



Energy Solutions
INTERNATIONAL, INC.

lumos
CONTROLS

Purpose-Built for Modern Data Center Environments

ESI Lighting and **Lumos Controls** deliver a unified low-voltage DC lighting and controls ecosystem designed specifically for mission critical facilities. By combining distributed 48VDC lighting infrastructure with intelligent wireless sensing, monitoring, and fixture-level control, facilities gain a scalable platform engineered for operational efficiency, simplified maintenance, and long-term flexibility.

The ESI Low Voltage DC Lighting System was developed to reduce infrastructure complexity inside the data hall while improving serviceability and reducing heat contribution within occupied spaces. Remote AC-to-DC conversion removes substantial fixture heat from the white space while allowing critical service work to occur outside the data hall.

The Lumos Controls platform extends the ecosystem with occupancy sensing, indoor environmental monitoring, real-time asset visibility, centralized scheduling, analytics, and remote monitoring. Organizations can choose between a cloud-based platform or the on-premises server (Iris S) for facilities with strict cybersecurity, data sovereignty, or on-premises deployment requirements.

Both deployment options provide access to the full feature set, including automation, scheduling, BMS integration, smart emergency lighting, reporting, and analytics.

Key Benefits

- Simplified NEC Class 2 low-voltage lighting infrastructure
- Reduced opportunities for data degrading signal interference
- Lower fixture heat contribution within occupied data hall environments
- Remote AC-to-DC conversion supporting improved facility PUE goals
- Faster maintenance and serviceability of critical system components
- Reduced operational disruption during maintenance events
- Fixture-level lighting intelligence and automation
- Wireless sensing, monitoring, and scheduling capabilities
- Integrated emergency operation compatibility
- Environmental monitoring and asset visibility integration
- Modular architecture supporting scalable and N+1 infrastructure strategies
- Centralized reporting, analytics, and remote management capabilities

