

# AUM - Air Unique-quality Monitoring

## CHEMICAL WARFARE AGENTS MONITORING



A Revolutionary Photonic Solution.  
A New Era in Real-time Chemical  
Threat Detection & Monitoring.  
Overcome Limitations with a  
Paradigm Shift in Monitoring  
Methods.

# AUM Chemical Warfare Agents



## Application Areas

- Defence (Army, Navy, Air Force & Para Military)
- Hazardous Fugitive Gas Emissions from Industries
- Environmental Monitoring

## FEATURES

- **Integration Of Cutting-edge Technologies:**
  - LASER Backscattering
  - Big Data & AI
  - Command & Control
- Real-time Monitoring Of Various Parameters like Gases, Chemicals, and Toxins, as well as Meteorological Data
- Portable and Compact.
- Low Power Consumption.
- Low Maintenance, One-time Calibration.
- Cloud-based Big Data Analytics and Streaming for Global Access.
- **Detection, Identification, and Quantification:** AUM is capable of detecting, identifying, and quantifying the concentration levels of specified/mixtures CWAs, including Nerve agents, Blister agents, and Choking agents, in real-time.
- **Hazard Assessment:** The system can assess hazard levels based on CWA concentrations, enabling timely response and mitigation efforts.
- **Ultra-Low Detection Limits:** With AUM's state-of-the-art technology and advanced algorithms, highly toxic substances can be detected at astonishingly low levels, ranging from parts per billion to parts per trillion.
- **Cost-effective and Easy to Use:** AUM's ability to provide real-time, high-precision data on a wide range of air parameters, especially CWAs, makes it an indispensable tool for security and defence applications.
- **On-Site Threat Monitoring:** On-site threat monitoring for chemical containment.
- **Large Area of Coverage:** Detection of highly toxic substances from remote distances (line of sight-10m to 5000m).
- **Geo-Spatial Air Quality Patterns:** Targeted containment strategies based on geospatial air quality patterns.
- **Remote Monitoring:** The AUM photonic system represents a significant leap forward in the field of remote monitoring for Chemical Warfare Agents.
- **Early Warning System:** Early warning system for rapid response to potential chemical threats.
- **Comprehensive Threat Detection:** A single AUM system effectively monitors extensive areas for comprehensive threat detection



