

Specification

MyriaMesh Building Light Control, release 2.8

Turn any lighting infrastructure into a smart lighting system with MyriaMesh Building Light Control.

27 November 2018

MyriaMesh Building Light Control is a wireless light control system that can be applied with any make and type lighting fixture. Without the use of cables, light control is fully integrated with LED lighting fixtures while ensuring maximum installation flexibility.

MyriaMesh Building Light Control offers a product suite of both actuators (controllers, LED drivers) and sensors (motion detection, light sensors and switches), that automatically form an ad-hoc self-organizing wireless mesh sensor & control network for light control.

MyriaMesh is an RF-based wireless full mesh network protocol that is radio agnostic and has nodes that inter-operate and self-organize a connected and fully integrated wireless platform. A MyriaMesh network is a large distributed system with a collective intelligence that differentiates MyriaMesh from traditional wired or wireless networks and makes it extremely scalable (+10.000 nodes) and resilient. It creates a fully meshed network topology for smart building platforms.

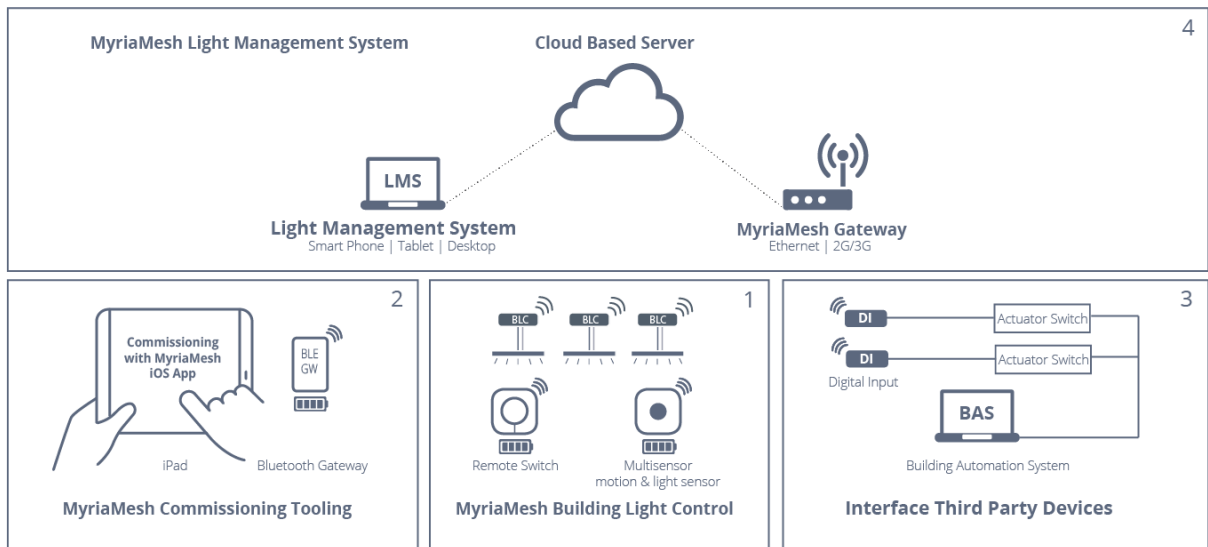
MyriaMesh Building Light Control is secure by design with implemented security measures known from the payment industry. MyriaMesh security is covered in the entire life cycle of the products from manufacturing to replacement. The network can be updated over-the-air (OTA). With a REST Application Programming Interface (API) back-office management applications can be developed.

The implementation of a MyriaMesh Building Light Control system delivers not only wireless lighting control and light management but inherently lays the foundation for a smart building platform.

MyriaMesh Building Light Control system configuration

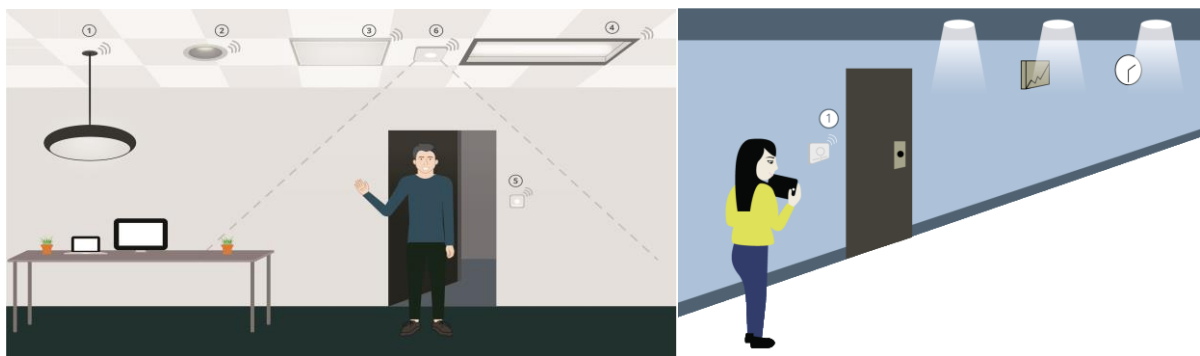
MyriaMesh Building Light Control (BLC) consists of the following independent parts:

1. Autonomous MyriaMesh Building Light Control system
2. MyriaMesh Commissioning tooling
3. MyriaMesh Interface Module to connect third part devices (a.o.t. BAS)
4. MyriaMesh Light Management System (LMS)



1. Autonomous MyriaMesh Building Light Control system

MyriaMesh Building Light Control supports light control options on building, floor and room level.



Picture: Overview room (l) and floor (r) with Building Light Control products

The different types of lighting fixtures (nr.1-4, design fixture, downlighter, LED panel and T8 Tube) are equipped with a MyriaMesh driver or controller. For manual control options on/off/dimming and scene select a Remote Switch (nr.5) is used. For automatic control options a Multisensor (nr.6) with motion detection and light sensor is used.

