



Reliable answers in unpredictable situations

Thermo Scientific™ Defender™ Omega Handheld
Raman Analyzer

Safe, fast chemical identification when you really need it

The Defender Omega Handheld Raman Analyzer helps users identify a wide range of chemical compounds - from explosives and chemical warfare agents to narcotics and other drugs of abuse.

Customs, military and law enforcement personnel can't always predict what they'll come across in the field. The Defender Omega analyzer is a reliable handheld tool that can help users identify compounds used to make explosives, nerve agents, narcotics, and other chemicals. This analyzer has all the key elements for essential chemical ID where security and safety users need it most.



User safety

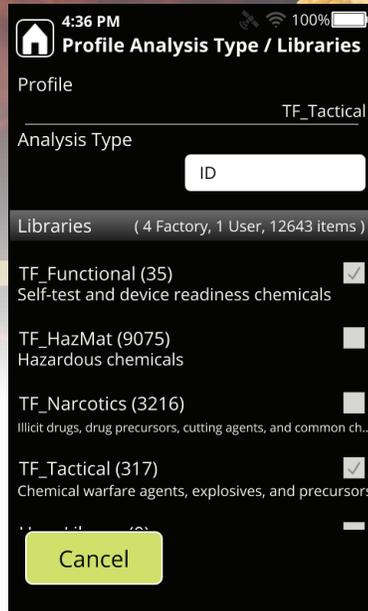
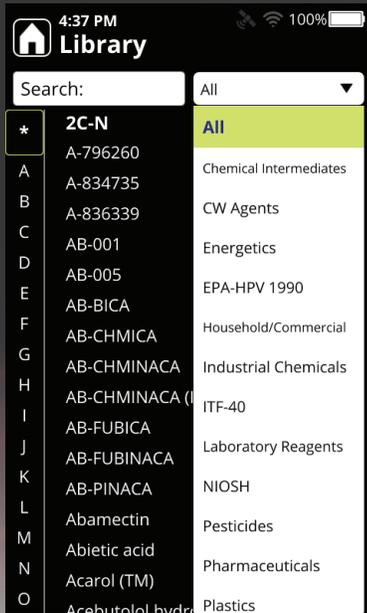
- Touchless, point and shoot scanning through transparent glass or plastic reduces the need for users to handle unknown substances
- Instructive results deliver an alarm, warning or clear indication to help users quickly determine what action to take

Accuracy

- Patented chemometric algorithms are more reliable for chemical identification, particularly for multicomponent mixtures and spectrally complex samples
- Background fluorescence is suppressed to help users confidently identify substances from clear spectral fingerprints using 1064 nm optics

User flexibility

- Large touchscreen and illuminated keypad allow users to easily enter information, even in low-light situations
- 2 different scan modes enable users of all levels to make fast decisions, in ID or Screener modes
- Flexibility to support user-created libraries to adapt to evolving threats



Comprehensive libraries

- Expandable libraries to help identify explosives, chemical warfare agents, controlled substances, cutting agents, precursors and industrial chemicals
- Customizable libraries allow users to identify targeted materials
- Ongoing library updates help users stay current with emerging threats

Solid chain of custody

- GPS and digital camera enable time and location stamping
- Unique user ID and password ensures data stays locked and safe
- User-generated meta data for fast, easy search of previous measurements
- Instrument logs to keep track of who scanned what substances and when

Built for use in the field

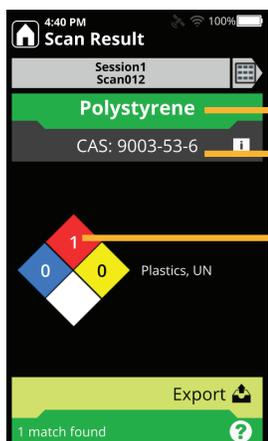
- Removable and rechargeable batteries for power on the go
- Wi-Fi connectivity for data sharing 
- Web user interface (WebUI) for easy configuration
- Water tight – (IP68 rated) for protection against water and dust
- MIL-STD-81H rated for durability

