

# FirstDefender | RM

Next Generation Raman for Chemical and Explosives Identification

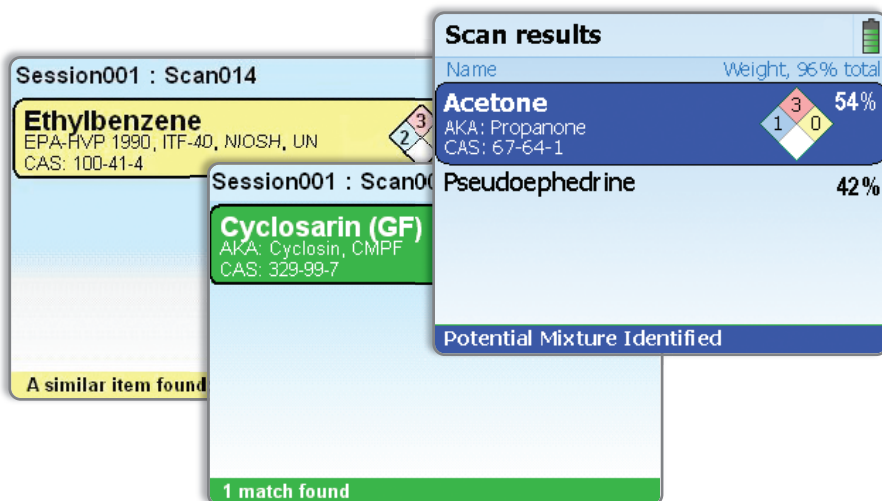


**FirstDefender® RM** is Ahura Scientific's next generation Raman instrument for rapid, accurate identification of unknown chemicals directly in the field. Building on the award-winning, field proven FirstDefender, Ahura Scientific has made significant enhancements in speed, performance, mixture analysis and user interface incorporating extensive user feedback and the latest technical advances.

At 1.8 pounds (800g), FirstDefender RM is less than half the size and weight of the first generation instrument, with a large, vivid display for ease of use in bulky protective gear. FirstDefender RM returns results up to 5 times faster, ensuring that FirstDefender RM meets the demanding requirements of elite military personnel and civilian first responders.

## KEY BENEFITS INCLUDE:

- **Fast, accurate identification.** Based on Raman spectroscopy, quickly identifies unknown solid and liquid chemicals down range.
- **Automatic mixture analysis.** Sophisticated chemometric algorithms automatically determine presence of mixed and contaminated chemicals.
- **Vast substance library.** Identifies explosives, toxic industrial chemicals (TICs), chemical warfare agents (CWAs), narcotics, precursors, white powders and more. Library is quickly updated in the field and easily navigated.
- **Lightweight, ergonomic design.** Weighs 1.8 pounds (800g) for easy transportation down range.
- **Built for field use.** Certified to MIL-STD 810F standards for ruggedness and environmental protection to IP67 standards against dust and water up to one meter.
- **Point-and-Shoot™ identification.** Operates directly through sealed glass or plastic containers, avoiding exposure to potentially harmful substances. An integrated vial holder offers an alternative sampling method.
- **Easy to use and maintain.** Menu driven user interface requires minimal training. No scheduled maintenance or calibration.
- **Non-destructive testing.** Optical technique maintains sample integrity.
- **Flexible power source** FirstDefender RM can be powered using the included rechargeable battery; wall plug; or commonly available SureFire™ disposable batteries.



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.

Specifications	
Raman Spectral Range	250 to 2875 $\text{cm}^{-1}$
Spectral Resolution	7 to 10.5 $\text{cm}^{-1}$ (FWHM) across range
Laser (excitation wavelength)	785 nm +/- 0.5 nm, 2 $\text{cm}^{-1}$ linewidth, stability <0.1 $\text{cm}^{-1}$
Laser Output Power	Adjustable, 75mW, 125mW, 250mW
Collection Optics	NA = 0.23, 17mm working distance; 0.14 to 1.8mm spot size
Exposure	Manual, Automatic modes (5 ms minimum)
Battery	Rechargeable internal lithium ion battery, OR SureFire™ disposable batteries; > 4 hours operation
External Power Supply	DC Wall Adapter, 12 V 1.25 A
Weight	1.8 lbs (800g)
Size	7.6" x 4.2" x 1.75" (19.3 cm x 10.7 cm x 4.4 cm)
Operating Temperature	-20 °C to +40 °C (continuous)
Scan Delay	Optional; user-configurable delay up to 120 seconds

Note: Product details current as of printing. All information subject to change. 7Jan2010

### Continuous Innovation

In 2005, Ahura Scientific revolutionized chemical identification with the introduction of FirstDefender, the first handheld Raman spectrometer specifically designed for field use. This required overcoming tremendous technical challenges including miniaturization of components, as well as significant developments in packaging, ruggedness and ease of use to ensure that the customer demands were met. Ahura Scientific is committed to continuous innovation and developing products that significantly impact the way users execute their mission. FirstDefender RM is the next step toward this commitment.

### Proven Technology

Ahura Scientific products are actively deployed by military organizations, first responders and national law enforcement agencies across the world. The company's safety product family includes FirstDefender and TruDefender FT for solid and liquid chemical identification; and TruDefender FTG for headspace gas analysis.

For more information, please contact [sales@ahurascientific.com](mailto:sales@ahurascientific.com).