

# Kemtrak TC007 Complete Turbidity Control

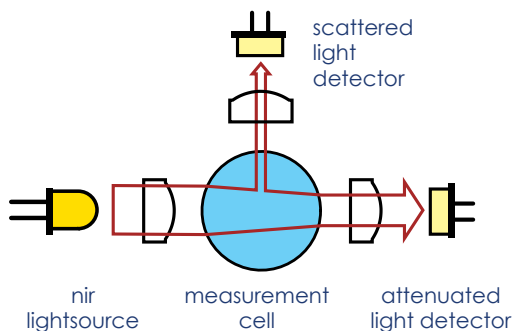


## Main features:

- Real time in-line turbidity measurement
- No maintenance
- Reliable and robust infrared LED lamp
- Fiber optics - no condensation & intrinsically safe (ATEX)
- Extensive range of sensor designs and materials
- Alarm signals for data and system failures
- ISO 7027:1999(E) compliant

The Kemtrak TC007 is an industrial fiber optic turbidimeter designed to accurately measure the concentration of light scattering components.

The Kemtrak TC007 measures attenuated light and/or scattered light which is mathematically combined using a ratio algorithm to accurately monitor the turbidity of the sample.



Since optic fibers are used to pipe light to the measurement point and back, the measurement cell contains no electronics, moving parts or sources of heat that result in condensation on the optical

surfaces. Standard measurement cells are machined in sanitary grade stainless steel with sapphire windows.

All Kemtrak's products are made from the highest quality materials and are designed to the most demanding specifications to ensure long life and zero maintenance.

## KEATRak

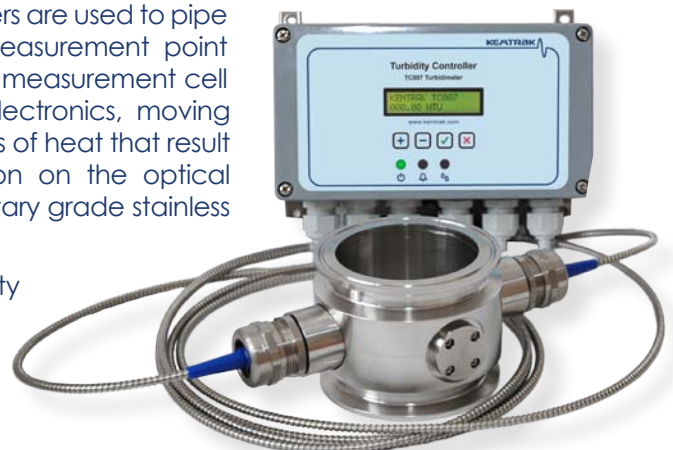
### Typical Applications

**Food & Beverage** Centrifuge and filtration control, extractor monitoring, ion exchange monitoring, solids concentration, product carryover detection, milk solids monitoring, heat exchanger leak detection, process & effluent water monitoring, product quality control.

**Chemical** Oil/water interface detection, heat exchanger leak detection, polymer & flocculent dosing control, effluent & process water monitoring.

**Pharmaceutical** Centrifuge, filtration & phase separation control, biomass concentration monitoring, process water monitoring.

**Water & Environment** Filtration control, flocculent dosing control, total suspended solids, interface detection, sedimentation control.



#### Housing

Glass-fibre reinforced polyester & polyester front panel  
Captive lid screws & external mounting brackets stainless steel  
220 x 120 x 90 mm (8.66 x 4.72 x 3.54 inch) L x W x D  
IP 65 / EN 60529

#### Display

16 x 2 alphanumeric dot matrix LCD display  
LED background illuminated  
Display update 0.5 seconds  
LED 1 (green): power on  
LED 2 (red): alarm  
LED 3 (red): clean

#### Operation

4 push buttons

#### Software Features:

- Auto zero: Automatic, local or remote zero
- Calibration: Turbidity & mA output
- Damping: from 0 to 9999s with noise rejection filter
- Memory: Non volatile - configuration and data retained upon power failure

#### Data Logger

- 6 900 data points (timestamp, average, max. & min.), ring buffer
- Configurable log time interval 1s to 24hr

