



# FilterSense

## Particle Counter

With the FilterSense range of Particle Counters you get a low cost filter monitoring solution. The first particle counter to allow multiple sensors on a single analyser, the FilterSense is a low cost solution to monitoring water treatment filters for *Cryptosporidium* and *Giardia* sized particles.

- Counts particle 2-750 microns
- Counts and sizes 2-127 microns
- Up to 3 user selectable size ranges (selectable at time of purchase)
- Sapphire optics for extended life
- User calibratable for a lower cost of ownership
- Designed to measure multiple points in a filter gallery



The FilterSense sensors are available with different controllers giving you the same great performance with different communication, display, and control options. Each sensor comes with a 'clean me' alert and can be run with a constant head weir or a flowmeter, to maintain a constant flow. FilterSense gives a low cost particle counter specifically designed to monitor multiple filters.

### CRONOS® FilterSense



- High Quality - Lowest Cost
- Multilingual
- High resolution grayscale display
- 9 buttons for easy navigation
- Graphing and datalogging
- Enclosure; wall, panel, pipe or pole mounting. IP65/Nema 4x.
- Options:
  - Modbus RS485/LAN
  - Profibus DPV 1
  - Up to 2 sensors
  - PID/flow proportional controls
  - Remote sensors
  - Colour display
  - Downloadable data logs

### CRIUS®4.0 FilterSense



- High Quality - Low Cost
- Multilingual
- High resolution colour display
- Intuitive user interface
- Downloadable data logs
- Customisable home pages
- All CRONOS® options plus:
  - Up to 8 sensors
  - Remote access via LAN
  - Remote access via 3G/4G
  - Expandable to 16 sensors

**For more information please see the individual brochures for CRONOS® and CRIUS®4.0**

### Particle Counter Sensors

#### FilterSense



- Multiple filters
- Low cost per part
- Up to 3 size ranges
- Filter breakthrough alarms

#### CounterSense



- Up to 8 size ranges
- Multipoint
- Remote access optional
- PID controls

#### ParticleSense Portable



- Up to 8 size ranges
- Modbus RTU
- Modbus TCP optional
- Grab and online mode
- Ideal for trouble shooting
- Standalone
- Portable
- Rugged Case

## Principle of Operation

As particles in a water stream pass through a measurement cell they break a laser beam. This break is measured by a detector opposite the laser beam and the number of breaks is equal to the number of particles and the size of signal (created as the particle passes through the beam) is proportional to the size of the particle. The FilterSense is unique in the marketplace in that it allows:

- **Simple user calibration**
- **Set up direct from the instrument (no software/PC required)**
- **Multiple sensor capability**
- **Control with PID functions based on particle counts**
- **Multipoint capability**

## Applications

The most common application for a FilterSense is in water treatment and the optimisation or ongoing monitoring of filters. The FilterSense, when coupled with turbidity and differential pressure sensors offers onboard PID control of automatic backwash. Using head loss or particle counts to control a filter backwash can extend filter run times significantly providing for greatly reduced electrical costs. FilterSense provide a low cost per point for filter breakthrough monitoring.

## Specification\*

<b>Laser Type:</b>	Solid-state laser diode (780nm)
<b>Cell Material:</b>	Nituff™ coated aluminium PEEK plastic (optional)
<b>Viewing Windows:</b>	Sapphire
<b>Detection Range:</b>	2-750 microns
<b>Sizing Range:</b>	2-127 microns
<b>Flow Rate:</b>	75ml/min
<b>Resolution:</b>	Better than 10% at 10 micron (ASTM-F658)
<b>Coincidence Limit:</b>	20,000cnts/ml (2 micron)
<b>Signal to Noise Ratio:</b>	Better than 5:1
<b>Size Channels:</b>	Up to 3 user selectable and total counts
<b>Alarms:</b>	Sensor diagnostic, particle count limit
<b>Laser Diode Life:</b>	MTBF 75,000 hours at 55°C
<b>Measurement Type:</b>	Light obscuration, volumetric
<b>Comms:</b>	TCP/IP, Modbus, RS232, RS485, 4-20mA, Profibus
<b>Power Supply:</b>	100-250 VAC, 50/60Hz, 9-36 VDC
<b>Operating Ambient Temperature:</b>	0-50°C
<b>Sample Process Temperature:</b>	0-50°C
<b>Cleaning:</b>	<5 mins, 6 monthly on clean water
<b>Enclosure Rating:</b>	IP65
<b>Display:</b>	Value and alarms at the same time, controller dependent

*\*All subject to change without notice*

Other applications for FilterSense include:

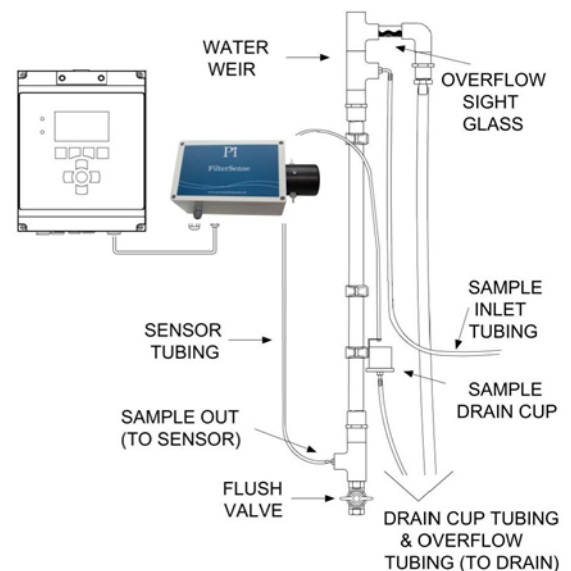
- **Pre RO monitoring**
- **Make up water monitoring**
- **Ultraclean medical device washing monitoring**
- **Membrane filtration monitoring**

## Particle Counts vs. Turbidity

Most filters will have a turbidity meter on the outlet to monitor the efficiency of the filter. Whilst a turbidity meter is a valuable tool, it doesn't tell you the whole story regarding filter breakthrough. A turbidity meter will warn the plant operator if small particles are getting through the filter (<1µm) but won't be sensitive to larger particles breaking through the filter (>1 NTU), which are often the particles of most interest as they are a similar size to *Giardia* and *Cryptosporidium* oocysts, therefore both technologies are required to fully understand a filter.

For more information please visit:

[www.processinstruments.co.uk/products/particle-counter](http://www.processinstruments.co.uk/products/particle-counter).



**CRIUS® FilterSense with overflow weir**