Comparative Analysis Casambi & Koolmesh

Revision History

Date	Version	Description
Feb 2026	V1.1	The following content has been added or updated: Case added Emergency and RGBW function added
Dec 2025	V1	First release

Background

In the rapidly evolving IoT lighting control market, Casambi and Koolmesh have emerged as two prominent wireless lighting control solutions, each designed to address different application scenarios and project scales. Despite their widespread adoption, there is currently a lack of structured, objective, and side-by-side documentation to guide stakeholders in selecting the most appropriate platform.
This document has been developed to fill that gap by providing a clear, systematic comparison of the two solutions.

Rationale for This Document

Selecting a lighting control system is a strategic decision that directly impacts project cost, deployment efficiency, system reliability, and long-term scalability. In practice, users often find it challenging to align their specific requirements—such as project size, functional depth, integration complexity, and operational flexibility—with the actual capabilities of each platform.
In the absence of clear comparison criteria, decision-makers may face the following risks:

- Selecting a solution that does not meet essential functional requirements
- Introducing unnecessary system complexity and cost
- Experiencing extended commissioning timelines or operational inefficiencies

This document seeks to eliminate these risks by presenting a transparent, function-oriented comparison framework.

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Objective of the Document

The primary objective of this document is to serve as an official reference and decision-support guide for project owners, consultants, system integrators, installers, and technical teams. Through an objective comparison of core functionalities, this document enables readers to:

- Determine which solution best aligns with specific project types, such as residential, commercial, or industrial applications
- Understand functional trade-offs in terms of usability, flexibility, and scalability
- Reduce reliance on fragmented information, ad-hoc testing, or trial-and-error deployments
- Ensure that the selected solution supports both immediate project requirements and long-term operational goals

Scope and Comparison Framework

The comparison is structured around **below core functional domains** that are critical to modern IoT lighting control systems. Each domain is analyzed consistently across both platforms to ensure fairness and clarity.

1. Applications

Casambi
Casambi APP is designed to commission and control lighting.
Casambi Pro is a planning and commissioning tool. It is mostly targeted for large, automated lighting systems with only a little need for manual control

Koolmesh
Koolmesh App: Designed for lighting commissioning and daily lighting control.
Koolmesh Pro: A commissioning tool featuring an intuitive floorplan-based interface, mainly targeted at large-scale and automated lighting systems with minimal manual control requirements. It operates in conjunction with the Koolmesh IoT ecosystem.
Koolmesh IoT Web Platform WEB Platform: A PC-based web platform designed for project planning, centralized system management, and long-term operation. Key capabilities include emergency reporting, energy consumption analysis, and remote system control.

Key Differences:

Koolmesh provides a **full lifecycle platform** covering commissioning, control, and ongoing system management. All Koolmesh apps and the web platform are provided free of charge and maintained by Koolmesh. In addition, Koolmesh offers **basic cloud API services at no cost**, enabling third-party system integration.
By contrast, Casambi primarily provides application-based tools for commissioning and control, without a dedicated project management or centralized web platform. Casambi does, however, offer cloud APIs that allow third-party platforms to build their own management and integration layers. But obviously not friendly for end-users or small project or small integrator.

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2. Luminaire

Casambi:
Casambi's **Luminaire** configuration provides the fundamental parameters for lighting control including Definition of brightness (dimming) range, Definition of color temperature range, Luminaire state configuration and adjustment, Activation of predefined luminaire states.

Koolmesh:
Koolmesh's **Luminaire** configuration also covers the fundamental lighting parameters, with additional functional scope, including Definition of brightness (dimming) range, Definition of color temperature range, Luminaire state configuration and adjustment, Load type definition, Recall of different luminaire states

Key Differences:
Both platforms provide equivalent **core luminaire configuration capabilities**.
However, **Koolmesh offers extended flexibility in post–power restoration behavior**, allowing luminaires to resume or recall defined states after power is restored, thereby supporting a wider range of application scenarios and control strategies.

3. Timer & Schedule

Casambi:
Casambi's Timers (Schedules) function enables automated scene control based on predefined time rules, with configurable priority handling.. Core functions are summarized as follows: Override presence, Removes manual control, Enable/Disable

Koolmesh:
Koolmesh's Schedule & Astro-Timer functions provide time-based automated scene control, including both fixed schedules and astronomical time events. Core functions are summarized as follows: Sensor override, active/inactive

Key Differences:

The two platforms provide **functionally equivalent time-based automation capabilities**.

4. Scene Management

4.1 Scene activation

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Casambi:
Up to 255 scenes can be created per network. Scenes never activate by themselves. They must always have something activate them
• Manually: For example, by pushing a Casambi-enabled button/switch, or by physically selecting the scene icon in the app.
• Sensor: For example, configuring a sensor to activate a scene when movement is detected.
• Timer: For example, setting a timer to switch lights on at a certain time of day.

