

Single Channel Particle Alarm.

Turbidity monitoring of filtered potable water provides an excellent indicator of water clarity as well as a reliable measure of general filter efficiency. Recent studies, however, indicate that particle count data can provide additional information concerning filter operation, and often can provide an early warning of filter breakthrough before turbidity values begin to rise. In addition, particle count data can indicate breakthrough of particles in the Cryptosporidium (5-7 micron) or Giardia (9-11 micron) size ranges before any change in turbidity can be detected.

Particle Measurement

Many commercial particle sensors are designed to provide large amounts of particle information to the user, including data on particles of various sizes and particles within particular size ranges. However, it is not uncommon to find particle counter users relying primarily on the total count data calculated by the system. ATI's Model B10/77 is a simplified particle sensor providing only one channel of particle measurement. The sensor operates from unregulated 12 VDC power supplies and provides a single isolated 4-20 mA output proportional to particle counts for all particles 2 microns and above. The span of this output is operator selectable for ranges from 0-100 counts/ml up to 0-10,000 counts per ml. In addition, a relay output is available to provide a simple alarm

when particle concentrations exceed a preset limit. As with the span of the analog output, this alarm setpoint is easily adjustable.

Particle sensors require relatively little in the way of operator maintenance or adjustment. Sensors are factory calibrated and do not require field adjustment. The only requirement is that sample flow be maintained at 60 cc/min. This can be done conveniently using an optional constant-heat flow control that can be supplied as part of the sensor assembly. The flow controller also serves as a degassing chamber to remove entrained air, which can cause inaccurate particle measurements. For samples coming directly from a pressurized line, a rotameter on the outlet of the sensor can be used to set the proper flowrate.

B10/77 Particle Sensors are ideal for any monitoring applications where only total particle measurement is desired. It is especially well suited for simple alarming applications where filter breakthrough could result in a rapid increase in particle counts. It is also useful for providing a total particle signal for comparison with turbidity measurement on filter effluent samples.



B10/77 Particle Sensor



A unique feature of the B10/77 sensor is an easily removable measuring cell. Since deposits on optical surfaces can degrade particle sensors over time, the cell can be easily removed for cleaning. And because all cells are interchangeable, a spare cell can be inserted in seconds so that monitoring can continue while cell cleaning is done at your convenience.

Sensor Specifications

Particle Size Range:	2-400 microns
Analog Output:	One 4-20 mA output proportional to total counts. Output scalable from 0-100 to 0-10,000 counts/ml. Minimum load: 500 ohms
Relay Output:	One SPDT relay, 10 A @ 120 VAC Resistive Relay setpoint selectable by DIP switch selection.
Maximum Particles:	25,000/ml.
Sensitivity:	2 micron with 50% count efficiency.
Resolution:	10% or better, USP 788 method at 9.87 micron.
Coincidence Loss:	Less than 5% at 16,000 particles per ml.
Calibration Method:	PSL spheres in water.
Light Source:	780 nm laser diode.
Cell Size:	800 x 800 micron.
Sample Flowrate:	60 ml/min.
Power:	10-15 VDC, 200 mA maximum.
Wetted Materials:	Glass cell, Nituff coated aluminum body, stainless steel connections.
Sample Pressure:	0-100 psig.



Particle sensor with flow control.

Ordering Information

#00-0968	Model B10/77 Particle Counter in NEMA 4X Enclosure
#00-0946	Constant-heat flow controller with mounting plate



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