



Analytical
Technology
& Control
Limited

ATAC Model 7612 Opacity Monitor

MEASURES THE OPACITY OF A LIQUID PROCESS STREAM

The Model 7612 Opacity Monitor is a completely automatic process stream instrument for measuring opacity due to 'dirt and haze' in a liquid stream.

TYPICAL APPLICATIONS

The monitoring of water in liquid process streams.
Detection of leaks in large heat exchangers.

PRINCIPLE OF OPERATION

The Opacity monitor works on the principle of comparing the intensity of two light signals. A source of filtered light from a tungsten lamp illuminates the foot of a randomised fibre optic "Y" piece. One arm of the "Y" goes to a sample cell and the other to a reference light attenuator which reduces light intensely by a pre-set amount and incorporates a test facility. The two emerging beams are fed via additional fibre optics to a photocell, in front of which is a chopper that selects the beams alternatively.

The rotation of the chopper is co-ordinated so that alternate outputs from the photocell may be individually stored, and compared and their ratio determined.

If the comparison shows the sample is more than a predetermined amount darker than selected, the alarm operates. Alternatively, by means of links in the printed circuit card, the alarm can operate where the sample is lighter than selected. The only external control is a self-resetting "twist-to-test" facility which enables the light beams to be unbalanced in order to test the system. A continuous 4 to 20 mA floating output is generated based on the ratio of the two beams. This can be calibrated in terms of % transmission of light. There are internal controls for the alarm level, zero and span.

The monitor is principally used for detection of haze in gas oil.



ONE OF THE ATAC RANGE OF PROCESS ANALYSERS

SPECIFICATION

Monitor performance

Alarm temperature coefficient generally 0.1% relative transmission per °C (max.) over ambient temperature range but may vary slightly according to application.

Output signal (Relay contact)

Alarm: 1 fully adjustable alarm point having 2 C/O contacts rated at 250V, 5A, 100VA non-inductive. Transition to light or dark operation available by selection of inter links, reversal of the "twist-to-test" facility and minor adjustments of internal controls.

Output signal (Analogue)

Range: 4 - 20 mA (isolated) into 500 ohms max.

Check facilities

Externally mounted spring loaded knob providing "twist-to-test" feature.

Sample conditioning required at inlet

Pressure: 80 bar (max. continuous)
(tested to 400 bar)

Temperature: -25°C to +150°C

Sample conditioning

Complete systems can be supplied to pre - condition process sample to the conditions required at the analyser inlet.

Sample disposal

Return to process or a recovery system.

Utility requirements

Power supply

Voltage: 110/127V or 200/250V ± 10%

Frequency: 50Hz or 60Hz ±5Hz

Consumption: 20 W

Standard connections

Sample inlet: ¼" NPT(female)

Sample outlet: ¼" NPT (female)

Electrical: 20mm conduit (2 off)

Earth: M6 screws on bottom of case

Explosion protection

The analyser is ATEX certified
II 2G EEx d IIB T6 (T_{amb} +55)
for use in zone 1 hazardous areas.
Certificate no. DEMKO 04 ATEX 136616.

Environmental protection

-25°C to +55°C

Dimensions and weight

Width: 475 mm

Depth: 185 mm

Height: 420 mm

Weight: 28 kg

Access dimensions

Length: 875 mm

Depth: 800 mm

Height: 750 mm

Options

- Configuration for CSA local approval
- Steam-traced sample cell
- sample cell in special materials e.g. PTFE
- addition of a separate local indicator
- Zero mA alarm feature; the 4 - 20mA output is disconnected under alarm conditions

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