So easy to use

ID Mode

- Ideal for advanced users
- General characterization of chemicals
- Detailed investigative functionality

Detailed analysis of unknown chemicals



4:40 PM Scan Result
Session1 Scan012

Polystyrene — Chemical name
CAS: 9003-53-6 — CAS number

NFPA designation: 1 (Flammability), 0 (Health), 0 (Reactivity) — Plastics, UN

Export — Mixture information

1 match found

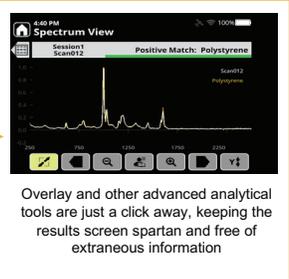


5:57 PM Scan Result
Hail Scan027

Sodium bicarbonate 83%
CAS: 144-55-8

Sugar 15%

Export



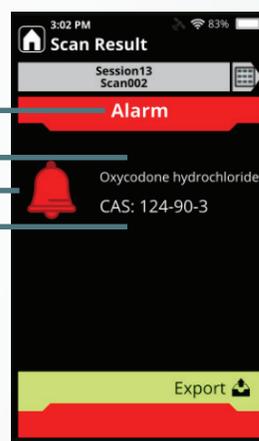
4:40 PM Spectrum View
Positive Match: Polystyrene

Overlay and other advanced analytical tools are just a click away, keeping the results screen spartan and free of extraneous information

Screener Mode

- Ideal for all user levels
- Notifies users to presence of alert substance
- No interpretation needed to determine next steps

Monitor the presence of critical chemicals

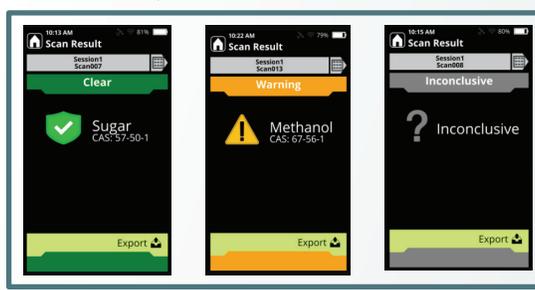


3:02 PM Scan Result
Session13 Scan002

Alert level: **Alarm**

Chemical name: Oxycodone hydrochloride
Alert level symbol: 
CAS number: CAS: 124-90-3

