

PRODUCT BRIEF M908



Anatomy of



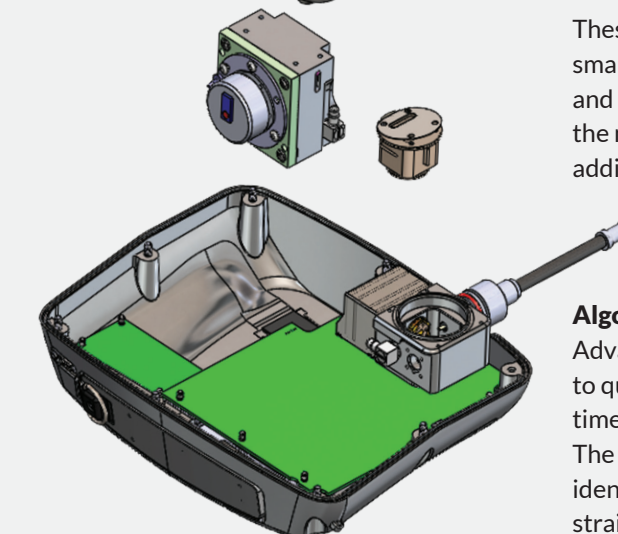
908 Devices Inc. is dedicated to bringing the laboratory standard for identification to the field. Speed and fidelity - results you can trust - are at the heart of M908. It's the unique combination of breakthrough technology and unmatched software and algorithms that enabled 908 Devices to create the world's first and only dual-use handheld mass spectrometer.

M908



High-Pressure Mass Spectrometry™ (HPMS):
Our patented high-pressure approach to mass spectrometry is made possible by the use of microscale ion traps. These traps allow for operation much closer to atmospheric pressures and enable the use of smaller pumps, ionizers, detectors and electronics.

These diminutive traps are 1000 times smaller than conventional MS systems and enable M908™ to operate without the need for extreme vacuum or additional gas supply.



Algorithms & Analytics:
Advanced algorithms provide the ability to quickly find target threats in real-time and in real-world environments. The onboard analytics automatically identify multiple threats and provide straightforward, easy-to-understand results that inform the user on the threats detected.



User Interface

The software interface was designed with clarity and simplicity in mind. The task-oriented functions perform highly automated acquisition and analysis, and a large high-resolution backlit color display provides great visibility even in PPE.

Target List

The preloaded target list is easily expandable allowing the instrument to evolve with new threats.



This technology is consolidated into our low-cost MS core that contains the ion traps, ionizer, detector and complete vacuum volume. With low power consumption, our small rough pumps operate at 100 millitorr to 1 torr, achieving mass spectrometer performance at decent resolution and range.



TEST DATA SUMMARY

Independent testing
MRI Global
Kansas City, MO
June 2013 and January 2014

MRI Global External Testing:

- ROC analysis on 15 targets (simulants, TICs, environmental pollutants)
- Detailed LOD characterization on two simulants
- Evaluation of detection rates vs. humidity (0 to 75%)
- Evaluation of detection rates for three simulants in the presence of 5% JP8, AFFF, antifreeze, cologne, windex
- Evaluation of detection over high dynamic range conditions (2-3 decades)

Positive/Negative MS ROC Curves:

- Measurement time: 1 second
- Approximately 12,000 test cases (6500 positive, 5500 negative)
- 15 targets and interferents
- Very favorable FAR performance

Official Report Conclusion:

- ROC analysis (AUC) of 99% - which is a summary of the probability of Detection, and false positive rates
- ROC analysis (AUC) of 95% with interferents (JP8, AFFF, Windex, Cologne & Antifreeze)
- Clear down of 8 seconds in headspace of BTEX
- Detection of GA, GB, GD, HD, and L

“The device routinely performed at or exceeded our expectations for all test categories.”

Reports available upon request.

Filling the Gap:

Technology	Speed	Usability	Sensitivity	Selectivity	Fidelity/ Confidence	Multi- Mode	Solids	Liquids	Gas/ Vapors
HPMS	✓	✓	✓	✓	✓	✓	✓	✓	✓
IMS			✓				✓	✓	✓
Raman	✓	✓		✓	✓		✓	✓	
FTIR	✓	✓		✓	✓		✓	✓	
Colormetrics		✓	✓			✓			
PID	✓	✓	✓						✓



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