

Ultra DI® 20 Plus

Liquid Optical Particle Counter

High Sensitivity Liquid Optical Particle Counter for Ultra Pure Water (UPW)

Without measurement there is no control

Ultra DI 20 Plus particle counter is **designed** and **optimized** for the world's most advanced ultrapure water monitoring needs. By counting and sizing particles as small as 20 nm, the Ultra DI 20 Plus system provides unsurpassed particle detection. With features such as high counting efficiency, low zero-count, instrument to instrument matching across location and environmental conditions, and no cost for an environmental enclosure, the UDI 20 Plus offers customers a reliable and accurate solution to liquid optical particle counting.

The Ultra DI-20 Plus thermally stabilizes the measurement of particles across a 18 to 29°C operating environment delivering unmatched instrument to instrument data stability and matching. This particle counter offers instrument matching within 20% at concentrations of <10 particles per ml which is often required by the current semiconductor industry. With this product, you can have confidence in your UPW data regardless which specific particle counter unit you use. You are able to freely swap particle counters or compare data across sites with confidence the data are comparable. This comparibilty applies to Fabs across town or to Fabs across the globe. This also simplifies annual equipment calibration logistics because instruments in the fleet can be swapped without disruptions or questions about the data.

The Ultra DI-20 Plus ensures complete accuracy by carefully controlling the environment inside the instrument case. No matter where you place the unit, the UDI-20 Plus will continue producing the most accurate and repeatable 20nm particle data possible. It also eliminates the additional purchase price and maintenance cost for an environmental enclosure.



BENEFITS

- Advanced laser optics and sensors enable detection of particles down to 20 nm (9 nm Au)
- Quickly obtain meaningful statistical data to detect particle excursions and troubleshoot problems
- Fast sample cleanup shortens the time to move from one sample point to another
- Respond immediately to contamination with real-time particle measurement
- Eliminates the additional purchase price and maintenance cost for an environmental enclosure

FEATURES

- Unmatched instrument to instrument data stability and matching with thermally stabilized measurements of particles across a 18 to 29°C operating environment
- Instrument to instrument matching within 20% at concentrations of < 10 particles per ml
- Compare UPW system performance across multiple fabs in any environmental conditions anywhere in the world
- Fleet can be swapped without disruptions or questions about the data
- Two counting modes
 - **High resolution** – for pure environments
 - **High concentration** – for filter challenge tests and lower purity environments
- Connect directly to PLC and SCADA systems with 4-20 mA and utilize existing network with Ethernet communication

APPLICATIONS

- Quantifying particle concentration in state-of-the-art ultrapure water (UPW) systems
- Filter efficiency measurements
- Trending analysis at lower particle concentrations
- Detecting bacterial growth in UPW systems
- Episodic event tracking and alarming
- Continuous system monitoring

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Specifications

Channels	4
Channel sizes	20, 50, 70, 100 nm
Flow rate (ml/min)	75 ml/min $\pm$ 10%
Counting Efficiency	100% of sampling volume
Sample temperature	59 – 122 °F (15 – 50 °C) ¹
Maximum pressure	100 psi
Zero count	$\leq$ 50 counts/L ²
Exterior surface	316L Stainless steel
Wetted surface materials	Teflon®, Kel-F®, fused silica, Viton®, 96% Alumina Ceramic, and Simriz® 485
Dimensions (d, w, h)	20.0 x 16.8 x 14.5 in (50.8 x 42.7 x 36.8 cm)
Weight	71 lb (32.2 kg)
Communications	Ethernet 4-20 mA (5 outputs: 4 particle channels, 1 instrument status) RS-232 (set up and diagnostics only, no data)
Status indicator	Laser, power, and activity: one (1) tri-color LED
Calibration	Materials used are traceable to National Institute of Standards and Technology (NIST)
Electrical Rating	100 - 240V, 50 - 60 Hz, 5.0 A
Fuses	250 V, 5 x 20 mm, 5.0 A
Voltage fluctuation	AC input voltage fluctuation shall not exceed $\pm$ 10%
Laser classification	Class I complies with US21 CFR 1040.10 and EN60825-1. Internally an enclosed Class IV laser is used per EN60825-1. Operates with enclosure door open or closed
Environment	Temperature: 64.4 – 84 °F (18 – 29 °C) $\pm$ 1 °C /hour ³ Humidity, Non-condensing Maximum altitude: 6,562 ft (2,000 m) Indoor use only Pollution degree 2 Over-voltage Category II Ordinary protection (Not protected against harmful ingress of moisture) Class I environment (Electrical Earth ground from the mains power source to the product input is required for safety)
Storage and transport environment	-40 - 158 °F (-40 - 70°C) 5 - 90 % Humidity

1 For temperatures greater than 122 °F (50 °C), use of a chiller is recommended.

2 Requires optimization by local Particle Measuring Systems service representative.

3 Operating the unit above 29°C is beyond a manner not specified by the manufacturer, and any risk mitigations provided by the unit may be impaired.

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BUSINESS AMBITION FOR 1.5°C

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