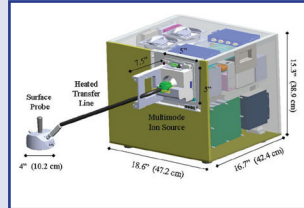


Science & Engineering Services, Inc. - Universal Mass Spectrometer Sensor



GENERAL DESCRIPTION:

The Universal Mass Spec Sensor (UMSS) is sized and designed to deliver a next generation portable Mass Spec capability for both biological and chemical (Explosives, Narcotics, CWA and TIC) materials. Sample inlet is via heated probe and/or direct injection. A key attribute of UMSS is rapid sample processing in clutter and the ability to enable (create/transfer) library updates of new hazards and/or unknowns within a few hours. In terms of logistics, the consumables cost per sample is less than one dollar and train-up for non-technical users is two days.



TECHNICAL DESCRIPTION:

The Universal Mass Spec Sensor (UMSS) uses a hexapole ion-trap mass spectrometer in which MS/MS is conducted either via secondary electro-spray ionization (SESI) of chemical samples or via supplemental AP-MALDI module for biological samples. Sample materials undergo rapid ionization and MS/MS of targeted markers to sift rapidly thru clutter against specialized-onboard and/or commercial internet-accessible databases..

CONTACT INFORMATION

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 Columbia, Maryland 21046
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 443-539-0139
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COST

- \$250,000/system
- <\$1/analysis

Tier Selection

Final tier assignment is based on overall product score.

- Top Tier
- Second Tier
- Third Tier
- Fourth Tier
- Bottom Tier

RANKINGS

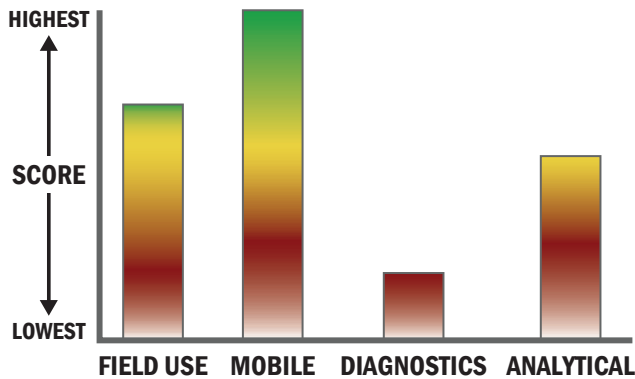
	Biological	Chemical	Radiological
FIELD USE System			N/A
MOBILE Laboratory			N/A
DIAGNOSTIC Laboratory			N/A
ANALYTICAL Laboratory			N/A

Survey Source

Vendor Supplied Information

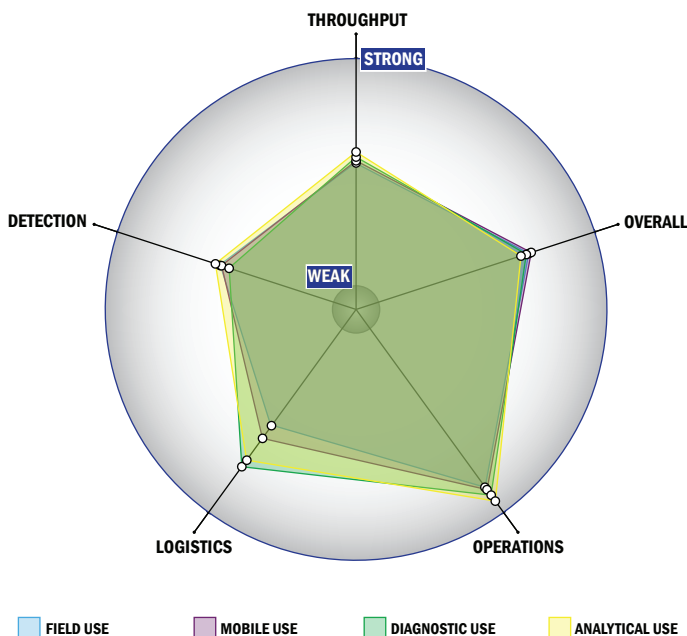
Scoring Analysis

System scores are compared across the four scenarios and ranked from highest to lowest.



Impact Chart

The Impact Chart is a spider graph representing specific categories and designed to give the reader a visual depiction of how a particular system is expected to operate across the four different scenarios. The score for each of the seven categories is presented as the percentage of the total possible score. Higher category scores extend the spokes of a graphic toward the outer edge of the chart. The area graphed for each of the four scenarios relates to how well the system performed in that scenario. Graphics for each of the four scenarios are super-imposed for ease of comparison.



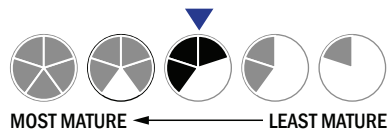
Evaluation Criteria

Throughput:

- Between 2 and 15 minutes for detection
- Multiple samples, multiple tests/sample per run
- 95-32 samples every 2 hours
- The system or device is currently semi-automated
- Device or system is intended for multiple detection assays
- 3 solutions, buffer, eluents, and/or reagents
- 1 component
- 10-20 minutes is required for set-up
- 1-2 steps are required for detection

Logistics:

- An afternoon of training and some technical skills required
- Approximately the size of a carry-on luggage suitcase
- Between 25 and 50 kg
- Wireless and wired connections are available
- System or device has 110V electrical requirement
- 4-8 hours battery life



Operations:

- Can be used from 4 °C to 37 °C
- Performance is not influenced by relative humidity
- Between 1 to 3 years shelf life
- Greater than 10 years expected life
- Results can be viewed in real-time
- The system could easily be adapted into a fully autonomous system
- The system software is open and available for modification
- The system hardware is open and available for modification

Detection:

- Possible the system could receive 510K clearance, no current efforts at this time
- Possible the system could receive FDA approval, no current efforts at this time
- Less than 10 µL
- Excellent specificity. System has occasional false alarms under certain conditions (<2%)
- 1,000-10,000 CFU per mL
- 1,000-10,000 PFU per mL
- 10-100 ng per mL
- Semi-automated spore lysis
- 1 ppb-1 ppm
- System currently can identify liquid chemical agent

