

# Tac-7SD<sup>®</sup>

## Integrated Detection and Collection of Biological Aerosols

**THE TAC-7SD<sup>®</sup>** is an integration of the latest digital photon bioaerosol detector technology with a 300 LPM sample collection module based on the electret filter-based SASS 3100. By combining these two capabilities in a single shell, users have a world-class detection/collection system that is equally suited for man-portable survey work or fixed location bioaerosol monitoring applications. In addition, air sampling rates and battery operating time are best-in-class by a wide margin.



The Tac-7SD is extremely useful for tracking background levels of airborne non-biological and biological materials and in addition to sample collection, providing an alarm and/or digital activation command to other equipment if there is a rapid increase in the aerosol background. It cannot identify the type of biological material detected, and for that reason it is correctly characterized as a bioaerosol “trigger.”

Operation of the system may be monitored remotely using Windows-based software provided with the unit, and changes made to its operating characteristics as needed or desired. Signals may be transmitted wirelessly between the Tac-7SD and a monitoring PC or other equipment using BioLink™ Bluetooth transmitters and receivers, or via RS-232 cables.

The Tac-7SD is covered under U.S. patent protection. Research International Inc. has the worldwide right to manufacture and sell instruments containing this technology.

**U.S. Patent Nos.:** 10267723, 10274410, 10444137, 10794815, 11340153.

### FEATURES

- Compact and lightweight
- UV photon counting technology
- Battery life >24 hours
- Long collection periods
- Usable from -40°C to 70°C
- Adjustable air flow
- User-specified automated protocols
- Wireless control option
- Easy decontamination, including fan rotor
- Wireless communications capable

### APPLICATION AREAS

- Military
- Homeland security
- Public Health

## Tac-7SD® Specifications

<b>Operating principles</b>	Aerosol particle counter with 280nm UV-stimulated fluorescence signature detection using photon counting coupled with high efficiency electret filter-style aerosol sample collector.	
<b>Particle size range</b>	1 to 15 microns in four size ranges. Respirable aerosolized bacteria, spores, viruses, and toxins. Bio-fluorescence intensity in each size range is monitored and reported.	
<b>Detector Interferents</b>	Resistant to diesel smoke, pollen, silica and cement dusts and other common interferents.	
<b>Detection limit</b>	100 ACPLA in most natural environments, 20-30 ACPLA under laboratory test conditions.	
<b>Start-up time</b>	1 minute.	
<b>Time to alarm</b>	15 seconds, average. A 15-minute moving historical baseline is used for alarm protocols.	
<b>Sampling volume</b>	Detector: 1.2 liter per min of ambient air nominal. Sampler: 300 liters/minute.	
<b>Communication</b>	RS-232 or Bluetooth wireless BioLink.	
<b>Data storage</b>	Collected data is stored on a removable SD-type data card. An 8.0 GB card will store more than 5 years of aerosol data.	
<b>Alarms</b>	Electronic digital alarm; red LED and >100dB piezoacoustic alarm on unit.	
<b>Power</b>	Detector: < 6 watts. Sampler: 10 watts. Can be used with BA-5590 primary battery or UBI 2590 rechargeable battery. Operable on AC mains power or vehicle power with proper converter.	
<b>Continuous operating time (approximate)</b>	Essentially unlimited if powered externally. Detection mode: Over 24 hours with UBI 2590 rechargeable battery. Detector plus sampler: 17 hours continuous on UBI 2590.	
<b>Detector and sampling pump life</b>	30,000 - 40,000 operating hours each.	
<b>Operating temperature range</b>	-30°C to 50°C. Operation to 60°C is permitted up to a total time of 1,000 hours.	
<b>Humidity</b>	0 to 95% non-condensing.	
<b>Consumables</b>	Detector: None. Sampler: Electret filters (see below)	
<b>Air Collection Rate</b>	Standard (bioaerosol) electret filter:	User adjustable 50 LPM to 300 LPM.
	HEPA-style (radiological) electret filter:	User adjustable 10 LPM to 49 LPM.
<b>Filter Collection Efficiency</b>	Standard (bioaerosol) electret filter:	50% at 0.5 micron diameter.
	HEPA-style (radiological) electret filter:	More than 95% for > 0.3 µm diameter.
<b>Filter Mass and Composition</b>	Standard (bioaerosol) electret filter:	12 mg/cm <sup>2</sup> . Polypropylene electret microfiber.
	HEPA-style (radiological) electret filter:	2.2 mg/cm <sup>2</sup> for active media; 8.6 mg/cm <sup>2</sup> including backing scrim. Polypropylene electret microfiber.
<b>Filter Media Size</b>	4.4 cm active diameter filter, mounted in 6.0 cm diameter injection-molded holder.	
<b>Accessories</b>	Rain cover for air sampler, P/N 7000-165-200-01.	
<b>Size</b>	35.8 x 17.2 x 21.7 cm without inlet air stack attached. 35.8 x 17.2 x 29.6 cm with inlet stack attached.	
<b>Weight</b>	6.5 kg without battery / 7.5 kg with battery	
<b>Package</b>	EMI-resistant aluminum shell.	

*Research International reserves the right to change specifications without prior notice.*

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