DCP007
Process Photometer

Benefits:

- **Real time in-line measurement**
- **Zero maintenance measurement cells & fiber optics**
- **Long life LED lamps**
- **Lamps/wavelength easy to change**

The Kemtrak DCP007 is an easy to operate industrial UV-VIS-NIR fiber optic photometer designed to accurately measure the concentration and color of process samples. Measurements are real time and in-line.

The Kemtrak DCP007 uses long life high performance LED lamps and precision fiber optics to provide drift and noise-free measurement with very high precision.

A proprietary dual wavelength four channel measurement technique and advanced digital electronics design allows deep absorbance measurement to 5 AU. A range of shorter optical path-lengths allow for deeper absorbance measurements.

Automatic compensation for sample turbidity and/or fouling of the optical windows ensures trouble free operation.

Maintenance free measurement cells with sapphire windows have no electronics or moving parts making the unit suitable for hazardous area use.

Standard features include multiple product switching, remote zeroing and signal damping. A graphical internet based interface allows remote operation, calibration, validation and data trending using a standard web browser eliminating the need to install software.

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

KEMTRAK

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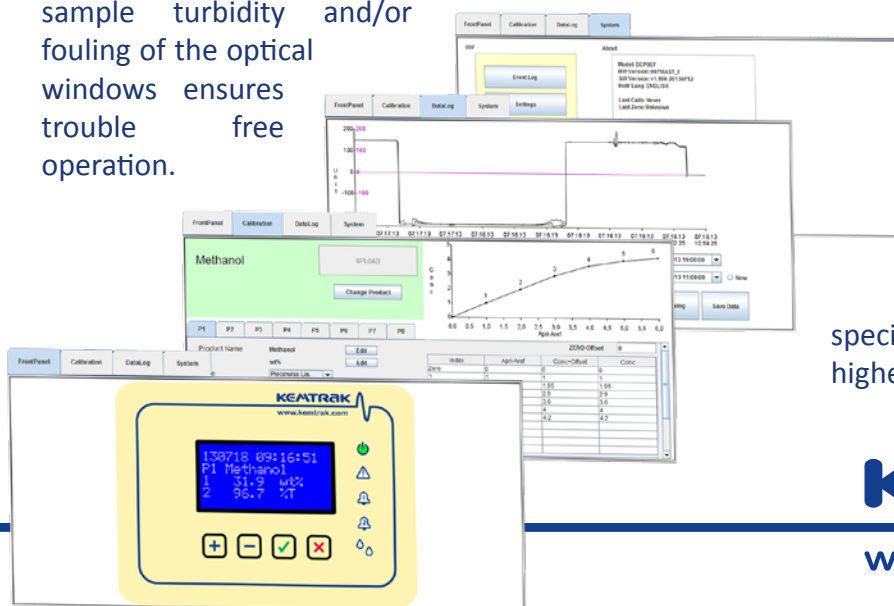
Housing
Stainless steel EN 1.4301 (X5CrNi18-10), AISI 304 (V2A)
Captive lid screws & external mounting brackets stainless steel
224 x 215 x 105 mm (L x W x D)
IP 65 / EN 60529

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: 8 Products, 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
• >23 000 data points (timestamp, average, max. & min.), ring buffer
• Configurable log time interval 1s to 24hr

Event Logger
• >16 000 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 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: 2 - 99s
Proportional gain: 0.0000 - 999 999
Integral time: 0.0000 - 999 999s
Derivative time: 0.0000 - 999 999s

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) or Data log control

Temperature Input (optional)
3-wire PT100 input.
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: 255 - 1 550nm
Full Width-Half Maximum (FWHM):   10 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 : ±0.001 AU
At 2AU : ±0.005 AU

Photometric Noise
At 1AU, 25°C, 500nm: ±0.0001 AU

Linearity
± 0.5% of respective measuring range

mA Output
1 x selectable 0 – 20 mA / 4 - 20 mA (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 – 600 Ohm

Relay Outputs
1 x 1A 240 VAC Failsafe output (active when system is ok)
2 x 1A 240 VAC User configurable (alarm, PID)
1 x 1A 240 VAC Automatic cleaning control
Fuses: 4x 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 >21.0 mA)

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 - 240V AC, 50-60Hz, 1A
Mains fuse: 1A (type MST), Max breaking capacity 35A

Power Consumption
25 VA (max.)

Certificates
ISO 9001:2000, CE, ATEX Exd IIB + H2 T6 IP66 Category ⟨Ex⟩ II 2 G (*option*)

Manifolds
Standard designs include DIN Flange (DIN EN 1092-1), ANSI (ANSI B 16.5 and BS3293) Tri-Clamp® (ISO 2852 & DIN 32676), Straight pipe thread (DIN ISO 228 BSP), NPT tapered pipe thread. Line size up to DN100.

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) & PVDF (Kynar)

Window
Sapphire, UV Fused silica

Surface Finish
Ra < 0.4 µm *(on hygienic measurement cells)*

Elastomers
FPM (FKM, Viton®, Fluorel®), EPDM (FDA), NBR (nitrile), Silicone, FFKM (Kalrez® Spectrum 6375, Kalrez® 6230 FDA) and others

Operating Conditions
Ambient & process temperatures up to 250°C (482°F)
Process pressure from 10 mbar to 200 bar (0,14 – 2900 psi)
Operating conditions subject to material and design in use
Higher temperatures available on request.

Fibre Optic cable
Silica core photonic fiber with fully-interlocked flexible stainless steel jacket and Kevlar® reinforcement.
Terminated with SMA 905 connectors.
Lengths up to 100m (328 foot)

Operating Temperature
Normal: –60°C to +125°C (-76°F to +257°F), Autoclave.
Higher temperature option: - 60°C to 250°C (-76°F to +482°F)

Protection
IP66 / EN 60529

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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 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 9001:2000.