



The **iDetector** is a compact, networked, and continuous biological aerosol detection system which provides real-time alerts to support rapid and effective mitigation strategies in the event of a bioaerosol event. Built on the same technology selected by the U.S. Military as the biological trigger for the Joint Biological Tactical Detection System (JBTDs), iDetector has demonstrated proven performance in operational environments.

The iDetector utilizes a 275 nm excitation source with two different detection channels. The 275 nm source induces bio-fluorescence in viral and toxin particles directly (neither growth media nor secreting bacteria are required for detection), while the two-channel detector provides additional discriminatory power against background materials. The iDetector provides biological particle data every five seconds (configurable) for processing by remote algorithms and locally alarms to biological threats in 60 seconds.

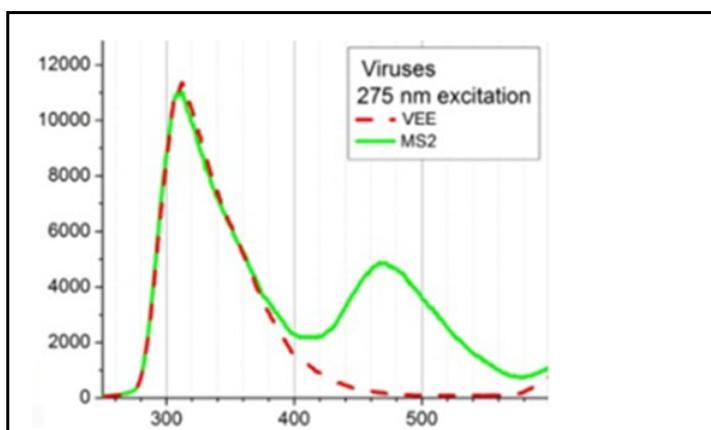
The iDetector is designed to operate in both indoor and outdoor environments. Its low power design allows operation from a wide range of inputs including Vehicle and Power-over-Ethernet (PoE).

Characteristics

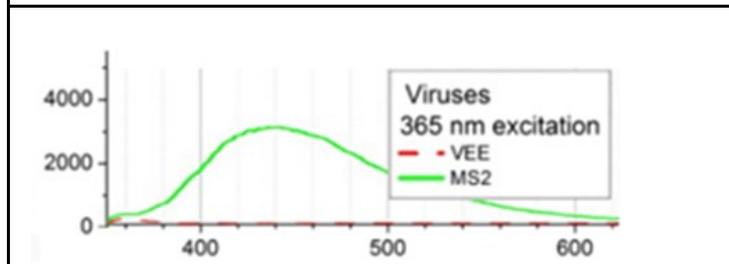
Threat Types	Aerosolized virus, bacteria, and toxins
Interferent Rejection	High performance in the presence of common interferents such as fog, oil, JP8, gas/diesel mixture, road dust etc.
False Alarm Rate	Lowest available false alarm rate for low-cost continuous biological monitors

Characteristics

Detection Sensitivity	Detection of bacteria, viruses and toxins at less than 200 particles per liter
Detection Time	60 seconds
Remote Analysis	Data available every 5 seconds
Weight/Size	3.2 pounds / <math><0.15\text{ ft}^3</math>
Power	12-24 VDC Power-over-Ethernet (PoE) 5W
Set-up Time	2 minutes
Networking Features	<ul style="list-style-type: none"> Wired Ethernet Wireless Communication
TRL	7



With 275 nm excitation, the iDetector provides near-real time detection of bacteria, viruses, and toxins. Unlike longer wavelength systems, the iDetector does not rely on the presence of growth media or associated microbes to detect viruses and toxins.



Pan, Y.-L. Detection and characterization of biological and other organic-carbon aerosol particles in atmosphere using fluorescence. *Journal of Quantitative Spectroscopy and Radiative Transfer* 2015; 150: 12-35

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Version: 20/01/2026