#### Event Logger

- 10 000 events
- Alarms, zeroing, cleaning, calibration & system events (power, system failures, high/low system temperature)

#### Automatic Cleaning Control

- Automatic cleaning sequence with dedicated relay output
- Manual trigger or external trigger via digital input
- Configurable automatic cleaning interval, 15min to 24hr
- Configurable cleaning duration from 0 to 9999s
- Auto-zero after clean option
- Hold value after clean (to equilibrate) 0 to 9999s

#### PID Controller

Control method: Pulse width modulated relay output or 0/4-20mA output  
Control period: 0 - 99s  
Proportional gain: 0.0000 - 999 999  
Integral time: 0.0000 - 999 999s  
Derivative time: 0.0000 - 999 999s

#### Light Source

High performance infrared LED lamp  
Wavelength: 880 nm  
Typical lamp lifetime: >100 000 hrs

#### Photodetector

Silicon photodiode

#### Measurement Method

Attenuated light, scattered light or a combination of both using a nephelometric ratio algorithm  
ISO7027:1999(E) measuring scattered light at 90°

#### Measurement Range

90°	0.01 - 100	NTU/FTU resp.	0.0025 - 25	EBC
0°	10 - 4 000	NTU/FTU resp.	2.5 - 1 000	EBC
180°	20 - >10 000	NTU/FTU resp.	5 - >2 500	EBC

Other units of measurement available e.g. ASBC-FTU, Helms, ppm etc

#### Resolution

0.01 - 100	NTU	0.01	NTU (0.0025 EBC)
10 - 1 000	NTU	0.1	NTU (0.025 EBC)
1 000 - 10 000	NTU	10	NTU (2.5 EBC)

#### Repeatability

Typically <1% of respective measuring range

#### Accuracy

Typically  $\pm 2\%$  at the calibration points

#### Remote Input

1 x Digital input (potential free contact) for:

- Auto clean
- Zero
- Hold output

#### mA Output

1 x 0/4 - 20 mA galvanically isolated  
Accuracy: <0.2%  
Resolution: < 0.05%  
Load: 0 - 400 Ohm

#### Relay Outputs

2 x 0.5A 240VAC User configurable (alarm, PID, system fault)  
1 x 0.5A 240VAC Automatic cleaning control  
PTC resistor fuses in series with the relays  
LED status indicators flash when relays are active

#### Fail-Safe:

Relay output & 0/4-20mA value

#### PC Communications

USB (mini-USB connector)

#### Operating Conditions

Ambient temperature: -10°C to +50°C (14°F to 122°F)  
Transport: -20°C to +70°C (-4°F to 158°F)

#### Power Supply

115/230V AC selectable, 50-60Hz, 1A

#### Power Consumption

25 VA (max.)

#### Certificates

ISO 9001:2000, CE, ATEX (option - 112 GD EExd-IIB-T5 IP65)

#### Manifolds

Standard designs include DIN Flange (DIN 2633), Tri-Clamp® (ISO 2852 & DIN 32676), Sanitary Thread SC (DIN 11851), Straight Pipe Thread (DIN ISO 228 BSP). Line size up to DN100.

#### Materials

Standard material stainless steel EN 1.4435 / 316L.  
Other materials include Titanium, Hastelloy C-276, PEEK, TFMC (TFM 25% Carbon), PCTFE, PVC-C, PVDF

#### Window

Sapphire

#### Elastomers

NBR (nitrile),FKM (FPM, Viton®, Fluorel®), EPDM, Silicone, Neoprene (CR) and others

#### Operating Conditions

Ambient & process temperatures up to 200°C (392°F)  
Process pressure from 10 mbar to 100 bar  
Operating conditions subject to material and design in use

#### Fibre Optic cable

Hard clad silica with fully-interlocked flexible stainless steel jacket or Kevlar® reinforced PVC jacketing.  
Terminated with SMA 905 connectors.  
Operating temperature -20°C to +125°C (-4°F to +257°F), Autoclave.  
Lengths up to 50m (164 foot).  
Higher temperatures available on request.

#### Protection

IP66 / EN 60529, ATEX (option)



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

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

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Distributor

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