LUNERA®

Lunera Smart Lighting Platform for OEMs

A Smart Module Reference Design and a Cloud-Connected, Open Architecture, IoT Software Platform for Lighting Manufacturers

Businesses are actively transitioning to LED lighting to cut energy use and reduce operating expenses. Of the 5.6 million commercial buildings in the United States, **only 15% have converted to LED, and even fewer are connected**. While the immediate goal is energy efficiency, cloud-connected LED lighting has the potential to unleash additional productivity and revenue outcomes.

Lighting manufacturers are looking to improve their margins and drive new customer acquisition by offering LED products that deliver Network Lighting Controls (NLC) and Real-time Location-based Services (RLTS).

The challenge has been how to meet time-to-market requirements while delivering hardware and software technologies that are outside of their core development competencies. Until now there has not been a good solution for this conundrum.

70%
Energy Savings
Deliver immediate savings to your customers.

$21B
Connected LEDs
Own your market share with minimial development.
(forecast by 2022)

$41B
Indoor Location
Lock in customers by enabling added-value today.
(forecast by 2022)

Lunera's Smart Lighting Platform consists of a Smart Module reference design that integrates into your standard LED lighting products including luminaries, retrofit kits, lamps and accessories, open and secure cloud-based IoT software and third-party software applications. The solution enables lighting manufacturers to deliver cost-effective, feature-differentiated products that add meaningful value to your customers in a range of market segments:

Corporate and Education Campuses

- Space utilization visibility
- Proximity messaging
- Employee/student engagement insight
- Visitor tracking and wayfinding
- Energy management

Airports and Transportation

- Passenger experience
- Baggage and other asset tracking
- Wait time and queue management
- Safety and security
- Energy management

Hospitals and Healthcare

- Wait-time management
- Visitor wayfinding
- Medical staff and employee tracking
- Equipment tracking
- Environmental and compliance monitoring

Retail

- Proximity messaging
- Dwell-time insight
- Wait-time and queue management
- Security
- Energy management

Hospitality

- VIP service and loyalty programs
- Guest comfort
- Employee and guest safety
- Asset management and utilization
- Evironmental and compliance monitoring

Warehouses

- Asset and people tracking
- Workflow optimization
- Inventory management
- Robot and drone wayfinding
- Energy management

Smart Lighting Platform OEM Solution Brief

Why Lunera is Better for OEMs

Material Cost Advantage
The Lunera Smart Module, which gets integrated into your LED lighting products, is designed at the chip-level, giving you a significant material cost advantage. Other smart lighting approaches need a variety of discrete sensors and components to be installed and attached to the light.

Easy to Install / Commission in a Retrofit Environment
Lunera leverages existing infrastructure, a common light fixture, to both deploy and power its technology platform. Other smart lighting products require a much more invasive installation process. Lunera's mobile installation and commissioning apps are designed to be administrable by the end-customer, saving cost and time.

Built-in Wi-Fi Network
Lunera's solution uses customers' existing guest Wi-Fi network as the backhaul to the cloud. Lunera does not require your customers to purchase, install and manage dedicated gateways, routers or network controllers. Other smart lighting solutions use networking protocols that need gateways.

Real-time Location Services
Since Lunera's backhaul is WiFi, more data is able to move faster to the applications in the cloud allowing for a superior experience. For example, this makes Lunera significantly better at asset tracking, capable of tracking up to 50 assets per lamp. Other smart lighting solutions can't handle more than a handful of assets.

Universal IoT Gateway
Lunera is a universal IoT gateway, able to receive Bluetooth signals from any smart device. Other smart lighting solutions are an endpoint and cannot act as a universal IoT gateway.

Open Micro-service Architecture
Lunera has an open, micro-service architecture built for security from the ground up, enabling its ecosystem of ISVs to deliver applications through Lunera's App Store, similar to Apple or Google app stores. Other smart lighting solutions have a monolithic, proprietary architecture.

