LONESTAR

FIELD ASYMMETRIC ION MOBILITY SPECTROMETRY

WHAT IS IT?

Lonestar is a powerful and adaptable chemical monitor in a portable, self contained unit. Incorporating Owlstone's proprietary FAIMS technology, the instrument offers the flexibility to provide both rapid alerts and detailed sample analysis. It can be trained to respond to a broad range of chemical scenarios and can be easily integrated with other sensors and third party systems to provide a complete monitoring solution. As a result, Lonestar is suitable for a broad variety of application ranging from online/at line process monitoring to lab based R&D.

BENEFITS

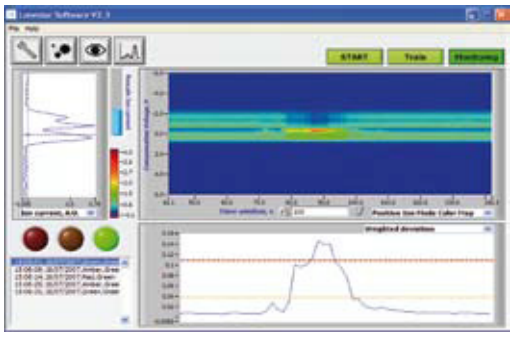
- Complete flexibility to 'train' instrument for a broad range of processes
- Cost-effective, easy-to-use instrument
- Reduce running costs and improve efficiency with fast analysis
- Real-time, online, granular monitoring for rapid identification of anomalous events
- Portable with a compact footprint
- Standalone operation with integrated sampling and processing
- High sensitivity with part per billion detection levels combined with inlet control for high dynamic range
- Integrated temperature, flow and humidity sensors for stable, closed-loop operation
- Network and wireless* connectivity for remote monitoring and operation
- Easy integration of other sensor data and control of third party systems
- Powerful custom software for data visualisation, real-time control and offline analysis

** optional*

LONESTAR APPLICATIONS

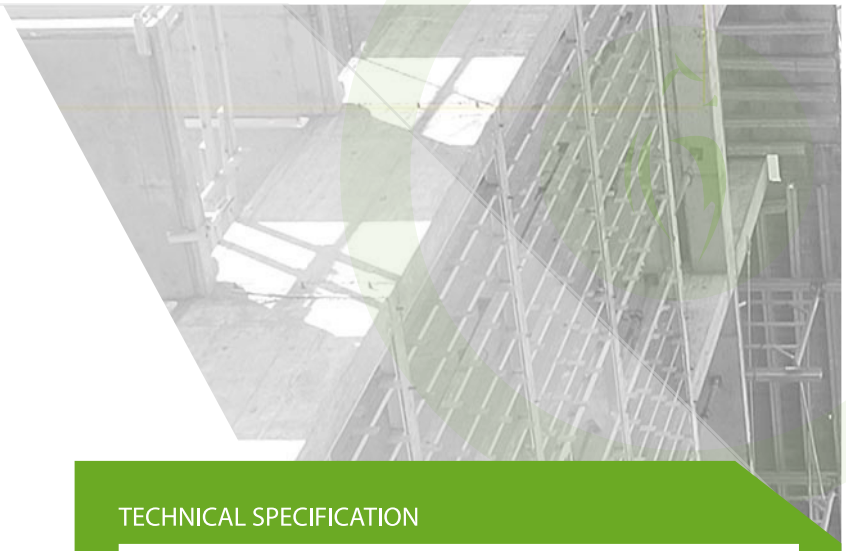
Owlstone's core FAIMS platform is a versatile detector able to simultaneously analyse a wide range of chemicals, making it suitable for many applications and industries. Some examples are given below. Please refer to more detailed applications notes or contact a member of the Owlstone sales team to check suitability for your application.

- R&D and general laboratory use
- Condition-based monitoring
- Reaction and end-point process monitoring
- Fermentation and bioreactor off-gas analysis
- Pharamaceutical solvent drying
- Food and beverage taints
- Food freshness and odours
- Gas purity
- Gas scrubber efficiency and breakthrough
- Leaks and Ingress
- Recirculated atmospheres
- Glovebox monitoring
- Material verification
- Cleaning verification



LONESTAR INTERFACE

Expandable sensors and instrument control
Temperature, Pressure, Flow, Level, pH, Conductivity, Humidity, Accelerometers, Other gas sensors



FLEXIBLE PROCESS MONITORING WITH LONESTAR

WHAT MAKES A CHEMICAL DIFFERENT?

The basic problem of detection is how to detect the chemical of interest in a complex mixture. Owlstone technology identifies chemicals using a property know as 'mobility', a measure of how quickly an ion moves through an electric field. The mobility relates to size and mass, and is used to specifically distinguish and identify the chemical of interest.

OPERATION OF OWLSTONE'S FAIMS TECHNOLOGY

The Owlstone sensor acts as a reprogrammable filter, which separates and identifies chemicals according to their characteristic mobility. The sensor 'filters' out the background chemicals that do not have the correct mobility 'fingerprint'. The power and flexibility of the system is due to the fact that the filter can be easily reprogrammed through software an electrical signals to detect almost any chemical.

TRAINING LONESTAR WITH A NEW CHEMICAL 'FINGERPRINT'

The user can train Lonestar for different applications by teaching it what is normal and then running it to look for anomalous events. When there is a known and stable process, the instrument rapidly creates a fingerprint for the chemicals present in a mixture, even at extremely low concentrations and stores this as the 'normal' template.

CHANGE DETECTION WITH LONESTAR

When the instrument is running in a live process, chemical 'fingerprints' are captured on a near real time basis. Software is used to analyse the fingerprint and change detection algorithms immediately identify any out-of-range or anomalous events. The event is logged, the irregular 'fingerprint' is stored, and the system can then use its numerous user-settable outputs to trigger alarms or control third-party systems.

TECHNICAL SPECIFICATION

Technology	Field Asymmetric Ion Mobility Spectrometry (FAIMS)
Detection Mode	Positive and negative ions
Sample input	Ambient, Headspace, Process line
Inlet / Outlet	1/8" Swagelok compression fittings
Analyte range	Industrial gases and VOCs
Dynamic range	User adjustable inlet dilution for ppb – % concentrations
Instrumental Air	Integrated and easy-to-replace scrubber and desiccant Connection to air line for long life, fixed point operation
Max heater temperature	70°C
Humidity Range	0% - 95%
Instrument sensors	Temperature, humidity, flow and pressure
Start-up time	5 minutes
Spectra analysis time	<1 sec
Inputs	Inbuilt tracker ball. Optional connectivity to keyboard and mouse
Output	Real-time chemical spectra and stored data files for offline analysis
Computer	Inbuilt PC running Windows XP
Memory	4Gb internal storage
Comms	USB x4. RJ45 Ethernet network connection. GPIO. Bluetooth wireless (optional)
Software	Custom online control and offline analysis software
AC Inputs	120/240 VAC
Dimensions	383 (w) X 262 (h) X 195 (d) mm
Weight	7.8kg

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