

Foam monitoring. Cognitive vision automation.

AI-Powered Precision: Optimizing Foam Monitoring with Edge Intelligence

AI-powered edge devices ensure **accurate, real-time foam monitoring** in bioreactors, enhancing process stability, efficiency, and compliance. By continuously analyzing foam levels with cognitive vision, they detect deviations, optimize antifoam dosing, and minimize human intervention. Seamlessly integrating into existing bioprocess workflows, these intelligent systems prevent contamination risks, reduce material waste, and improve yield consistency, **ensuring reliable and automated bioreactor operations.**

Key challenges

Inconsistent Detection

Misdosing of Antifoam Agents

Manual Monitoring Limitations

Lack of Alerts

Solution

- **Edge AI System** – Tracks foam formation, antifoam dosing, and bioreactor conditions in real time.
- **Real-Time Alerts & Logs** – Detects foam-related deviations and logs events for compliance and process optimization.
- **Edge Processing (IP67 Rated)** – Low-latency inference without cloud dependency.
- **Seamless Integration** – Connects with lab management systems.
- **Privacy-Preserving AI** – Processes data locally, ensuring security and compliance.



How it works



Edge camera captures bioreactor status & process conditions.



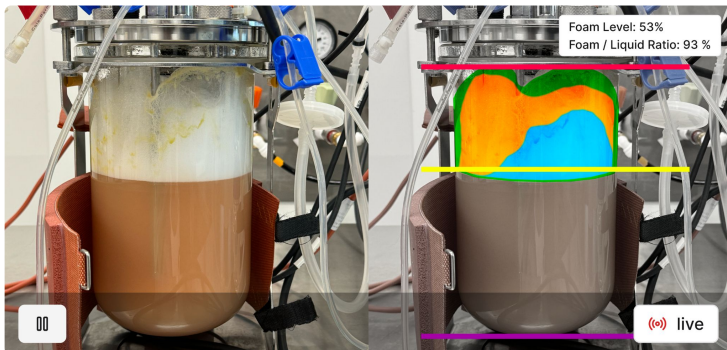
AI model analyzes activity to ensure effective foam control and prevent contamination.



The system generates real-time foam metrics and triggers immediate alerts.



Reports & insights available for regulatory audits and process optimization.



Key benefits

- **99% accuracy** in foam control.
- **Real-time** foam risk alerts.
- **Administrative interface** available in your network with easy integrations to current systems.
- **No internet** dependency for on-premise AI inference.
- **Seamless scalability** for multiple bioreactor units.

Risk-Free integration into your business process

1

Isolated data collection for risk-free testing

- Our plug-and-play edge device is installed **without connecting to your network.**
- It starts collecting video data, ensuring **zero risk to existing operations.**

2

AI model calibration & accuracy validation

- We analyze your specific bioreactor environment and configure our AI for precise foam control.
- You receive a **real-world accuracy** report.

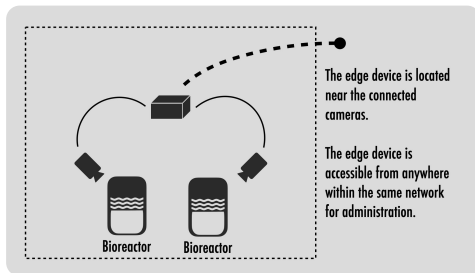
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Full deployment & value delivery

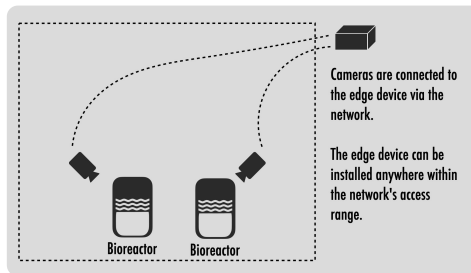
- **Once validated**, we connect the device to your network and lab systems.
- The system starts delivering real-time alerts and operational insights.

