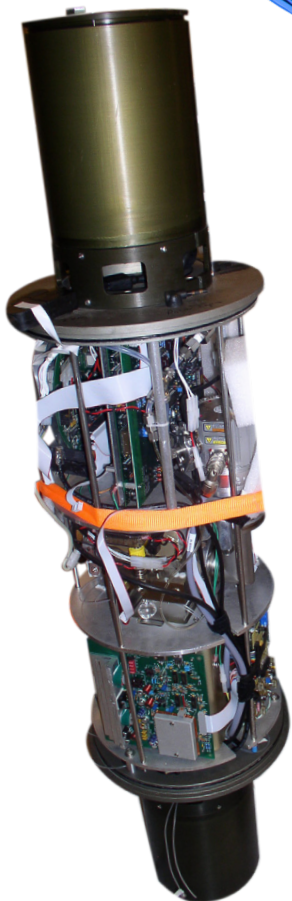




25 2nd Street North
Suite 320
St Petersburg, Florida 33701
Phone: (727) 289-7269
Fax: (727) 499-7561
bioplextechnologies.com



**Environmental Mass Spec
Mobile, Compact, Versatile**



What is the MANTA?

Long considered the premiere chemical analysis tool, the ion trap mass spectrometer provides on-site, real time identification and quantification of chemicals. The MANTA provides the highest level of performance in a compact, easy-to-use field mobile mass spectrometer system developed for use in or near bodies of water. The MANTA can be configured for a simple operation or may be configured to utilize additional problem solving features of advanced analytical instrumentation.

Deployed alone or paired with the Porifera - Precision Field Sampler, the MANTA may be used as a process analytical tool for volatile organic compounds (VOCs), semi volatiles, toxins, pollutants, biologicals, pharmaceuticals /PCPs (emerging contaminants) or metals in air or water.

What does a mass spectrometer do?

If you are concerned about potentially harmful chemicals in your water supply, a mass spectrometer is the ideal instrument to identify which type and quantity of chemicals are present. Mass spectrometry is a proven analytical technique that identifies molecules present in solids, liquids and gasses. For a given sample of liquid or gas, it determines which atoms comprise the molecules, how the atoms are arranged and the quantity of each type of molecule. From this information, the amount and type of chemical contaminants in water can be identified and quantified in real time.

OTHER MANTA EMS FEATURES & BENEFITS

Membrane Interface

- Modular Membrane Design accepts different membranes for application-specific classes of molecular compounds
- Standard Diameter Capillary Columns make for easy replacement of consumable materials
- Electronic Flow Control provides precise and efficient injection and constant flow capabilities

Data System

- Standard Reporting Software utilizes familiar Windows® platforms to meet your ease of use requirements
- Custom reporting packages are possible for environmental and toxicology applications

MS Performance

- Proven Technology provides long term operation with minimal operator attention

Vacuum System

- The Manta is up and running quickly after routine maintenance
- High efficiency vacuum at the lowest possible cost

Here today, gone tomorrow..

The issue with traditional sample-transport-test methods for environmental water quality monitoring is inaccurate sample collection due to constant water flow. The MANTA provides continuous monitoring of groundwater, streams, lakes and other bodies of water and can immediately alert regulators to the presence chemical contaminants. The time of presence can then be linked to industrial discharge or other forms of contamination.

Includes:

Ion Trap Mass Spectrometer

- Reliable, simple internal ionization analyzer
- Standard EI full scan operation with upgrades to optional Wave~Board Technologies (SIS, PCI, MS/MS)
- Programmed Acquisition enables embedded PC controlled changes between all modes of operation (EI to CI and MS to MS/MS)
- Dual filament assembly and clip mounted multiplier
- Varian V-70, maintenance free turbo pump

Membrane Interface Module

- Compact column oven temp control (10 C above ambient to 75 C)
- Injector with type 1 EFC and stainless steel lines

Ion Trap Mass Spectrometer

- Time programmable EI, CI, and MS/MS capabilities
- Ionization Modes includes EI, SIS, MS/MS and optimal CI, and CI/MS/MS
- Minimum performance requirements: Mass range 10 to 650u
- 5600 u/second Scan Rate
- Resolution better than unit mass maintained over the entire mass range
- Programmable control from one mode of operation to another within a single analysis in intervals of 0.01 minutes or less

Design Features:

- Internal Ionization for superior low mass detection
- Inert electrodes for optimal separations performance
- Manifold heater for independent heating of the membrane to 75C
- Dual filaments with filament and computer controlled status
- Simple Hand Tool Removable Analyzer (<1 minute after pressure vessel removal)
- 70 L/sec Turbomolecular pump
- MS Analyzer Electron Multiplier is prealigned and easy to replace
- Sensitivity EI: Temperature Programmable Splitless injection of 1 pg. of octafluoronaphthalene in isooctane/water injected into a capillary column produces a peak with a RMS signal to noise for m/z 272 of > 50:1 with a library searchable spectrum

MS/MS

- Software includes time programmable acquisition segments to allow for changes between EI, CI, MS/MS, and CI/MS/MS in a single analysis
- Ion isolation window programmable from 1 to 14 u
- Collision induced Dissociation (CID) through resonant and non-resonant excitation modes
- Nonresonant excitation is provided for superior library searchability
- Software includes multiple reaction monitoring (MRM), capable of simultaneous monitoring up to ten parent ions and resulting progeny ions, or quantitation of four parent ions and resulting progeny ions
- GLP record of all MS/MS acquisition parameters within the log file, and appended to the data file
- Software has the ability to perform automated method development (ADM) for rapid determination of optimum MS/MS conditions
- Sensitivity: Splitless injection of 1 pg benzophenone gives a peak with a signal to noise >10:1 for m/z 152 when selecting m/z 182 as the parent ion

- Rapid module replacement

Embedded PC

- Software controls all MS functions
- Allows fully automated quantitative and qualitative analyses and reporting
- Includes standard spectral libraries: TR (Terpenes) with ~600 spectra, TX (Toxicology) with a~1300 spectra, GP (General Purpose) with ~3,000 spectra
- Optional libraries: NIST, Wiley, Pflieger- Maurer-Weber drug and pesticide library or user built libraries

SELECTED ION STORAGE (SIS)

- Capable of simultaneous storage of 3 ions or ranges of ions while excluding up to 5 interfering ions
- SIS ions are time programmable in 0.01-minute increments, over a mass range of 35 to 650u
- Standard libraries such as NIST using only the NIST library ions as specified in the SIS method
- Library searchable results
- Sensitivity: Splitless injection of 500 fg Tetrachlorobenzene injected with an acquisition range of 175u-225u, must produce a signal to noise > 10:1 for either m/z 214, 216, or 214 + 216

CHEMICAL IONIZATION (future option)

- Software Controlled EI to CI change
- No hardware changes or down time
- Changeover less than 5 seconds during a injection run, as well as between injections
- CI allowed for either gas (including methane, isobutane, and ammonia) or liquid (including methanol, acetonitrile and toluene) CI reagents
- CI introduction controlled through a flow diversion system with gas saver
- CI gas manifold (optional) can automate detection of analytes by EI and up to three different CI reagents for easy method development and optimization
- Sensitivity, Methane CI: injection of 5 pg of benzophenone in methanol into a capillary column produces a peak with a signal to noise ratio > 20:1 for the protonated molecule at m/z 183