

# 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**

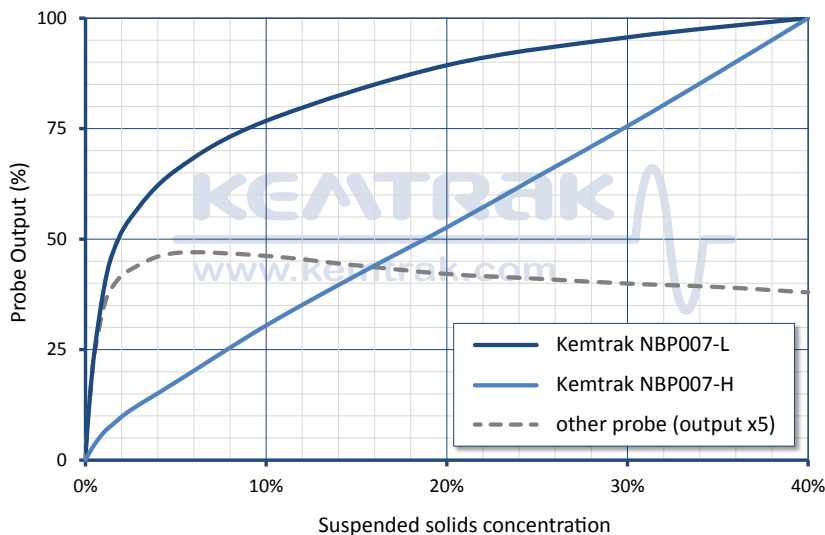
Hygienic backscatter probes with sapphire windows have no electronics that would be damaged by high temperature process streams or sterilization cycles and are suitable for hazardous area use.

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.

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## Immersion Backscatter Probe Comparison



**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) DN25 (1") and above & tanks/reactors  
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  
HTML/Java interface using native protocol over TCP/IP  
Connector: RJ45  
Software: Web browser with Java version 6 or later

### 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 II 2 G (option)



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Distributor

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