Koolmesh:
Single luminaire cannot exist in more than 16 scenes at the same time. They must always have something activate them
• By manual control:
1) Users can activate the scene in the scene page by just clicking on the scene picture.
2) They can activate the scene through the Push switch.
3) They also can activate the scene through Hytronik BLE touch panel HBP02 or touch screen.
4) The Koolmesh app also supports the Enocean switch (BLE version), the users can activate the scene through the Enocean switch.
• By the motion sensors: The scene can be activated by the motion sensor. Once the movements are detected by the motion sensor, then it will activate the scene automatically.
• By the schedule: Users can set up a schedule to activate a scene at a certain time of day.

4.2 Scene type

Casambi:
There are Five types of “scenes” that can be created in the Casambi app. They are Basic Scene, Circadian scenes (24H), Daylight scenes (on/off/ open loop/ closed loop / External), Animation scene, Time-based scene.

Koolmesh:
There are Five types of “scenes” that can be created in the Koolmesh app. They are Generic Scene, Circadian Rhythm scenes (24H and Astro-time), Daylight scenes (on/off/ open loop/ closed loop), Animation scene, Time-based scene.

Key Differences:
The supported scene types are largely comparable across both platforms. **However, the Koolmesh system introduces an additional feature—Lux auto-config**—designed to simplify daylight harvesting configuration. This feature is particularly beneficial for users who lack experience in defining an appropriate target lux level. During the learning phase, the system automatically records the maximum luminaire output over a default 24-hour period (or a user-defined timeframe). Once the learning process is completed, the system sets this value as the daylight threshold target lux, which approximately represents the luminaire’s output level under the darkest ambient lighting conditions.

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5. Push Switch Management

Casambi:
Casambi-enabled push switches, including integral switches embedded in luminaires, provide versatile and configurable control for lighting systems. Core supported functions include Device/Group Control, Scene Control, Temperature Adjustment, Automation & Sensor Integration, Priority Control.

Koolmesh:
Koolmesh-enabled push switches offer flexible and scalable control options, supporting multiple configuration modes and extended inter-device linkage capabilities. Key functions include:
Device/Group/Zone/Network Control, Scene Recall and Cycling, Temperature Adjustment, Fire Alarm Function, Sensor-link/Emergency Monitoring and Testing

Key Differences:
Functionally, both platforms provide largely comparable push switch capabilities for standard lighting control scenarios. However, Koolmesh offers enhanced system-level functionality by enabling **Emergency Monitoring and Testing operations directly via push switches**, such as through dedicated emergency push switches (e.g. fishtail-type emergency switches). This capability allows on-site personnel to initiate emergency testing procedures without additional tools or software, improving operational efficiency and compliance in regulated environments.

6. Motion Sensor and Daylight Sensor

Casambi:
Casambi's sensor functions focus on presence and daylight detection, with configurable automation logic and network optimization features. Core capabilities are summarized as follows:
Presence, Presence/Absence, Absence, Resume automation (group), Resume automation, Unnecessary motion detection or lux measurement functions can be disabled per sensor and lux calibration.

Koolmesh:
In the Koolmesh system, motion sensors and daylight sensors are independent functional components, providing greater flexibility in system design.
Koolmesh motion sensors form the core of automatic lighting control and offer extensive configurability, including:
Supported Sensor Types & Detection Modes, Tri-level control with configurable hold time and standby time, Sensor operation modes and priority-based mode handling, Automatically send sensor signal when power is restored

Koolmesh supports advanced daylight and environmental sensing via two core tools: Daylight Sensors and Multi-sensor. The function is enabled or fully depending on the scene selection. Daylight sensors have different usage strategy, use own daylight sensor, share one daylight sensor or external daylight sensor.

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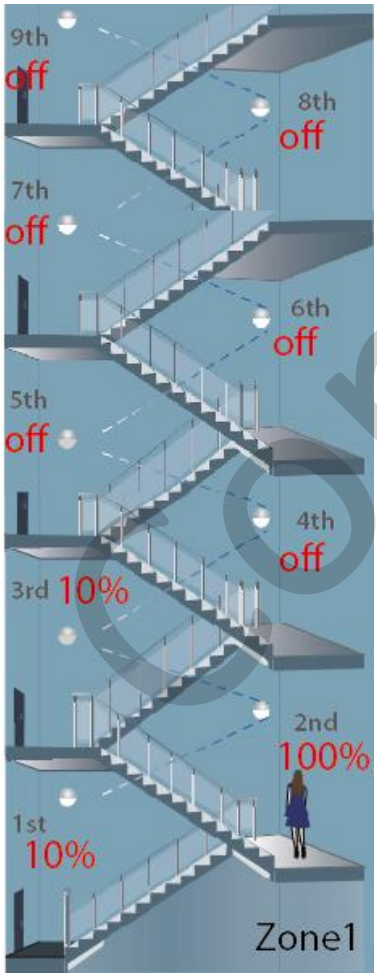
Key Differences:

Both systems provide comparable **motion-based lighting control**, and motion sensors on both platforms can operate either as network-wide triggers or as independent tri-level controllers. However, **Koolmesh offers broader motion-sensor-related capabilities**, including cross-sensor linkage for complex applications, e.g. Staircase Function and Partition Control, built-in Motion Sensor Trigger Diagnosis tools to support on-site commissioning and troubleshooting.