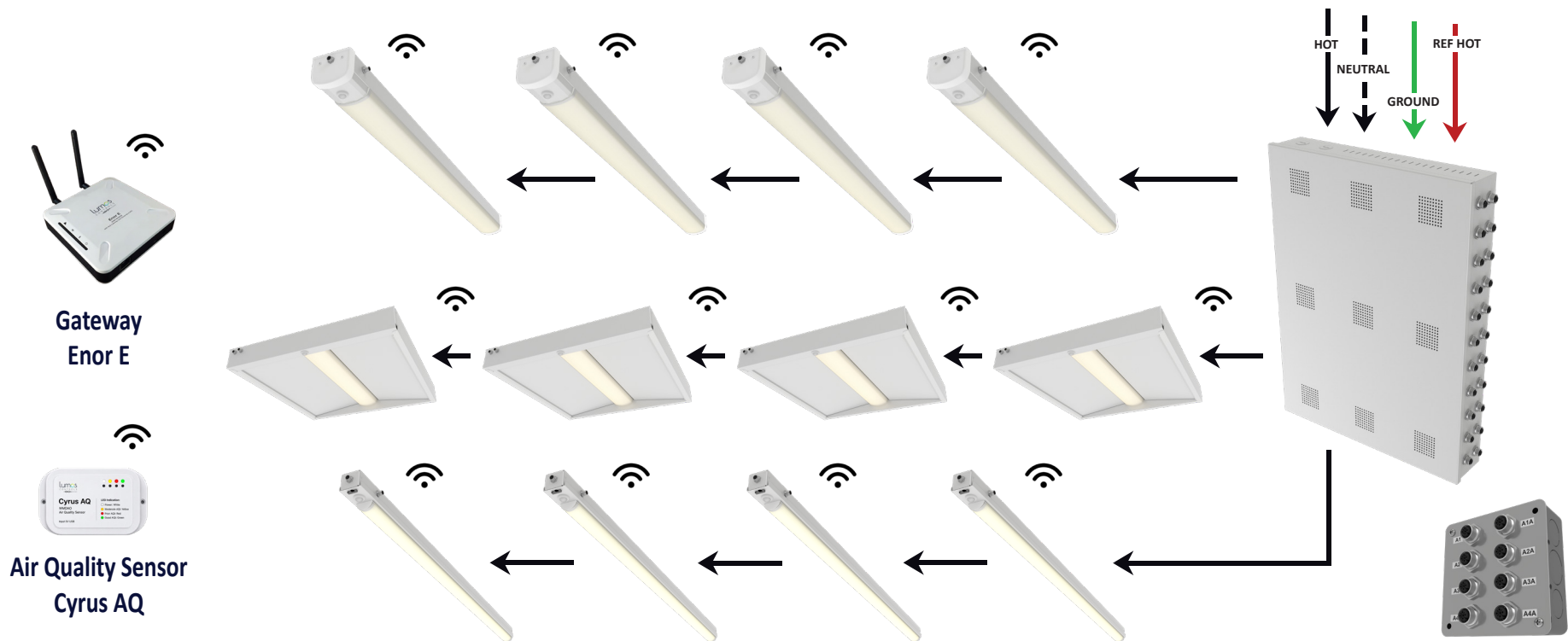
Key Differentiators

- Rapid project lead times for mission critical deployments
- Flexible manufacturing capable of adapting to evolving project needs
- Project management teams built to support rapid field and design changes
- Job-packed product organization to simplify installation and commissioning
- Designed, manufactured, and assembled in the USA
- Centralized manufacturing in St. Paul, Minnesota
- On-site project and commissioning support available when needed
- Custom fixture, controls, and system configuration capabilities
- Unified low-voltage lighting and controls ecosystem built for data centers
- Full platform functionality available on-premises or in the cloud, supporting scheduling, automation, analytics, BMS integration, and emergency lighting
- Real-time visibility of people and assets enables location intelligence, restricted zone monitoring, and security alerts
- Monitor multiple Air Quality parameters - temperature, humidity, CO₂, and AQI



INTEGRATED SYSTEM ARCHITECTURE

Low Voltage Infrastructure + Smart Controls Platform



ESI LOW VOLTAGE DISTRIBUTION

The ESI platform distributes Class 2 low-voltage power using modular power distribution boxes, starter junction boxes, and plug-and-play M12 cabling. Each DC power distribution box can provide up to 12 channels of 96WDC power while supporting flexible installation methods including wall mount, surface mount, suspended, and grid mount configurations.



LUMOS SMART CONTROLS ECOSYSTEM

Lumos Controls adds wireless sensing, fixture-level automation, and centralized visibility to the lighting infrastructure. Cyrus F, Cyrus AP, and Cyrus AM sensors enable occupancy sensing, daylight harvesting, dimming, and localized automation while the Enor E gateway connects the ecosystem to mobile and web-based monitoring platforms.

