

## **BLUETOOTH MESH STANDARD**

#### A STRONG AND SECURE TECHNOLOGICAL FOUNDATION

#### DID YOU KNOW?

Supported by both Bluetooth 4.0 and Bluetooth 5 Bluetooth mesh networking standard is perfectly suited for many building automation applications such as smart lighting.



#### WHAT IS BLUETOOTH® MESH?

Bluetooth® mesh – a global wireless networking standard that expands the capabilities of the Bluetooth radio communication to serve many smart building applications. Enabling large-scale networks consisting of thousands of devices, Bluetooth mesh was designed with lighting applications in mind. Its network topology and features guarantee full-building coverage, wire-like reliability, and government-grade security. Aside from its unmatched scalability and wire-like reliability, it enables a globally interoperable ecosystem of products that can work with each other out-of-the-box.

#### WHAT IS THE GOAL OF A BLUETOOTH MESH NETWORK?

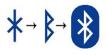
The goal of the Bluetooth® mesh standard is to allow full cross-vendor interoperability of products so that devices made by different manufacturers can communicate directly out-of-the-box. Bluetooth mesh enables complete interoperability because it defines all protocol layers - from the lowest radio network ones to the top application layer. Open standards can drive the widespread adoption of lighting control technologies in commercial spaces. Providing customers with the freedom to c hoose from a variety of products across different vendors, Bluetooth mesh enables markets to grow and helps smart lighting systems become commonly used lighting solutions. Closed proprietary systems are divisive and risky. Their interoperability is limited to using single brand products which means that if the manufacturer stops supporting that particular solution, it first becomes unavailable and then forgotten.

#### A TRIP DOWN MEMORY LANE

1994

## The invention of Bluetooth technology by Ericsson

The first iteration of the Bluetooth technology (Bluetooth Classic) allowed for simple, wireless, point-to-point data exchange between two devices. It was considered a breakthrough in the field of wireless communication.



1998

## The introduction of Bluetooth Special Interest Group (SIG)

Focused on the development and the licensing of Bluetooth standards, Special Interest Group was founded to provide developers with technical specifications in order to help them create new systems based on the Bluetooth technology.

Bluetooth®

2010

# The release of Bluetooth 4.0 Specification (Bluetooth Low Energy)

Introducing a different network topology, Bluetooth 4.0 enabled one-to-many wireless communication. Providing a wide range of profiles for healthcare and home entertainment applications, this version of Bluetooth has helped to significantly reduce energy consumption.



4.0

2015

#### The formation of the Mesh Working Group

A development of many Bluetooth-based proprietary mesh solutions around the world caused the foundation of a new subdivision of the Bluetooth SIG. It focused on creating an open mesh networking standard for the Bluetooth technology.



2016

## The official reveal of Bluetooth 5

The new radio version of Bluetooth introduced a greater support for the upcoming IoT applications. Increasing the bandwidth up to 2 Mbit/s, Bluetooth provides major technological improvements making it an even more reliable solution for wireless communication.



5

2017

## The official adoption of Bluetooth mesh standard

After two years of development, Bluetooth mesh was officially adopted as a networking standard on July 18, 2017, which allowed companies to join and together build an interoperable ecosystem.



2018

#### Bluetooth mesh standard enabled products available on the market

Due to Bluetooth mesh standard implementation in solutions such as Linmore LED's lighting control technology, new interoperable lighting products are becoming available on the market. You can finally start to build your own mesh networks.



## ULTRALINK WIRELESS BLUETOOTH® CONTROLS

#### A STRONG AND SECURE TECHNOLOGICAL FOUNDATION

The lighting industry is going wireless, and the number of ready-to-use products is growing rapidly. To unleash the full potential of smart lighting networks, Linmore LED provides a set of tools with wire-like performance and global interoperability. Enjoy lighting control technology based on the globally interoperable Bluetooth mesh standard. All our solutions are qualified by the Bluetooth SIG, which means your components will work with qualified Bluetooth mesh devices from other vendors.

SWITCHES

#### **Switches**

Wired and Wireless switches are available to offer manual control for custom zones. No longer do you need to re-wire buildings to manually control lighting in a manner functional to your

# 6

#### **Sensors**

Occupancy/Motion and Daylight Sensors control the assigned fixtures. Sensors can be onboard fixtures or remotely mounted. Multiple strategies of lighting behavior are set by users for best performance, energy savings, and safety.



BLUETOOTH

#### Fixtures that don't have a sensor onboard are

equipped with a Bluetooth controller. Sensors and switches communicate to Controllers and tell lights at what level to operate or dim to off. Generally, about 85% of fixtures will have a Controller and 15%

Bluetooth®

Controller

The UltraLink iOS App is the tool to operate, control, set up, and make changes to how the System functions. Adjustments are easy and can be made from the App

as a facility's needs

change over time.

iOS App

#### WE BELIEVE IN OPEN STANDARDS

We have always been a catalyst for progress, creating new markets and driving the widespread adoption of technological innovation. We bring freedom of choice, transparency, and security that can never be reached by proprietary technologies.

#### Scalability

- Decentralized architecture
- Optional gateways provide additional functionality
- Fastest low power communication
- Easy to scale up from small system
- Thousands of devices in the network (32k)
- Many-to-many communication
- No single point failure
- Each device is autonomous
- Multi-path delivery

#### Functionality

- Energy dashboard
- Interior and exterior lighting
- Scheduling/time clock
- Scenes
- Zones/grouping
- High-end and low-end trim
- Manual control
- Vacancy sensing
- Daylight control by zone or fixture

• UL 924 Compliant

Zone linking

- Security
- Government grade
- Secure by design
- Most advanced encryption standards
- Separation of device and application for network security
- Long random keys (no passwords)
- Key refresh/blacklisting







### **CHECK OUT OUR APP**

Visit the App Store and search for Linmore LED UltraLink

The UltraLink iOS App is the tool to operate, control, set up, and make changes to how the System functions. Adjustments are easy and can be made from the App as a facility's needs change over time. Always adaptable.

- · Qualified Bluetooth Mesh Wireless Controls
- · Global Wireless Networking Standard
- Non-Proprietary, Open Standard
- · Government Grade Security
- · High Speed Communication
- Full Set of Lighting Control
- · Easy Facility Set Up
- · Gateway to IoT





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#### **Hours:**

Monday - Friday 8:00 AM - 5:00 PM











Technology Partner

**SILVAIR**