FAQ

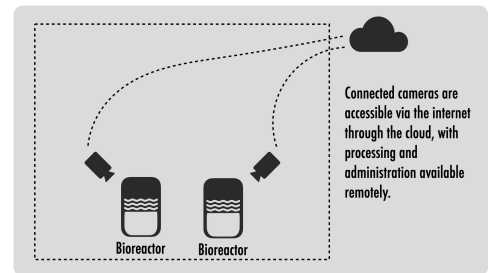
Deployments option



"In-room" edge processing with remote administration



"In-facility" edge/server processing with remote administration



Cloud processing with remote administration

User interface and monitoring capabilities

Real-Time Monitoring and Live Data

Alerts Management

Historical Data and Related Operations Video

Integration management

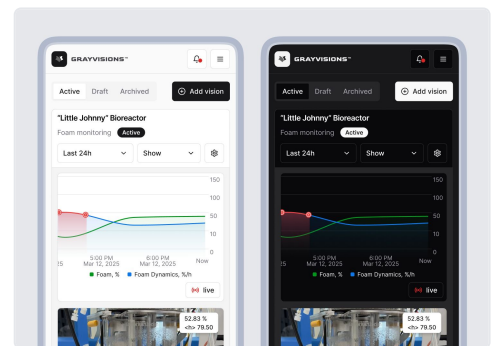
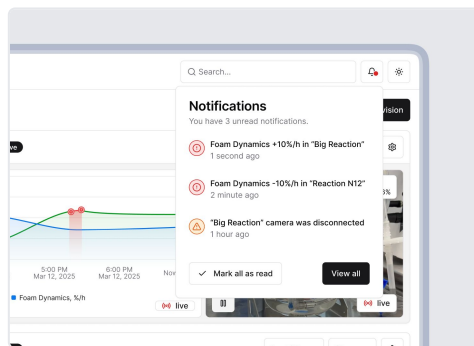
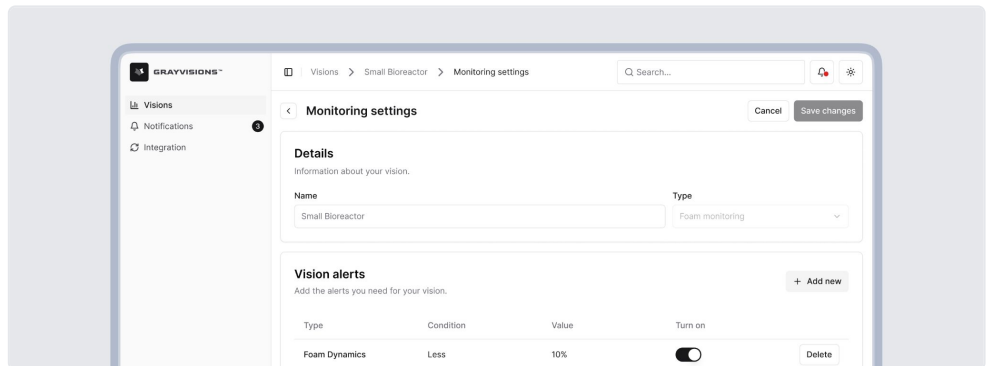
Cameras and Multi Bioreactor Management

User and Access Control

AI Configurations

System Health Dashboards

Updates Management and Support Tools



Available plans

Light

- Single Bioreactor Edge Device Support
- IP67 Camera
- Low CapEx Cost
- Subscription Model: ongoing support, software updates, security patches

Pro

- Multi-Bioreactor Edge Device Support
- Optional IP67 Shell for Edge Device
- Enterprise-Level Support
- Comprehensive Integration

What else Cognitive Vision could be valuable for?

Problems

- Bioprocessing Monitoring
- Sterile Zones Controls
- Supply Chains
- Defects QA
- Personnel Behavior

Expanded Coverage

- Broader Monitoring Scope
- Multi-Process Automation
- Smarter Decisions
- Greater Automation
- Unified Infrastructure