NBP007
Process Photometer

Applications:

- **Concentration measurement**
- **Interface detection**
- **Cell & biomass density**
- **Crystallization control**
- **Control & optimize CIP cycles**
- **Product differentiation & identification**

The Kemtrak NBP007 is a high resolution backscatter photometer that revolutionizes the measurement of high concentration suspended solids.

Traditional turbidity based optical measurement instruments lack resolution and stop working at approximately 1% suspended solids due to the extremely high optical density. This limitation is overcome with the NBP007 and for the first time the operator can monitor and have complete control over their process.

By knowing exactly what is happening at all times, process changes can be quickly implemented that result in substantial cost savings.

Benefits:

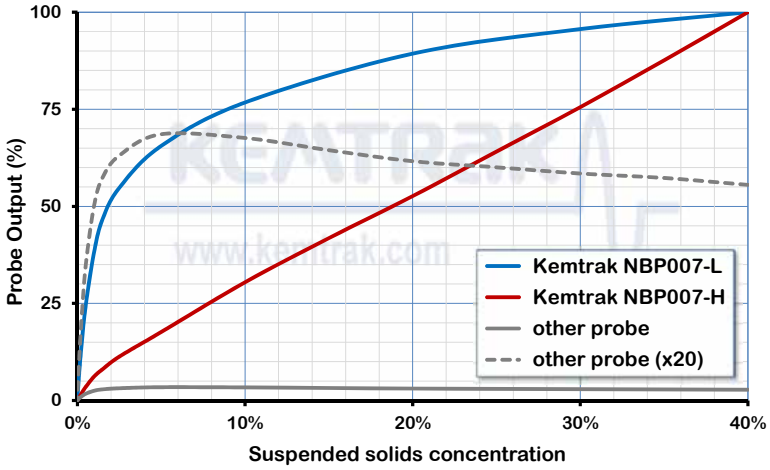
- **0.0005% (5 NTU) - 100% suspended solids**
- **Real time in-line measurement**
- **Zero maintenance**
- **For use with DN25/1" TriClamp probe or Ø12 mm PG 13.5 immersion probe**

Hygienic backscatter probes with sapphire windows have no electronics that would be damaged by high temperature process streams or sterilization cycles and are suitable for hazardous area use.

Standard features include multiple product switching, signal damping and data logging. 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



A unique benefit of the Kemtrak backscatter probe is that it does not go blind at high sample turbidity.

Other probes will stop working at 4000 NTU/FNU (<1 wt% solids) after which the signal will decrease resulting in an erroneous and misleading output. The output of a Kemtrak backscatter probe will continue to increase with sample concentration ensuring a reliable measurement.

Technical Data
NBP007 Process Photometer

Measurement Principle
Proprietary NIR backscatter photometric technique for fiber optic backscatter probes

Measurement Range
LOW 0.0005% (*ca.* 5 NTU) ... 10% total suspended solids
HIGH 0.001% (*ca.* 10 NTU) ... 100% total suspended solids
Measurement range is factory configured

Repeatability
Typically <1% of respective measuring range

Accuracy
Typically < ±2% at the calibration points

In-line Hygienic Fiber Optic Measurement Probe

Process connection:	Tri-Clamp® (ISO 2852 & DIN 32676) or Ø12mm PG 13.5 (DIN 19263:2007-05)
Line size:	DN25 (1") and above & tanks/reactors
Materials:	Stainless steel EN 1.4435 (316L), Hastelloy C-22
Window:	
Surface Finish:	Ra < 0.4 µm
Temperature:	130°C (266°F) (process & ambient)
Process Pressure:	10 mbar to 10 bar
Cable length:	5m standard *other lengths available on request*

Light Source
High performance near infra-red (NIR) light emitting diode
Typical NIR lamp lifetime: >100 000 hrs

Photometer 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)

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, & 22 - 30 VAC/VDC
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 Ⓔx II 2 G (*option*)

KEMTRAK
www.kemtrak.com

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

We reserve the right to make changes without previous notice

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.