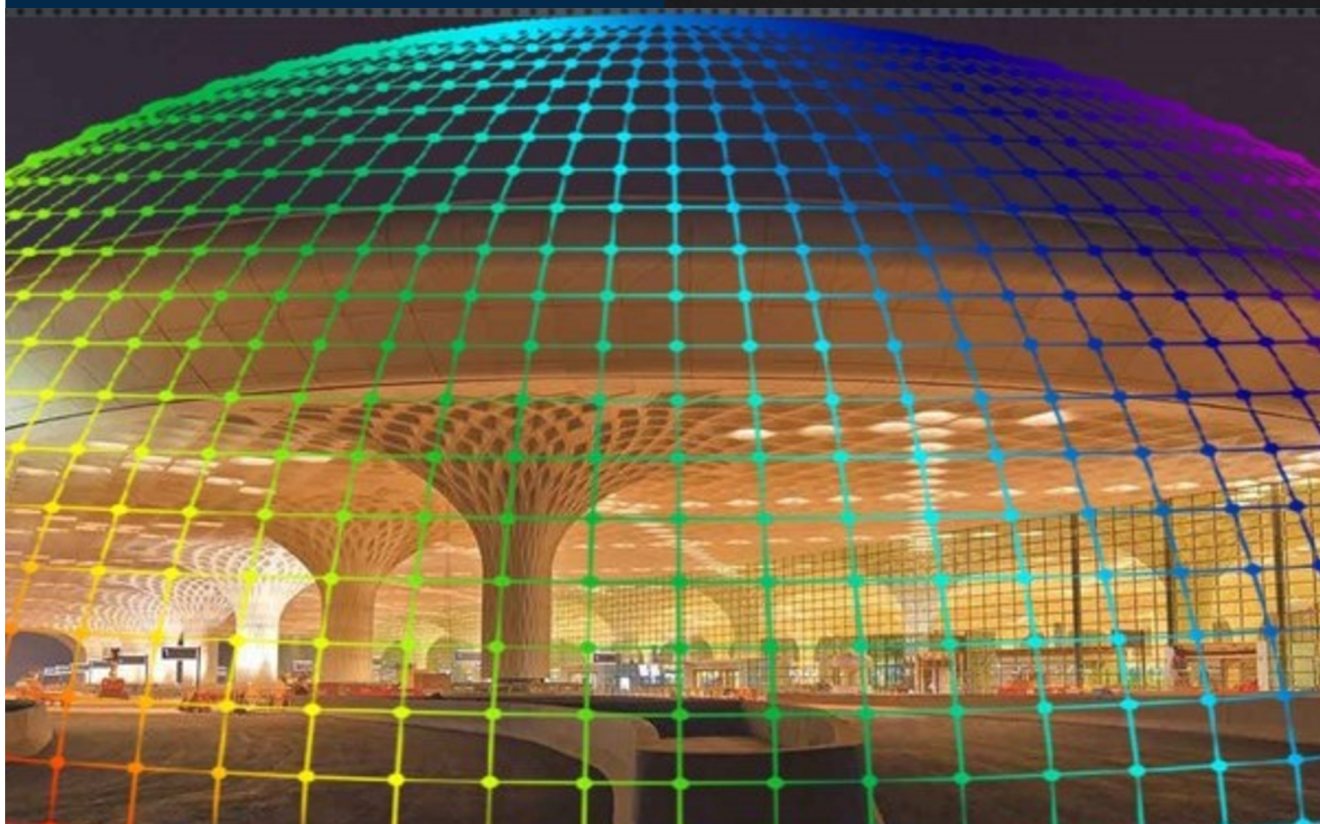


## Lethal Chemical Agents (Single/Mixed) Monitored by **AUM**

## Monitoring Lethal Chemical Warfare Agents

<u>Nerve Agents</u>	<u>Blister Agents</u>	<u>Choking Agents</u>
GA - Tabun GB - Sarin GD - Soman GF - Cyclosarin VX - Methylphosphonothioic Acid	HD - Sulfur Mustard (Yperite) HN - Nitrogen Mustard L - Lewisite CX - Phosgene Oximine	CG - Phosgene DP - Diphosgene Cl - Chlorine PS - Chloropicrin

It is crucial to detect them rapidly because exposure to small quantity of CWA as can cause lethal damage or death in a short time.



## Establishing a Protective Shield with AUM Sensors

- Multiple AUM sensors will form an Array of Things/Cohesive Network.
- Extending the coverage with a virtual dome spanning up to 5 km radius, covering an area of 78.5 sq. km.
- Real-time threat perception and response enabled by AUM's advanced capabilities.



# Enhanced Monitoring of Chemical Warfare Agents (CWAs)

## AUM Integrated with Big Data, ML, and AI

### AUM CATSMART BIG DATA

- **Early Detection and Rapid Response:** In a chemical release scenario in a populated area, AI-integrated AUM quickly analyzes data to identify the CWA, assess threats, and predict dispersion. This enables swift response protocols, potentially saving lives and limiting damage through evacuations and containment.
- **Threat Assessment and Classification:** In military operations involving multiple CWAs, AUM's integrated AI and deep learning classify agents by spectral signatures. This provides real-time threat assessments with precise CWA identification for military commanders. It enables them to implement targeted countermeasures and ensure troop protection effectively.
- **Environmental Monitoring and Predictive Analytics:** AUM, integrated with big data analytics, continuously monitors areas vulnerable to chemical threats, accumulating historical CWA, weather, and dispersion data. AI conducts predictive analytics to forecast CWA threats based on historical and current factors. This proactive approach enables preemptive security measures, resource allocation, and heightened readiness to address potential threats.
- **Real-Time Alerting and Decision Support:** In scenarios like public events, AUM's AI-connected alerting system swiftly notifies event organizers, first responders, and law enforcement agencies upon detecting an unexpected CWA event nearby. Real-time alerts facilitate rapid decision-making, enabling authorities to implement evacuations or lockdowns promptly, safeguarding event attendees, and minimizing potential harm.
- **Data Fusion for Comprehensive Analysis:** In a scenario with a sudden spike in CWA detection, AUM integrates data like spectral, meteorological, and historical records within the big data platform. Advanced AI algorithms analyze this combined dataset, yielding a holistic understanding of the situation. Decision-makers gain insights into the CWA's origin, spread, and potential sources, enabling targeted actions to be taken.



#### Pyrotech Electronics Pvt. Ltd.

**Address:** E-329, Road No. 12, Mewar Industrial Area, Madri, Udaipur-313003

**Mobile:** +919529244111, +919116643376

**Email ID:** kuldeep@pyrotechindia.com

**Website:** <https://pyrotechindia.com/>