ST Engineering

Intelligent Environmental Management System (IEMS)

A Smarter Way to Safeguard Environmental Safety



Smart Environmental Monitoring

The Intelligent Environmental Management System (IEMS) is a versatile multisensor device that excels in comprehensive and continuous data collection.

It monitors a wide range of parameters, including gas levels, odours, volatile organic compounds (VOCs), fine particles, and noise, providing an all-encompassing solution for seamlessly capturing physical, chemical, and perception metrics.

Additionally, it offers configurability with customisable sensors to tailor its capabilities to specific needs.



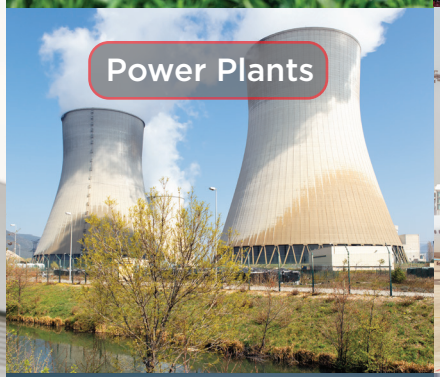
Application Fields

The IEMS is an invaluable tool for enhancing environmental protection, public safety, and supporting effective environmental monitoring in both industrial and urban settings.

















Key Benefits

Real-Time Monitoring

Continuous and simultaneous monitoring of gases, odours, particles, and noise.

Proactive Alert System

AI-powered intelligence enables predictive analytics for faster decision-making and remediation.

Customisable Sensors

Coupled with electrochemical gas sensors, metal oxide gas sensor, particulates, Photoionization Detector (PID) and Non-Dispersive Infrared (NDIR) to meet specific needs.

Regulatory Compliant

Compliant with environmental monitoring standards.

Odour Classification and Intensity

Classify complex odours and intensity using highly sensitive Metal-Oxide Semiconductor (MOS) sensors.

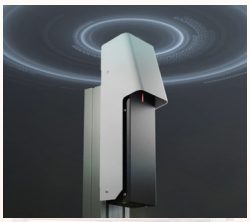
Use Case

Preventing Disruption Before It Happens

In a large-scale industrial facility, minor changes in air composition can signal serious risks — from equipment leaks to hazardous emissions. With IEMS, operators gain real-time visibility into environmental conditions across the facility.

When an unusual odour or abnormal air quality pattern emerges, IEMS will:

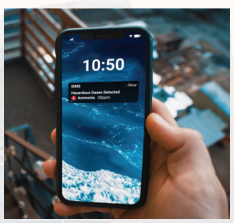
Detect anomaly instantly through sensors





Analyse the source and potential impact using AI-powered modelling

Trigger automated alerts and response workflows



Instead of reacting after an incident escalates, facility teams can act early — isolating affected zones, safeguarding personnel, and maintaining uninterrupted operations.

Why choose IEMS?



Enhance Workplace and Public Safety
Gain greater visibility into environmental conditions and respond swiftly to emerging risks.



Stay Ahead of Disruptions
Receive early warnings and predictive insights before operations are disrupted.



Support Compliance
Monitor environmental performance and maintain regulatory readiness with comprehensive reporting and traceability.



Protect Your Reputation
Demonstrate environmental stewardship and strengthen stakeholder confidence through proactive risk management.



SPECIFICATIONS	
Gas, Odour and Sensing Features	• Metal Oxide Sensor (MOS) for odour and gas classification and intensity • Photoionization Detector (PID), Non-Dispersive Infrared (NDIR) & Electrochemical Sensor (Supports up to 4 concurrently) • Particulates (PM 1, 2.5, 10) and Noise Sensor (dBA) • Anemometer
Monitoring Features	• Atmospheric Pressure and TVOC (Equivalent Concentration) • Data interval up to every 10 seconds • Datalogging with onboard storage
Communication and Connectivity	• Multi Band 4G LTE CAT 1 (International) or Power over Ethernet (PoE) • WiFi • Built in Global Navigation Satellite System (GNSS)
Security	Secured connectivity to cloud backend
Operational Environment	• -20 °C to 55 °C • Suitable for operation in up to 95% non-condensing relative humidity • Designed for IPX4
Power	• 12 Vdc • Supports PoE • Deployment with Solar Battery Configuration

Contact us at digitalsystems@stengg.com to find out more.

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