Smart Lighting Platform Features/Components/Benefits

The Lunera Smart Module turns your standard lighting products—fixtures, lamps and retrofit kits—into smart lighting products that provide your customers with best-in-class LED lighting with integrated Network Lighting Controls, Location-based Services and a Universal IoT Gateway. The open Smart Lighting Platform solution has been designed to be low cost and easy to install, taking less than two minutes per fixture to fully commisison. Use Lunera's third-party Smart occupancy sensors, switches and other accessories or build your own with a firmware update.

The Lunera Cloud IoT Software, built for security from silicon-to-cloud, an applications marketplace and data storage is seamlessly accessible to your smart products over Wi-Fi without extra gateways or hubs.

Integrate the Smart Lighting Platform in your products.

To reach a Lunera OEM Relations specialist:

call Lunera at **877-354-3870**

or send an email inquiry to **oemsmartlighting@lunera.com**

Smart Module

The Lunera Smart Module is a reference design for a connected IoT device that integrates a Wi-Fi radio, Bluetooth radio, microcontroller and ambient light sensor onto a micro-PCB. Lunera engineers work with your development team to tune the reference design to the specific requirements of your LED lighting products. At the time of manufacture, the Lunera Software Platform is loaded onto the Smart Module, and your standard lighting product instantly becomes a Smart Lighting Product.

Bluetooth Radio

The Smart Module has an integrated 2.4GHz BLE 4.1 for easy configuration of lamps, wayfinding, asset tracking, proximity messages and IoT gateway functionality. Standards including Apple iBeacon and Google Eddystone are supported.

Wi-Fi Radio

The Smart Module has an integrated 2.4GHZ Wi-Fi 802.11 b/g/n radio that connects the light to the cloud, eliminating the need for a dedicated lighting controls gateway. Wi-Fi is used to download policy updates, upload data, access apps in the cloud, and control Wi-Fi connected devices.

Microcontroller

The microcontroller in the Smart Module controls light levels based on events or policies communicated from the cloud via Wi-Fi and from sensor inputs. It also measures and verifies real-time energy usage and uses Wi-Fi to send data to the cloud.

Ambient Light Sensor

The Smart Module has an integrated ambient light sensor for daylight harvesting. The sensor distinguishes between artificial and natural ambient light and insures the lights are dimmed to an appropriate level whenever natural light is available.

Cloud IoT Software

Devices that have integrated the Smart Module can be connected via Wi-Fi to the cloud, creating a fast and open solution to extend the value of the Smart Lighting Platform to your customers. Unlike proprietary approaches, the open architecture of the platform makes it an extensible to and flexible infrastructure. The software securely boots and exchanges data with the cloud, receiving/executing updates only from authorized users.

Command & Control Software Dashboard

The Smart Light Module connects to cloud-based Command and Control Center software via Wi-Fi. Dashboard function provides the administrator with a system status report and maintenance and management controls.

Facility Map and Software Commissioning

A virtual facility floorplan, resident in the cloud, maps all Smart Modules and accessories in the facility. Module and accessory commissioning is setup and updated in software at any time and communicated through secure Wi-Fi to the connected devices.

Marketplace Applications

Third-party apps and software services using the Smart Lighting Platform infrastructure can be found in the cloud-based Lunera Marketplace.

Platform Alerts and Connected Service Notices

The cloud software presents alerts to the administrator, either when an event occurs within the Smart Lighting Platform that is out of policy, or if there is an external event, such as a peak power usage adjustment request or temperature forecast, that affects energy consumption.

Data Storage

Smart Lighting Platform data is stored in the clould, accessible for apps and analytics.

About Lunera

Lunera is a smart lighting innovator focused on delivering simple, affordable and highly differentiated software solutions for LED lighting OEMs.

The Lunera Smart Lighting Platform consists of Smart Module reference designs for LED lighting and accessory products, as well as, an open and secure, cloud-connected, IoT software platform.

Lunera enables LED lighting manufacturers to deliver networked-lighting controls, energy management, real-time indoor location-based services and universal IOT Gateway functionality in every smart module.

OEMs can also leverage solutions from Lunera, and a robust third-party ecosystem, that has created applications for the Lunera IoT platform.

www.lunera.com