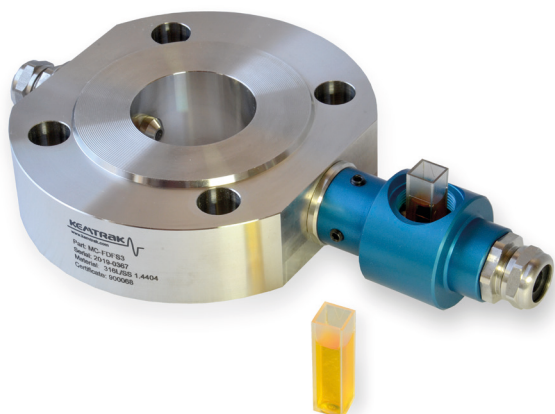


# DCP007-NIR Industrial Photometer

## FEATURES

- High performance NIR LED light photometer
- Real time inline measurement
- Maintenance free measurement cell
- Dual wavelength drift free operation
- Alarm, 4-20 mA and Modbus TCP communications
- Reagent free alternative to Karl Fischer titration



The Kemtrak DCP007-NIR process analyzer is a high performance fiber optic coupled near-infrared (NIR) photometer for high resolution, real time, inline concentration measurement.

The Kemtrak NIR analyzer utilizes environmentally friendly, mercury-free LED light technology, providing exceptional stability and consistency over time. Measurement drift and the need for periodic recalibration is eliminated. The analyzer simultaneously measures at two optical wavelengths, ensuring accurate and reliable readings unaffected by window fouling or entrained particulates and suspended solids.

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.



Two versions of the Kemtrak DCP007-NIR photometer are available:

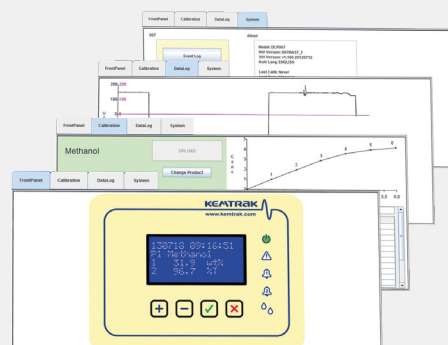
1. **NIR-L:** 0.1 – 100 % concentration with a resolution of  $\pm 0.05$  %
2. **NIR-H:** 100 – 20000 ppm trace water with a resolution of  $\pm 10$  ppm

Standard features include 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.

## TYPICAL APPLICATIONS:

- Water / solvent mixtures (ppm - 100%)
- Alcohol concentration
- Solvent gradient monitoring
- Solvent recovery
- Polymer reaction end point
- Caustic (NaOH) in water
- Acid concentration



# DCP007-NIR Industrial Photometer

DISTRIBUTOR

**CellD SARL**

+33 4 66 82 82 60

[www.celld.com](http://www.celld.com)

[avs@celld.com](mailto:avs@celld.com)



## 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

>17 000 data points (timestamp, average, max. & min.), ring buffer  
 Configurable log time interval 1 s to 24 hr

### 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, 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

### TEMPERATURE INPUT

mA or 3-wire PT100  
 Range: -20 to 200 °C (-4 to 392 °F)  
 Resolution: 0.07 °C (0.126 °F)  
 Temperature sensor not included

### LIGHT SOURCE & DETECTOR

High performance NIR light emitting diode (LED)  
 with InGaAs 2-stage peltier TE cooled photodiode (NIR-H)  
 Wavelength range: NIR-L 850 - 1550 nm  
 NIR-H 850 - 2000 nm  
 Full Width-Half Maximum (FWHM): 15 nm  
 Central Wavelength (CWL) Accuracy: ±2 nm  
 Typical LED lifetime: >20 000 hrs

### PHOTOMETRIC RANGE

0.000 - 5.0 AU at 1450 nm, 10 mm OPL  
 0.000 - 4.0 AU at 1900 nm, 10 mm OPL

### PHOTOMETRIC ACCURACY

±0.001 AU at 1 AU

### PHOTOMETRIC NOISE

±0.0001 AU at 1AU, 1450 nm  
 ±0.0005 AU at 1AU, 1900 nm

### 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.