Export



10:13 AM Scan Result
Session1 Scan007
Clear
Sugar
CAS: 57-50-1
Export

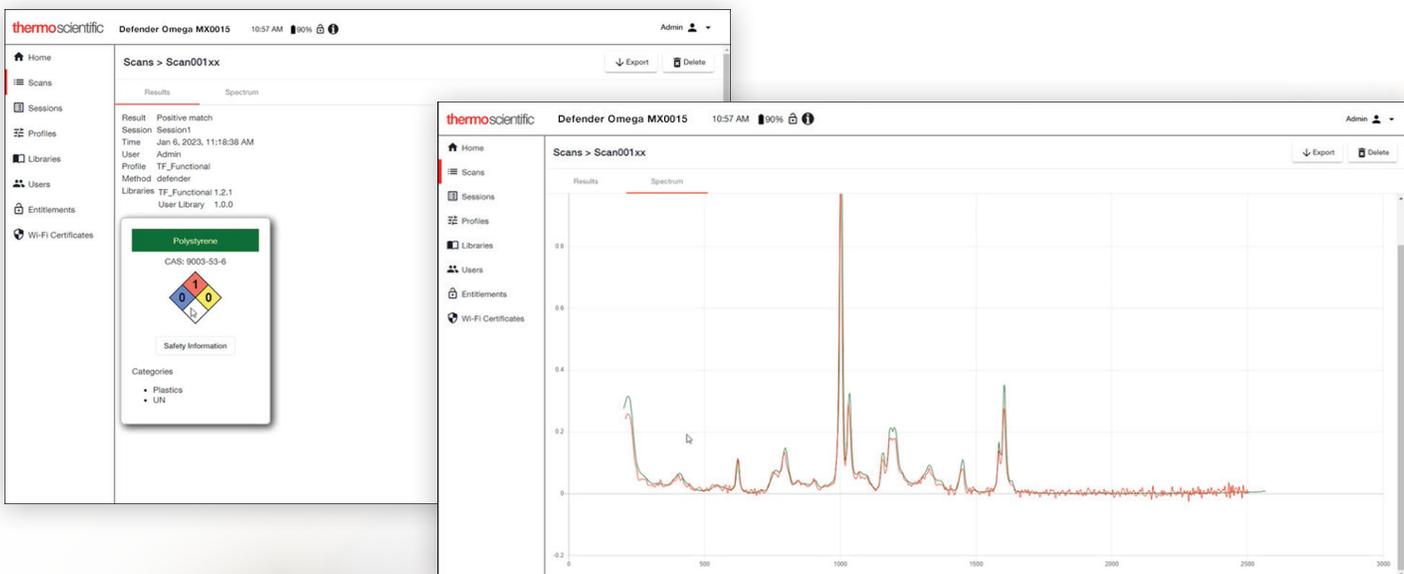
10:22 AM Scan Result
Session1 Scan013
Warning
Methanol
CAS: 67-56-1
Export

10:15 AM Scan Result
Session1 Scan008
Inconclusive
Inconclusive
Export



Web Interface

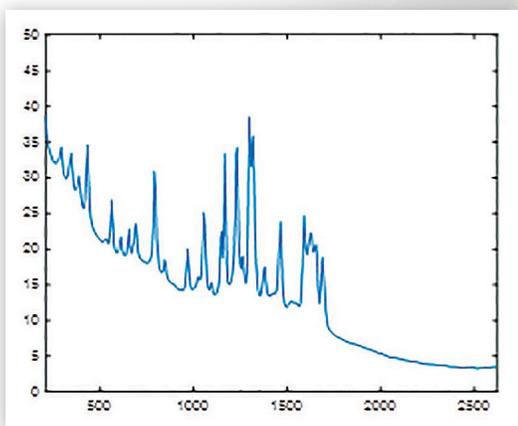
- Libraries
- Data
- PC download not required
- Accessible by PC browser



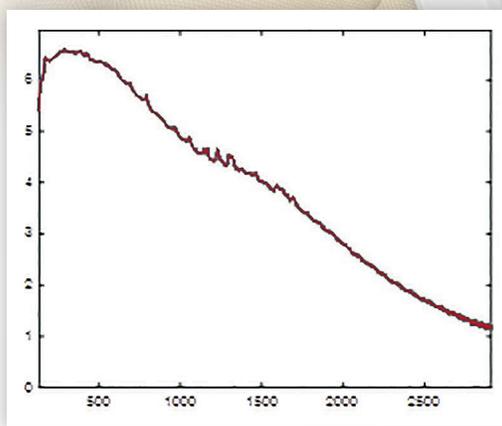
Touchless point and shoot scanning

A key strength of the Defender Omega analyzer is analyzing fluorescent substances. By suppressing background fluorescence, the analyzer enables point and shoot identification of common substances.

