

# Liquistat<sup>®</sup>

## Liquid Optical Particle Counter



The Liquistat particle counter uses volumetric sampling for high precision analysis. It is capable of measuring most corrosive process chemicals including hydrofluoric acid and offers higher precision by measuring larger sample volumes.

The patented *Inviscid Jet* technology is a unique optical design providing superior sensitivity. The Particle Counter eliminates background noise caused by the scattering of the laser light on a sample cell window by injecting the sample into a windowless cavity and sampling only in this region.



### BENEFITS

#### Tighter Process Control

- Counts more liquid particles/unit time than any other
- Volumetric measurements obtain greater accuracy
- Quicker process qualification with high flow rates and 100% view volume
- High-precision measurements lower sample variation
- Less scrap: Shorter sampling intervals allow quick reaction to changes in particle levels
- High sensitivity provided by *Inviscid Jet* technology

#### Easy to Use

- Data collection and analysis simplified with optional *Facility Net* software
- Utilize existing Ethernet network to connect to *Facility Net* process monitoring software
- Simple connection to SCADA and PLCs with 4-20 mA communication
- Simplified installation with bench top or wall mounting brackets
- Powerful *Facility Net* software has alphanumeric paging, data archival/retrieval, time plots and SPC charts

#### Safe

- Internal leak detector provides extra margin of safety
- Chemically-resistant polypropylene exterior allows unit to be used safely with most chemicals

### APPLICATIONS

- In-line monitoring of wet benches
- Wet bench qualification
- Chemical manufacturing and distribution system monitoring
- Chemical filter testing
- Rinse bath monitoring
- Wet etch process monitoring

**Without measurement, there is no control.**

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## Liquid Optical Particle Counter

## specifications

Size range	0.10-0.50 $\mu\text{m}$
Channels	5
Channel sizes	0.10 - 0.14 user-selectable, 0.15, 0.20, 0.30, $\geq 0.50 \mu\text{m}$
Flow rate (ml/min)	50 mL/minute $\pm 10\%$
Counting efficiency	100% sample volume
Sample volume	Volumetric (50 mL/min)
Maximum concentration <sup>1</sup>	5000 counts/mL
Sample temperature <sup>2</sup>	10-90°
Maximum pressure	100 psi
Zero count	< 20 counts/liter
Laser type	Diode laser
Exterior surface	Polypropylene
Wetted surface materials	Kel-F <sup>®</sup> , PFA, Sapphire, and Chemraz <sup>®</sup>
Dimensions (l, w, h)	8 x 4 x 11 inches (20 x 10 x 28 cm)
Weight	7.25 lbs. (3.3 kg)
Power	24 V, 1.7 amps
Communications	Ethernet, 4-20 mA (three outputs: two particle channels, one instrument status), RS-232 (setup and diagnostics only, no data)
Status indicator	Two (2) LEDs: power and status
Calibration	Materials used are traceable to U.S. National Institute of Standards and Testing (NIST) and/or Japanese Institute of Standards (JIS).
Environment	Temperature: 10-35°C, Humidity: non-condensing
Cooling <sup>3</sup>	Nitrogen or Clean Dry Air (CDA) 80 - 150psi

<sup>1</sup>Greater than 90% accuracy (less than 10% coincidence loss) at maximum recommended concentration.

<sup>2</sup>Nitrogen purged cooling required for hot chemicals 35°C to a maximum of 90°C and all solvents.

<sup>3</sup>Nitrogen at 30-60 psi is required.

Chemraz<sup>®</sup> is a registered trademark of Greene, Tweed of Delaware. Kel-F<sup>®</sup> is a registered trademark of the Minnesota Mining & Manufacturing Company.

Liquistat<sup>®</sup> is a registered trademark of Particle Measuring Systems, Inc. Liquistat U. S. Patent no. 5861950; Japan 3335645; Germany 69801825.7-08



Registration applies to the Boulder, Colorado facility.

### AUTHORIZED REPRESENTATIVE



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