EN 60529

KEMTRAK
www.kemtrak.com

Kemtrak AB • Box 2940 • SE-187 29 Stockholm • Sweden
sales@kemtrak.com • www.kemtrak.com

*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 chemical, petrochemical & offshore, pharmaceutical, food & beverage, pulp and paper and water & environment. With its headquarters in Stockholm Sweden, Kemtrak has trained representatives and support personnel globally. The main manufacturing facility in Gothenburg, Sweden is certified according to ISO 9001:2008.