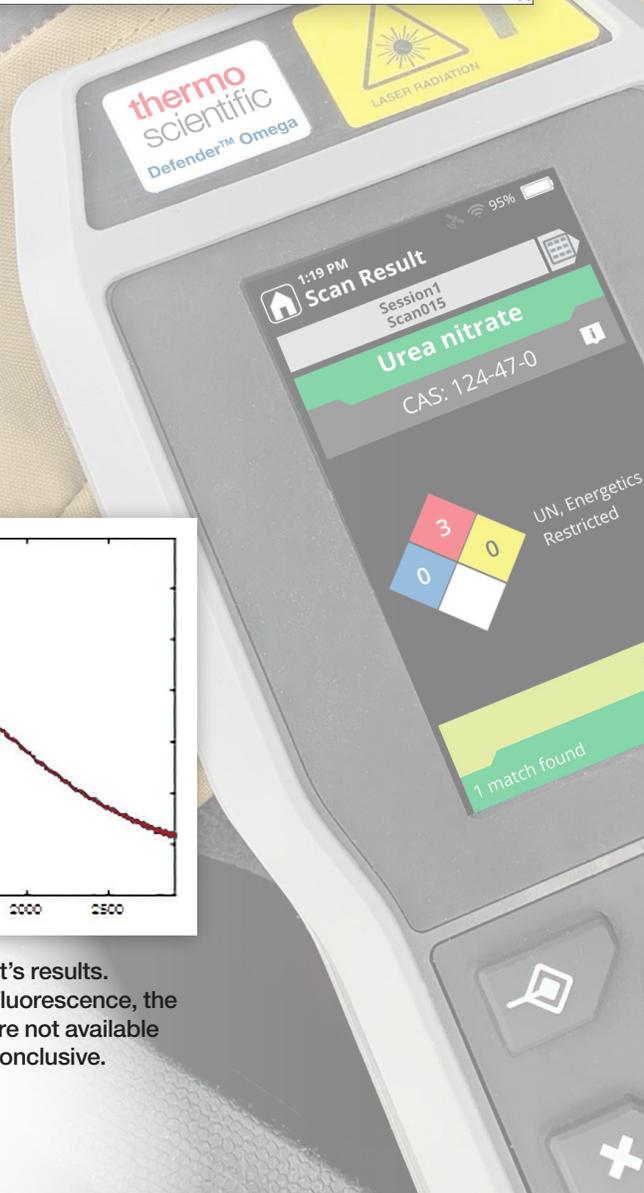
Clear spectral peaks are needed for identification of materials. In some substances the spectral fingerprint can be difficult to identify.



Above, results from the Defender Omega analyzer's analysis of a controlled drug precursor. By subduing fluorescence, spectral peaks become visible, leading to the chemical's identification.



Above, an alternative product's results. Obscured by overwhelming fluorescence, the precursor's spectral peaks are not available for analysis — results are inconclusive.



Maintain accurate results

Trust our dedicated service team, ready to provide continuous support for complete confidence in the measurements and readings of the Defender Omega. We offer comprehensive service plans to ensure optimum system performance and uptime, support managing yearly service expenditures, and allow you to focus on your core business.

Service plan highlights

- Convenience: Unlimited technical support and remote diagnostics
- Cost control: Budget predictability and avoidance of unexpected repair costs
- Rapid response: Access to around-the-clock Reachback support
- Quality repairs: Depot repairs and parts availability, with timely turnaround
- Reliability: Software and performance verifications



With various plan options available, there is a fit for every need and budget.

Defender Omega Handheld Raman Analyzer Specifications

Dimensions (HxWxD)	cm: 24.1 x 11.7 x 5.6 (in: 9.5 x 4.6 x 2.2)
Weight	1.6kg (3.5lb)
Laser (excitation wavelength)	1064.25 nm +/- 0.5 nm, 2 cm ⁻¹ linewidth
Laser output	Adjustable 480mW, 240mW, 96mW
Ocular hazard distance	160 cm 63 in
Ambient operating temperature	-20°C to 50°C
Connectivity	Wi-Fi and USB-C cable
Battery	Removeable and rechargeable lithium ion 7.2V, 49Wh, 4-hr run-time at 25°C
Rugged design	MIL-STD-810H IP68 rated

Learn more at thermofisher.com/defenderomega