

R2301 and R2501 Remote Particle Counters

0.1 CFM (2.83 LPM)



The Airy Technology® R2301 and R2501 Remote Airborne Particle Counters are designed for continuous monitoring in cleanrooms and other controlled environments. With four particle size channels ranging from 0.3 or 0.5 up to 25.0 μm , these instruments deliver targeted contamination detection with realtime data collection and configurable alarms for immediate incident reporting and local visual alerts.s.

The compact, angled enclosures enable installation in tight locations while minimizing disruption to unidirectional airflow. These sensors have four fixed particle size channels and are equipped with an integral critical orifice and flow sensor to provide a stable flow rate from an external vacuum source.

Built for scalability and long-term reliability, these models utilize durable laser diodes backed by a lifetime warranty and deliver exceptional zero-count performance. The R2000 Series sensors allow for efficient particle counting with specifications that exceed the ISO 21501-4 and JIS B9921 calibration standards.

With seamless connectivity, remote diagnostics, and a standardized architecture, they offer simplified integration and a lower total cost of ownership for critical monitoring applications.

Features and Benefits

- 0.1 CFM (2.83 LPM) flow rate
- Long life laser diode technology
- Measures up to 4 channels of simultaneous data
- Accurate in high concentration environments with minimal time to zero-count
- Troubleshoot issues remotely from anywhere with an internet connection
- Internal critical orifice provides precise airflow control, consistent measurements
- Modbus RTU/ASCII data communication over isolated RS-485
- Complies with ISO 21501-4 and JIS B9921 standards
- Easy to clean, lightweight stainless steel enclosure with minimal particle traps
- Versatile mounting options
- User configurable alarm light and LED indicators for real-time alerts
- Seamless integration into a facility monitoring system
- 2 Year Limited Warranty (Extended and Lifetime Warranties available)

Specifications

Model	R2301	R2501
Size Range	0.3 µm to 25 µm	0.5 µm to 25 µm
Size Channels	Factory calibrated at 0.3, 0.5, 1.0, and 5.0 µm	Factory calibrated at 0.5, 1.0, 2.5, and 5.0 µm
Counting Efficiency	50% @ 0.3µm; 100% for particles > 0.45 µm per JIS	50% @ 0.5µm; 100% for particles > 0.75 µm per JIS
Flow Rate	0.1 CFM (2.83 LPM)	
Concentration Limits	10,000,000 particles/ft³ @ 10% coincidence (per ISO 21501-4), 20,000,000 particles/ft³ @ 10% coincidence (as tested and validated¹)	
Light Source	Long life laser diode	
Zero Count	< 1 count / 60 minutes (< 1 particles / 6ft³). No fault count subtraction.	
Calibration	NIST traceable	
Vacuum Requirements	External vacuum > 15" (38.1cm) of Hg	
Airflow	Internally monitored	
Number of Channels	4 Channels	
Alarm	User configurable alarm light	
Communication Modes	MODBUS™ RTU, ASCII (over isolated RS-485)	
Standards	ISO 21501-4 and JIS B9921	
Instrument Calibration	Recommended minimum once per year	
External Surface	Stainless steel	
Dimensions (L x W x H)	3.5" x 1.8" x 5.2" (8.9 cm x 4.6 cm x 13.2 cm) including probes and connectors	
Weight	1.65 lb. (0.75 kg)	
Accessories	Wiring Connector, Operating and User Manual on USB flash drive	
Optional Accessories	Power Supply, Remote Mounting Bracket, Isokinetic Probe, Filter Assembly, Sample & Vacuum Tubing	
Sample Time	1 second to 99 hours	
Power	9 - 24 VDC (< 1.5 watts)	
Operating Conditions	41° to 104°F (5° to 40°C) / 20% to 95% non-condensing	
Storage Conditions	32° to 122°F (0° to 50°C) / Up to 98% non-condensing	
Warranty	2 Year Limited Warranty (Extended and Lifetime Warranties available)	

1- Validated by independent analysis see paper available at www.particlesplus.com/aac2022_paper

