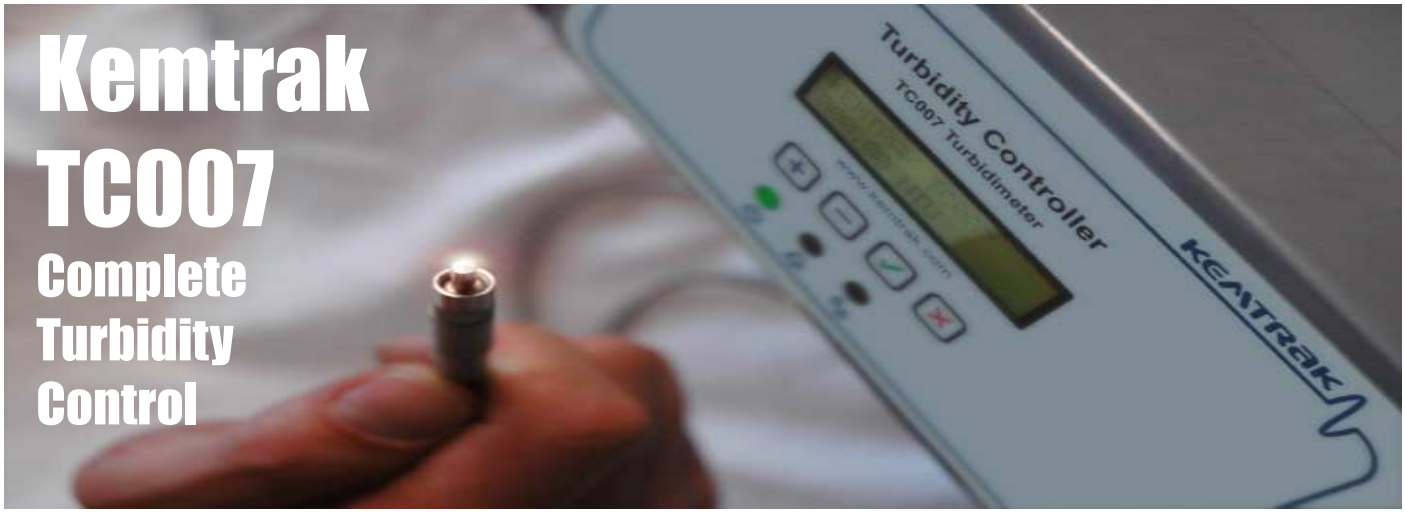
Kemtrak TC007

Complete Turbidity Control

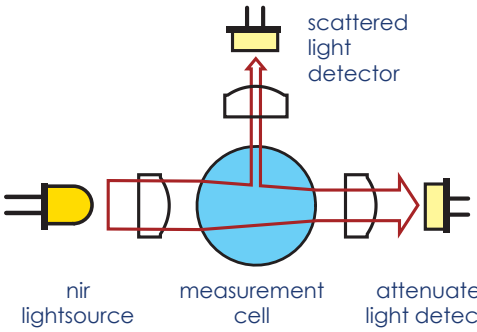


Main features:

- **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.



Typical Applications

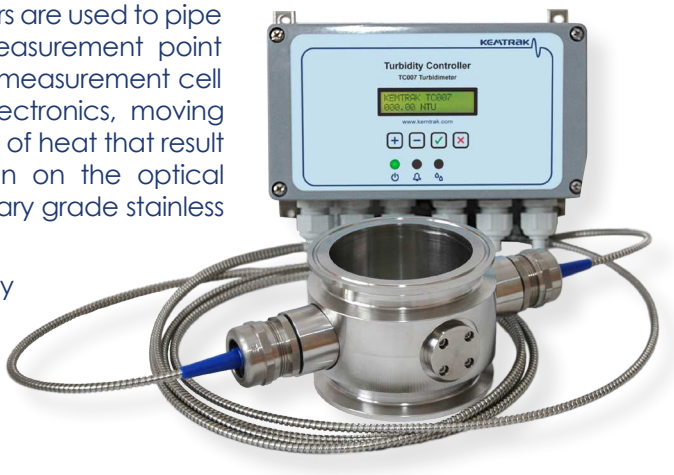
Food & Beverage Centrifuge and filtration control, extractor monitoring, ion exchange monitoring, solids concentration, product carryover detection, milk solids monitoring, heat exchanger leak detection, process & effluent water monitoring, product quality control.

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.

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 glass.



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.

CE ISO 9001 certified Ex

Technical Data
DCP007 Control Unit

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°	1 - 100	NTU/FTU	*resp.*	0.25 - 25	EBC
0°	20 - 2 000	NTU/FTU	*resp.*	5 - 1 000	EBC
180°	1 000 - 10 000	NTU/FTU	*resp.*	250 - 2 500	EBC

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

Resolution

1 - 100 NTU	0.1	NTU (0.025 EBC)
100- 1 000 NTU	1	NTU (0.25 EBC)
1 000 - 10 000 NTU	10	NTU (2.5 EBC)

Repeatability
Typically <1% of respective measuring range

Accuracy
Typically < ±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 - I I 2 GD EExd-IIB-T5 IP65*)

Process Flowcell

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 glass

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*)

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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 pulp and paper, food & beverages, chemical, petrochemical, pharmaceutical and water & environment. With its headquarters in Stockholm, Sweden, Kemtrak has distributors in 15 countries around the world. The main manufacturing facility in Gothenburg, Sweden is certified according to ISO 9001:2000.