At the entrance/exit of a floor a “master” Remote Switch (nr.1) can be used to control multiple rooms.



Smart LED Driver, 40W

Controller DALI

Multisensor

Remote Switch

Picture: Examples MyriaMesh Building Light Control products



With just two products you can turn any lighting system into a Smart LED lighting system. Check www.chess-wise.eu for complete overview of MyriaMesh Building Light Control product suite.

Light control options for buildings and floors

A floor and/or building is controlled by a “master” Remote Switch. This “master” Remote Switch has four configurations:

- Overrule, all lighting fixtures of the building or floor are switched to 0%. Most of the times all lights will be switched off when you leave the floor or the building. This disables the use of presence detectors and manual switches.
- Ready, all lights of the building and/or floor are switched to “ready” mode. This means presence detection will work as expected and manual switches can be used.
- All-On or emergency, all lighting fixtures of the building and/or floor are switched to 100%. The typical use case is an emergency or cleaning or inspection.
- Master, the switch combines all three functions Overrule, Ready and All-on in one switch.

Manual light control options for rooms

For manual light control options of a room a Remote Switch is used to control all lighting fixtures in the room. Lighting fixtures and switches form one group in a room.

The Remote Switch has two configurations:

- On/Off/Dimming, the lighting fixtures can be switched on/off and dimmed between 7%-100%.
- Scenes, a maximum of 4 scenes can be pre-set for the room. With each scene, light levels of individual lighting fixtures can be set.

Two-way or multiway switching with multiple Switches is possible for both On/Off/Dimming or Scenes.

Automatic light control options for rooms

For automatic light control options of a room a Multisensor is used to control all lighting fixtures in the room. Lighting fixtures and Multisensors are connected in one group in a room. Multiple Multisensors can be active in one room.

The Multisensor has two configuration options:

- PIR, the lighting fixtures are switched to set-point high (on) when presence is detected. When no presence is detected the luminaries are switched to set-point low (off). The hold-time for presence can be set.
- PIR and Light sensor (automatic dimming), constant light level control by dimming the lighting fixtures based on light level settings (auto calibration of light sensor). If a group has multiple Multisensors, only one sensor acts as daylight controller.
- Light sensor (automatic dimming), constant light level control by dimming the lighting fixtures based on light level settings (auto calibration of light sensor).



Automatic & manual light control options for rooms

Both automatic & manual light control options can be combined in one room. Lighting fixtures, Switches and Multisensors form one group in a room. The central push button of the Remote Switch is used to toggle between manual mode and automatic mode for the set configuration.

Light level settings

Each lighting fixture can be set to a maximum light level to tune lumen output or to extend the lifetime by reducing output power.

2. MyriaMesh Light Commissioning tooling

Commissioning of your MyriaMesh building light control system is easy with this MyriaMesh Light Commissioning app for iPad. You can download the App in the Apple App store.

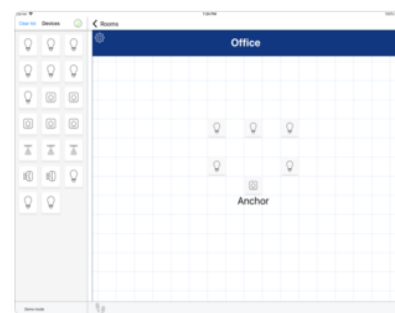
The MyriaMesh Light Commissioning App offers the following standard features:



MyriaMesh Light Commissioning 4+
Chess Wise B.V.

Free

iPad Screenshots



- Easy commissioning and modification of the lighting control system
- Create lighting groups on building, floor and room level
- Set automatic and manual light control options with sensors and switches
- Completely customizable settings for light levels, scenes, timers.
- Secure operating environment
- Demo mode

3. MyriaMesh Interface module to connect third party devices

It is possible to control the MyriaMesh network via a third party device for example:

- Actuator switch of a Building Automation System
- Time switch or emergency stop switch
- PIR, radar or door contact sensor





Picture: MyriaMesh Mini BLC-4DI

To connect the external device to the network a MyriaMesh Digital Input Module with voltage free contacts is used.

With the Digital Input Module you can set different light levels for contact open and contact closed in both presence and absence state of a room, floor or building.

4. MyriaMesh network data

Through a 3G or Ethernet Gateway messages from the MyriaMesh network nodes (both sensors and actuators) can be logged using REST API to a back-office system like a Building or Light Management System. The data can be used for management, maintenance and all kind of building applications.

The MyriaMesh network provides status or event data. The network sends periodically and automatically status or event messages of individual nodes via a gateway to the back-office. This data is logged in the back-office system.

Which data is provided by the MyriaMesh network?

Following table shows the available signals (white) and default settings (x) for all products:

Tag	Signal	Lamp drivers ⁽¹⁾	Mini BLC-Relay	Mini BLC-4DI	Remote switch	Multi Sensor	Ethernet gateway
1	Node die temperature	x	x	x			x
2	t.b.d.						
3	Total burning hours	x	x				
4	Weighted burning hours	x					
5	Number of neighbors						
6	Number of switch triggers since last interval						

7	Number of PIR triggers since last interval						
8	Measured ambient light level						
13	Blob distribution fill level	x	x	x			x
14	Actual lamp control state						
15	Actual lamp intensity set point						
16	Actual lamp linear intensity after output reduction						
17	Actual PIR presence state						
18	Actual lamp status	x					

⁽¹⁾ Lamp drivers can be BLC200, Mini BLC-DALI, Mean Well LCM-40, T8 LED tube and CoolControls

A Smart Building starts with Smart Lighting.

More information on www.chess-wise.eu.

