DCP007-UV
Process Photometer

Benefits:

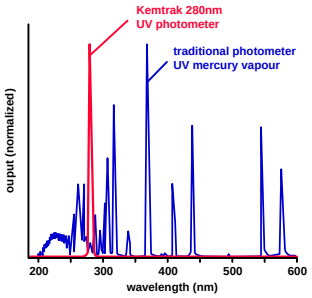
- **Ultra-low power UV analyzer**
- **High performance UV LED**
- **Dual wavelength drift free operation**
- **Maintenance free measurement cell**
- **Light source & wavelength easy to change**
- **NIST validation accessory**

The Kemtrak DCP007-UV process analyzer is a high performance fiber optic coupled photometer for high resolution, real time, in-line concentration measurement.

left: *Optical filter used on a Kemtrak DCP007-UV photometer*
right: *Eroded optical filter from a traditional hot mercury vapor lamp photometer*

Unlike traditional UV process analyzers that use hot, powerful UV mercury vapor lamps to generate light energy, the DCP007-UV analyzer uses a cold wavelength specific light source. Mercury lamps quickly deplete over time while simultaneously eroding bandpass filters required to limit light energy to the measurement wavelength required, resulting in drift and a continual need for maintenance, a problem not experienced with Kemtrak instruments. Furthermore, mercury vapor lamp instruments continuously expose the process stream to high intensity broad spectrum UV radiation, with the potential for product destruction and loss. The Kemtrak DCP007-UV process analyzer emits ultra-low power cold light exposing the sample to the exact wavelength required for measurement. Kemtrak DCP007-UV analyzers provide safe, drift free operation that maximize process yield and quality.

Mercury vapor lamps have a distinct set of wavelength peaks predominantly in the UV. These peaks limit the availability of wavelengths for measurement use. In contrast, a Kemtrak DCP007-UV process analyzer can be configured to measure from 190 nm to 1050 nm.



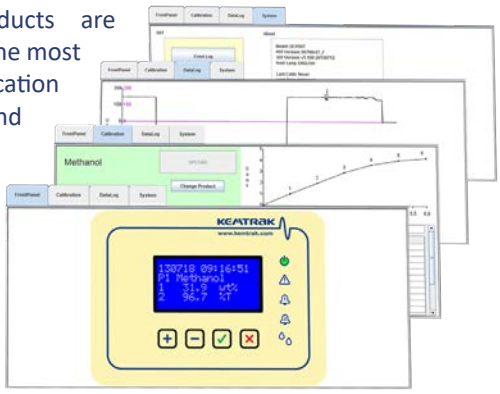
The proprietary dual wavelength, four channel measurement technique used in the DCP007-UV analyzer provides deep absorbance measurement to 5 AU using a 1 cm optical path-length. A range of shorter optical path-lengths allow for even deeper absorbance and optical density measurements.

The convenient range of small-footprint, zero dead-volume hygienic measurement cells that contain no electronics or moving parts are well suited for both ordinary and hazardous area installation. Standard NIST-traceable validation filters can be used to verify analyzer performance without process interruption.

Integrated NIST validation accessory

Standard features include multiple product switching, remote zeroing and signal filtering. A free graphical internet based configuration utility is included which allows remote operation, calibration, validation and data trending.

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

Technical Data
DCP007 UV Process Photometer

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 9999 s 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 1 s to 24 hr

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, 15 min to 2 months
- Configurable cleaning duration from 0 to 9999 s
- Auto-zero after clean option
- Hold value after clean (to equilibrate) 0 to 9999 s

PID Controller

Control method:	Pulse width modulated relay output or 0/4-20 mA output
Control period:	2 - 99 s
Proportional gain:	0.0000 - 999999
Integral time:	0.0000 - 999999 s
Derivative time:	0.0000 - 999999 s

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:	250 - 1050 nm
Full Width-Half Maximum (FWHM):	10 nm
Central Wavelength (CWL) Accuracy:	±1 nm
Typical light source lifetime:	> 20000 hrs @ 280nm >100000 hrs @ 500nm

Note: Measurement wavelengths must be factory installed.

Photometric Range
0.000 - 4.5 AU @ 280 nm, 10mm OPL
0.000 - 5.0 AU @ 500 nm, 10mm OPL

Photometric Accuracy
±0.001 AU at 1 AU

Photometric Noise
±0.0001 AU at 1 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 1 A 240 VAC Failsafe output (active when system is ok)
2 x 1 A 240 VAC User configurable (alarm, PID)
1 x 1 A 240 VAC Automatic cleaning control
Fuses: 4 x 1 A (type: MXT), max 100 A breaking capacity
LED status indicators flash when relays are active

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

Network interface (remote communications):
TCP/IP, 10Base-T and 100Base-TX Link
Connector: RJ45
Protocol:
1) HTML interface using native protocol over TCP/IP
Java® version 8 update 202 or later required
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
100-240 VAC, 50-60 Hz & 22 - 30 VAC/VDC
Mains fuse: 1 A (type MST), Max breaking capacity 35A

Power Consumption
25 VA (max.)

Certificates
CE, ISO 9001:2015

Process measurement cell

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), single use barbed
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®), PPSU

Window
Sapphire, UV fused silica

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

Elastomers
FPM (FKM/Viton®), FFKM (Chemraz®/Kalrez®, FDA), EPDM (FDA)

Operating Conditions
Ambient & process temperatures up to 275 °C (527 °F)
Process pressure from 10 mbar to 200 bar (0,14 – 2900 psi)
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 100 m (328 foot)

NIST-Traceability
NIST-traceable validation accessory (option)

Protection
IP66 / EN 60529

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Distributor

Kemtrak is a leading manufacturer of fiber optic measuring and automation products for the process engineering industry.
Kemtrak provides tailor made solutions to meet the needs of a wide range of industries including chemical, petrochemical & offshore, biotech, pharmaceutical, food & beverage, pulp and paper and water & environment.
Kemtrak has trained representatives and support personnel globally and is certified according to ISO 9001:2015.