KEMTRAK

DCP007
Industrial Photometer

FEATURES

- Maintenance free
- High performance LED light source
- Real time inline measurement
- Dual wavelength drift free operation
- Light source & wavelength easy to change
- Alarm, 4-20 mA and Modbus TCP communications

0% Hg

Standard features include 16 separate linearization/calibration tables for multiple product operation, remote zeroing, automatic cleaning cycle operation and advanced signal filtering. An on-board graphical internet based configuration utility allows remote operation, calibration, validation, and data trending using a standard PC.

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.

The Kemtrak DCP007 process analyzer is a high performance fiber optic coupled photometer for high resolution, real time, inline concentration and color measurement. Environmentally friendly, mercury-free LED light technology assures drift-free operation with exceptionally high precision.

A proprietary dual wavelength four channel measurement technique using an 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 reliable, long-term operation.

Kemtrak 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 verification and calibration accessory, traceable to NIST standards, is available to ensure measurement confidence while saving valuable time and resources.

TYPICAL APPLICATIONS:

- Color Scales
  - Saybolt / ASTM D-156
  - Platinum Cobalt / APHA / Hazen
  - ASTM D-1500
  - ICUMSA
- Chemical concentration
  - Chlorine dioxide, hypochlorite, chlorine
  - Metal ions e.g. iron, copper, chromium
  - Aromatics & hydrocarbons
- Leak, carryover & interface detection
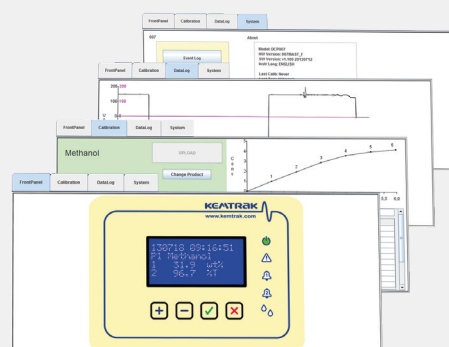
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TECHNICAL DATA

HOUSING

Stainless steel EN 1.4301 (X5CrNi18-10), AISI 304 (V2A)
Cam lock with double bit insert & external mounting brackets
224 x 215 x 125 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

Menu based with 4 operator buttons
Remote HTML/Java interface (TCP/IP connection via Ethernet port)

SOFTWARE FEATURES

Auto gain:	Fully automatic signal gain controller
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 during clean 0 to 9999 s
Hold value after clean (to equilibrate) 0 to 9999 s

PID CONTROLLER

Control method: Pulse width modulated relay output or
0/4-20mA 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 or light source control

ANALOGUE INPUT (OPTION)

mA or 3-wire PT100
Range: -20 to 200 °C (-4 to 392 °F)

LIGHT SOURCE

High performance light emitting diode (LED)

Wavelength range:	350 - 1050 nm
Full Width–Half Maximum (FWHM)	10 nm
Central Wavelength (CWL) Accuracy:	±1 nm
Typical lifetime:	>100000 hrs

Typical specifications provided for 500 nm.

PHOTOMETRIC RANGE

0.000 - 5 AU at 500 nm, 10 mm 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 NE43 compliant
Galvanically isolated, 500 VDC

Accuracy:	<0.1 %
Resolution:	0.025 %
Load:	0 – 600 Ohm

Optional second mA output

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, 1A 240 VAC
mA output value used to signal a system fault
mA outputs compliant to NAMUR NE43

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 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 35 A

POWER CONSUMPTION

25 VA (max.)

CERTIFICATES

CE & RoHS compliant

PROCESS MEASUREMENT CELL

PROCESS CONNECTION

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 hose.
Line size up to DN200 / 8"

MATERIALS

Wetted surfaces in stainless steel
EN 1.4435 or EN 1.4404 (316L). 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

Fine machine (smooth).
Ra <0.38 µm (electropolished) wetted
surfaces on hygienic measurement cells.

ELASTOMERS

FPM (FKM/Viton®, FDA), 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. Higher pressures &
temperatures on request.

FIBER 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).

PROTECTION

IP66 / EN 60529

Kemtrak is the leading manufacturer of
high performance LED based industrial
photometers 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.