ASTM Saybolt
Color Control

Kemtrak DCP007

Main features:

- **Real time, in-line measurement**
- **Fully automatic**
- **State of the art digital electronics design**
- **Robust fiber optic measurement cells - Hastelloy and sapphire, 100bar, 200°C**
- **Factory calibration according to ASTM D 1500 (ASTM), ASTM D 156 (Saybolt) or ASTM D 1209 (Hazen)**
- **ATEX I I 2 GD EExd-IIB-T5 I**

The Kemtrak DCP007 is a state of the art industrial photometer designed to accurately measure the color of petrochemical liquids.

The unit utilizes high performance LED lamp technology which provides numerous benefits over traditional incandescent lamps. The optical output of LED lamps is very stable and consistent over time which substantially reduces drift and removes the need for recalibration. Furthermore, the LED lamps never need replacing.

A proprietary dual wavelength four channel measurement technique is utilized to drive the analyzer. A primary "absorbing" wavelength measures color while a second "non-absorbing" wavelength, compensates for turbidity and/or fouling.

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 and is intrinsically safe. Measurement cells are machined in either stainless steel or Hastelloy C-276 with sapphire windows for superior resistance to abrasive and corrosive media. An Atex zone 1 enclosure is available for the control unit, providing complete control of the unit via four externally mounted push buttons.

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

KEMTRAK

Petrochemical color control

Petrochemical color measurements of liquids are a vital part of many operations where precise process control and high product quality standards are desired.

Color measurements are commonly used for number of purposes, including:

- color addition & diesel oil inking control
- color after distillation
- color removal control - optimize filtration or ion beds used to strip color
- color avoidance - leak & contamination detection
- fuel identification and monitoring
- on-line blending
- interface detection

A common color scale used in the petrochemical industry is the ASTM Saybolt color scale. The ASTM Saybolt color scale covers the determination of the color of refined oils such as undyed motor and aviation gasoline, jet propulsion fuels, naphthas and kerosene, and, in addition, petroleum waxes and pharmaceutical white oils.

CE ISO 9001 certified Ex

Technical Data
DCP007 Control Unit

Housing
Glass-fibre reinforced polyester & polyester front panel
Captive lid screws & wall 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
Display units: ASTM, Saybolt, HAZEN, AU. User configurable.
LED 1 (green): power on
LED 2 (red): alarm
LED 3 (red): clean

Operation
4 push buttons

Software Features:
- Auto gain: Gain switching is fully software controlled
- Auto zero: Automatic, local or remote zero
- Calibration: Concentration & mA output
- Damping: from 0 to 9999s with noise (air bubble / particle) filter
- Memory: Non volatile - configuration and data retained upon power failure
- Security: Alphanumeric password protection

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 light emitting diode (LED)
Wavelength range: 280 - 1 0500 nm
Full Width-Half Maximum (FWHM): 5 nm
Central Wavelength (CWL) Accuracy: ±1nm
Typical lamp lifetime >100 000 hrs
Note: Measurement wavelengths must be factory installed. Typical specifications provided for 500nm

Color Ranges
ASTM 0 to 3, 0 to 8 (ASTM D 1500)
SAYBOLT +30 to -16, +30 to 0 (ASTM D 156)
Dye in gasoil
Other ranges and color scales available on request

Precision
According to ASTM method requirements and range in use

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 *I I 2 GD EExd-IIB-T5 I (option)*

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

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

Distributor

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