

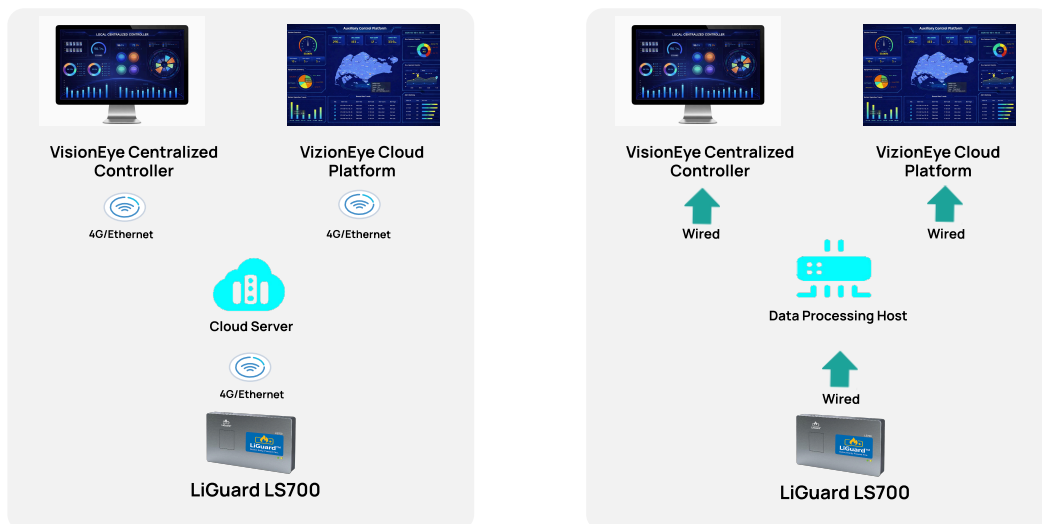
LS700 LiGuard BESS Active Nanoparticle Gas Detector (Cabin)

Product Overview

The PTSenR™ LS700 LiGuard BESS Active Nanoparticle Gas Detector (Cabin) is an advanced monitoring solution designed for early-stage hazard detection in Lithium-ion Battery Energy Storage Systems (BESS). It combines active sampling collection, AI-driven analysis, and fusion detection technology to provide reliable, real-time monitoring of nanoparticles and characteristic gases. This intelligent system enhances safety and maintenance efficiency by detecting potential risks such as overheating, discharge, and thermal runaway before they escalate.

The LS700 employs Mie scattering detection technology to identify nanoparticles released during thermal or electrical anomalies. When a beam of light irradiates these particles, it scatters in all directions. By analyzing the scattering parameters, the system determines particle size and concentration. This process, based on Mie scattering theory and refined through intelligent algorithms, enables precise detection of particles as small as 0.002 μm to 0.05 μm , ensuring high sensitivity and accuracy in early warning applications.

System Architecture



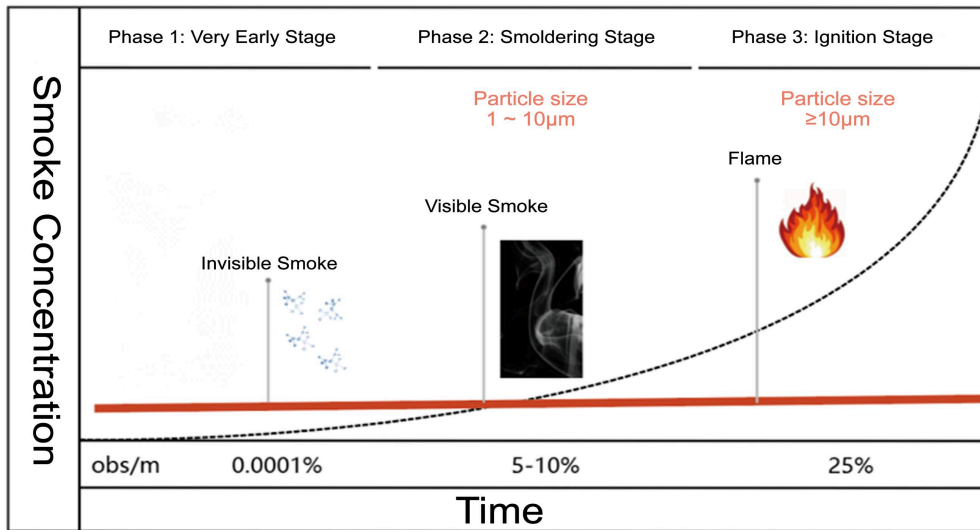
Key Features

- **Nanoparticle Detection:** Detects concentration changes of particles from 2 nm to 20 μm , enabling early warnings of overheating or discharge hazards.
- **Characteristic Gas Monitoring:** Identifies gases such as CO and CO₂ generated during thermal degradation, improving reliability of early hazard detection.
- **Active Online Monitoring:** Utilizes active suction sampling instead of passive sensing, eliminating blind spots and ensuring comprehensive coverage.
- **Anti-False Alarm Design:** Equipped with multi-level anti-interference measures to distinguish between hazardous particles and common substances like dust, powder, or water mist.