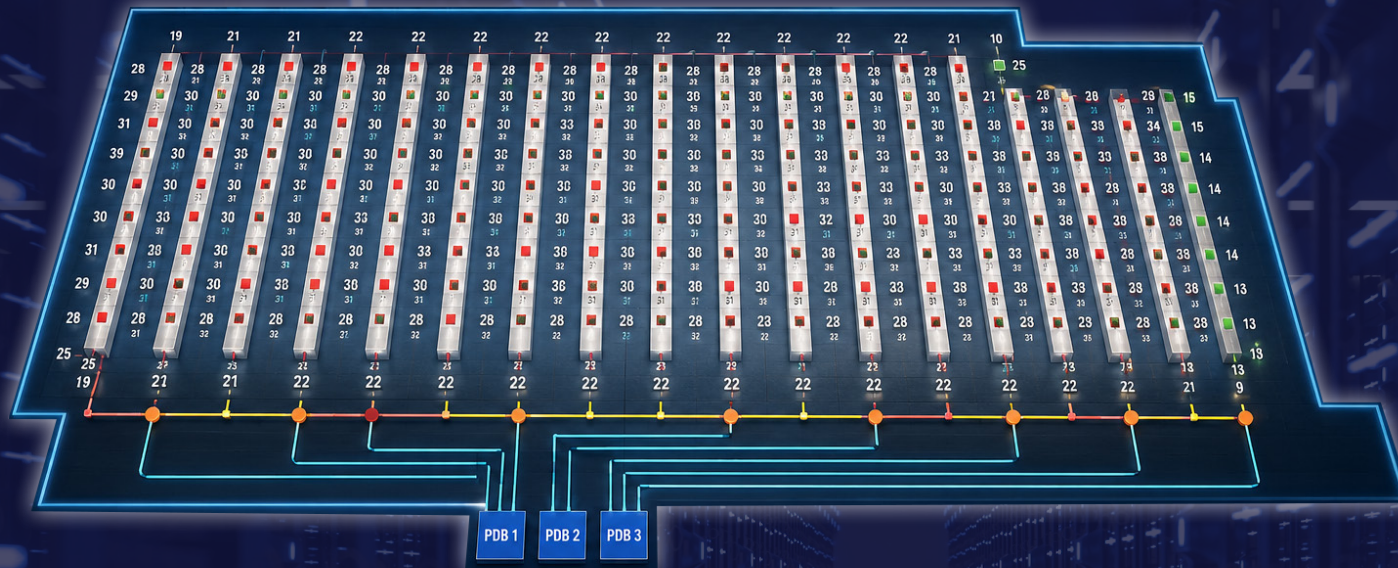


DESIGNED FOR DATA CENTER FLEXIBILITY

The combined platform supports standard lighting control, emergency operation, environmental sensing, air quality monitoring, asset tracking, scheduling, reporting, and future system scalability through one unified architecture. This system provides ease of maintenance, reduced operational risk, security-focused facility strategies, and N+1 infrastructure approaches common in mission critical environments.

DATA HALL DEPLOYMENT EXAMPLE

Optimized Fixture Distribution & Smart Control Coverage

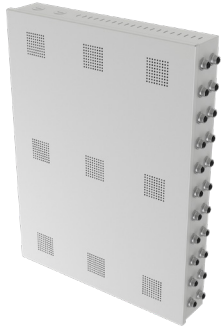


This illustration shows how intelligent lighting, environmental monitoring, and real-time asset visibility come together within a connected data center ecosystem. ESI fixtures with integrated Lumos Controls sensors provide fixture-level occupancy sensing, dimming, and automation, while the Enor E gateway connects sensors, tags, and devices into a unified platform.

By combining smart lighting, air quality monitoring, personnel visibility, and asset tracking, operators gain greater insight into facility conditions, equipment locations, and space utilization. The system can be managed through either a cloudbased platform or an on-premises server to meet operational and security requirements.

ONE CONNECTED DATA CENTER PLATFORM

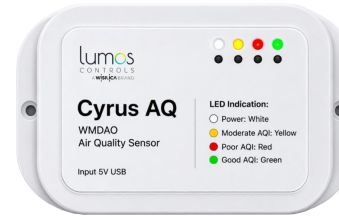
Lighting • Sensing • Visibility • Automation



POWER DISTRIBUTION BOX



ESI FIXTURE WITH INTEGRATED
LUMOS CONTROLS SENSOR



AIR QUALITY SENSOR



GATEWAY

MISSION CRITICAL ADVANTAGES



OPERATIONAL EFFICIENCY

Reduce unnecessary lighting operation through occupancy sensing, fixture-level automation, and centralized scheduling.



IMPROVED SERVICEABILITY

Remote AC-to-DC conversion and accessible power distribution simplify maintenance activities while reducing disruption inside critical environments.



SCALABLE SMART INFRASTRUCTURE

Support future upgrades and evolving operational requirements through modular low-voltage architecture and wireless controls integration.



REAL-TIME FACILITY VISIBILITY

Monitor occupancy, environmental conditions, and asset activity through centralized dashboards, reporting tools, and analytics platforms.



Designed & Manufactured in the USA

ESI provides project-level customization, responsive engineering support, and real-time design flexibility for mission critical applications.



CONNECTED SMART BUILDING INFRASTRUCTURE

Build a secure Bluetooth mesh network that supports lighting controls, environmental monitoring, asset visibility, and future IoT integrations through a unified platform.



DEDICATED PROJECT DELIVERY SUPPORT

Benefit from responsive project management, deployment assistance, system integration support, and ongoing technical guidance from design through commissioning.



BUILT FOR MISSION CRITICAL ENVIRONMENTS

ESI and Lumos Controls deliver a unified low-voltage platform that simplifies operations, enhances reliability, and scales with your mission critical infrastructure.



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