

# 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 comparibility 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

# Ultra DI<sup>®</sup> 20 Plus

Liquid Optical Particle Counter

Specifications

<b>Channels</b>	4
<b>Channel sizes</b>	20, 50, 70, 100 nm
<b>Flow rate (ml/min)</b>	75 ml/min ± 10%
<b>Counting Efficiency</b>	100% of sampling volume
<b>Sample temperature</b>	59 – 122 °F (15 – 50 °C) <sup>1</sup>
<b>Maximum pressure</b>	100 psi
<b>Zero count</b>	≤ 50 counts/L <sup>2</sup>
<b>Exterior surface</b>	316L Stainless steel
<b>Wetted surface materials</b>	Teflon <sup>®</sup> , Kel-F <sup>®</sup> , fused silica, Viton <sup>®</sup> , 96% Alumina Ceramic, and Simriz <sup>®</sup> 485
<b>Dimensions (d, w, h)</b>	20.0 x 16.8 x 14.5 in (50.8 x 42.7 x 36.8 cm)
<b>Weight</b>	71 lb (32.2 kg)
<b>Communications</b>	Ethernet 4-20 mA (5 outputs: 4 particle channels, 1 instrument status) RS-232 (set up and diagnostics only, no data)
<b>Status indicator</b>	Laser, power, and activity: one (1) tri-color LED
<b>Calibration</b>	Materials used are traceable to National Institute of Standards and Technology (NIST)
<b>Electrical Rating</b>	100 - 240V, 50 - 60 Hz, 5.0 A
<b>Fuses</b>	250 V, 5 x 20 mm, 5.0 A
<b>Voltage fluctuation</b>	AC input voltage fluctuation shall not exceed ± 10%
<b>Laser classification</b>	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
<b>Environment</b>	Temperature: 64.4 – 84 °F (18 – 29 °C) ± 1 °C /hour <sup>3</sup> 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)
<b>Storage and transport environment</b>	-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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