Cabin Active Safety Monitoring and Early Warning Device

Principle of Thermal Runway



Advantages

- **Early Warning Capability:** Provides alerts up to 12 hours before potential accidents by detecting nano-scale particulates at the earliest hazard stage.
- **Multi-Level Anti-False Alarm Measures:** Advanced algorithms identify particle characteristics of interfering substances, minimizing false alarms and enhancing reliability.
- **Fusion Detection Technology:** Integrates nanoparticle, gas, and active aspirating detection for comprehensive monitoring of thermal hazards.
- **Intelligent Operation & Maintenance:** Outputs clear graph data and actionable maintenance suggestions, supporting efficient and targeted decision-making.

Applications

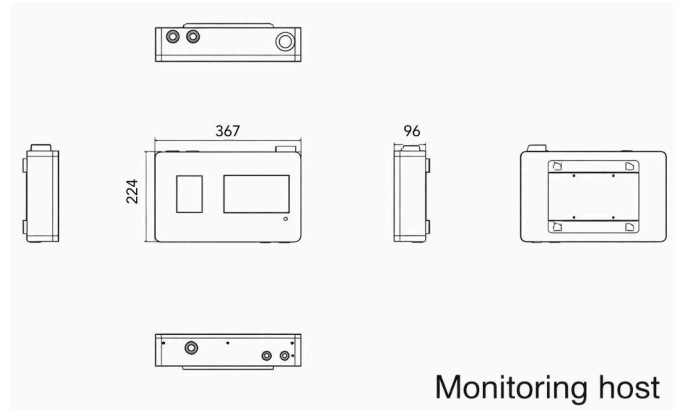
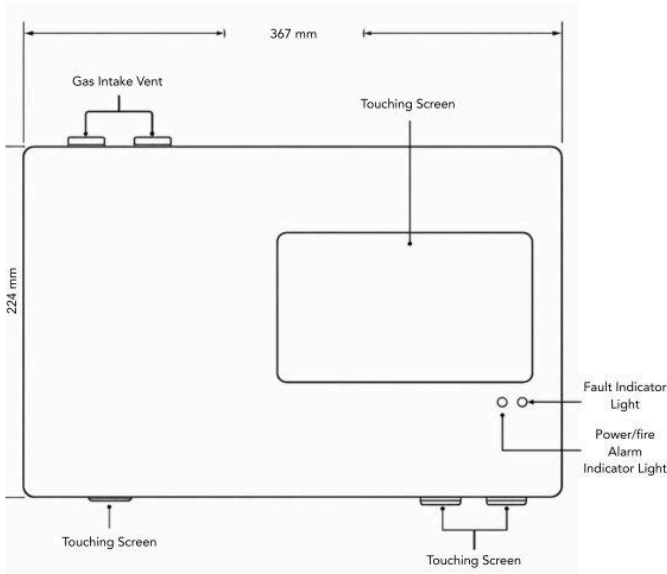
Battery Energy Storage



UPS Battery Rooms



Dimensions



Monitoring host

Specifications

Working Power Supply	AC 220 V or DC 24 V
Particle Diameter Detection Range	2 nm ~ 20 um
Resolution of Particle Detection	1000 Pieces
Communication Model	Wireless / RS485 / Ethernet
Communication Protocol	4G, Modbus, TCP/IP
Environmental Temperature Monitoring	Range: -20°C~60°C; Accuracy: ±1°C; Resolution: 0.5°C
Environmental Humidity Monitoring	Range: 0~95%RH; Accuracy: ±5%RH; Resolution: 1%RH
Carbon Monoxide Monitoring	Range: 0~5000 ppm; Sensitivity: 2 ppm
Sampling Method	24h Real-Time Active Inhalation Sampling
Warning Level	Gas Warning + Level 5 Particle Warning + Temperature Warning

Miscellaneous	
Types Of Gas Detection	CO, H ₂ , and VOCs
Input/Output	2 Dry Contacts
Dimensions Size	367 X 224 X 96 mm
Display Size	7-inch LCD Touch Screen
Electromagnetic Compatibility Protection Level	EMC Level 4
Protection Grade	IP 40
Ordering Information	
Part Number	Product Description
LiGuard LS700	PTSenR™ LiGuard BESS Active Thermal Detector (Cabin)

Installation

