

Responder and community safety are critical when analyzing potentially hazardous materials. The Thermo Scientific FirstDefender RMX instrument can be used as a handheld instrument or integrated onto a tactical robot, providing military and civilian first responders more flexibility and increased safety.

Thermo Scientific FirstDefender RMX

Next Generation Raman for Down Range Chemical and Explosives Identification



The Thermo Scientific FirstDefender RMX unit is the next generation Raman instrument for rapid, accurate identification of unknown chemicals including explosives, narcotics, toxic industrial chemicals, precursors and more. Designed for flexible use modes, the FirstDefender® RMX device can be used as a handheld instrument with the fixed probe, through an integrated vial mode, or mounted to select tactical robots via an integration kit.

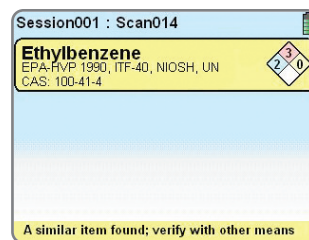
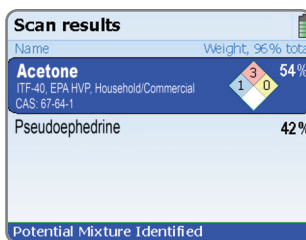
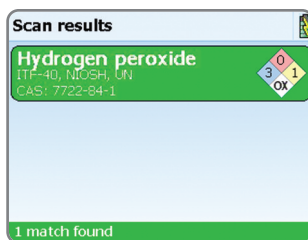
Building on the award-winning, field proven FirstDefender, significant improvements have been made in speed and performance, delivering exceptional chemical identification capability for a range of response scenarios.

Key Benefits:

- **Faster, more accurate identification.** Based on Raman spectroscopy, quickly identifies unknown solid and liquid chemicals down range.
- **Built for field use.** MIL-STD-810G and IP67 tested and certified.
- **Flexible use modes.** Handheld use or easily connected to select tactical robots using optional integration kit.
- **Improved automatic mixture analysis.** Sophisticated chemometric algorithms automatically determine presence of mixed and contaminated chemicals.
- **Point-and-shoot™ sampling.** Improved operation through sealed translucent containers avoids exposure and maintains evidence.
- **Extensive substance library.** Identifies explosives, toxic industrial chemicals (TICs), chemical warfare agents (CWAs), narcotics, precursors, white powders and more.

The FirstDefender RMX instrument is not ITAR-restricted, though a U.S. Department of Commerce export license may be required for some countries.





Color-coded result screens require no user interpretation and provide rich content for faster, more informed decision making. Onboard NIOSH and CAMEO guides provide detailed hazard information. Patented chemometric algorithms enable automatic mixture analysis, shown with a blue screen result.

Continuous Innovation

The FirstDefender RMX unit returns results up to 5 times faster than the first generation Raman instrument, meeting the demanding requirements of elite military personnel and civilian first responders. The device offers military organizations, hazmat teams, bomb squads and law enforcement personnel a unique tool for hazmat response and the fight against the explosives threat.

Complementary and Confirmatory

Raman spectroscopy and FTIR spectroscopy, the underlying technologies in the FirstDefender and TruDefender® product families, are highly precise and selective optical techniques, each offering distinct advantages in specific applications. When used together, FTIR and Raman spectroscopy provide confirmatory results and a broader range of unknown substance identification—leading to better protection for the responder and the community.



Thermo Scientific FirstDefender RMX

Specifications	
Weight	2.0 lbs (919g)
Size	7.7 x 4.5 x 2.4 in (19.6cm x 11.4cm x 6.1cm)
Use Mode	Flexible: handheld with fixed probe; vial mode; or robot-mounted
Spectral Resolution	7 to 10.5 cm ⁻¹ (FWHM) across range
Collection Optics	NA = 0.23, 17mm working distance; 0.14 to 1.8mm spot size
Laser Output	Power Adjustable, 75 mW, 125 mW, 250 mW
Survivability	Independently tested for MIL-STD-810G and IP67 certification
Exposure	Manual, Automatic modes (5ms minimum)
Scan Delay	Optional; user-configurable delay up to 120 seconds
Battery	Removable and rechargeable lithium ion battery or 123a (eg SureFire™) batteries; >4 hours operation
External Power Supply	DC Wall Adapter, 12 V 1.25 A
Operating Temperature	-20 °C to +40 °C (continuous)
Robot Integration	Integration kit required from robot manufacturer for mounting and universal control. Contact sales.chemid@thermofisher.com for more information about supported interfaces.

Note: Complete test reports available upon request.

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