Staircase function

Staircase function is ideal for corridors, municipal parks, parking lots, and staircases. However, setting it up traditionally requires configuring multiple scenes and adjusting each motion sensor individually, often leading to confusion and errors. To streamline this process, Koolmesh has simplified the setup into just three steps. Users only need to verify the default staircase function settings, assign luminaires to the corresponding floors or locations, and synchronize the settings. With this, the staircase function is ready to go. Many complicated and challenging projects also can be fulfilled with few steps adjustment of our staircase function. More details can refer to document “Staircase function（V1.1）”

Case 1



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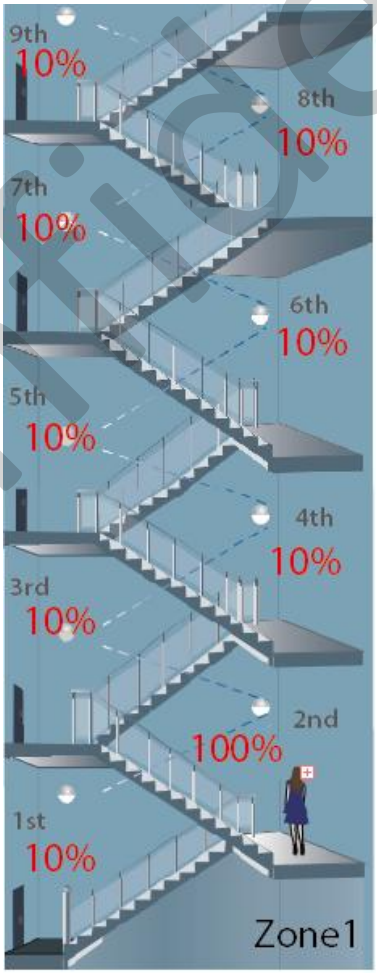

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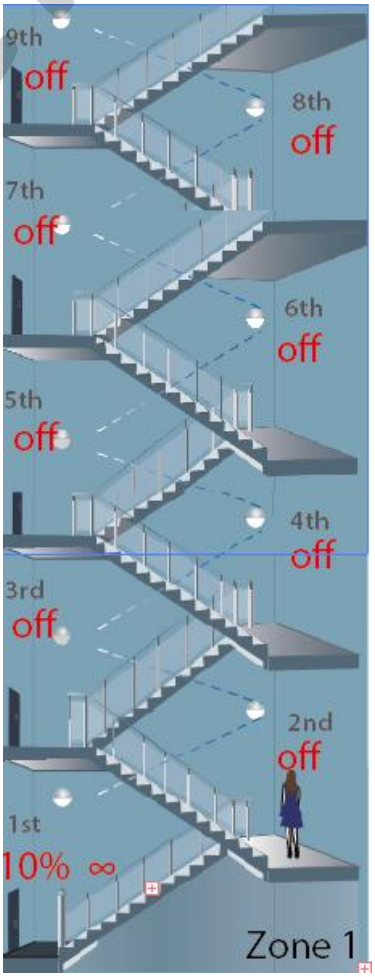

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Partition Control

In many commercial applications, large spaces are divided into smaller areas using **motorized folding partitions** to improve space utilization. Typical examples include **meeting rooms, ballrooms, and multi-purpose halls**.
While physical spaces can be divided or combined easily, **lighting control systems often cannot adapt accordingly**, especially when **wireless controls** are involved. This usually results in **fragmented scene control**, complex commissioning, and poor user experience.
The **Koolmesh Partition Control Function** is designed to solve this long-standing challenge by enabling **intelligent, flexible, and unified control** for divisible spaces.

Example:

Partition Closed (Divided Spaces)
The motorized partition wall is **closed**, forming two independent rooms. When a **motion sensor** in one room detects movement, only the lights in that specific room will turn on.
Partition Opened (Combined Space)
The motorized partition wall is **opened**, forming one large space. When **any motion sensor** detects movement, the lights in the **entire combined area** will turn on.
What's more, this function works for push switches, if lights are also controlled by push switch manually. This dynamic behavior ensures that **space configuration and lighting control always stay aligned**.

Partition Closed

Partition Opened

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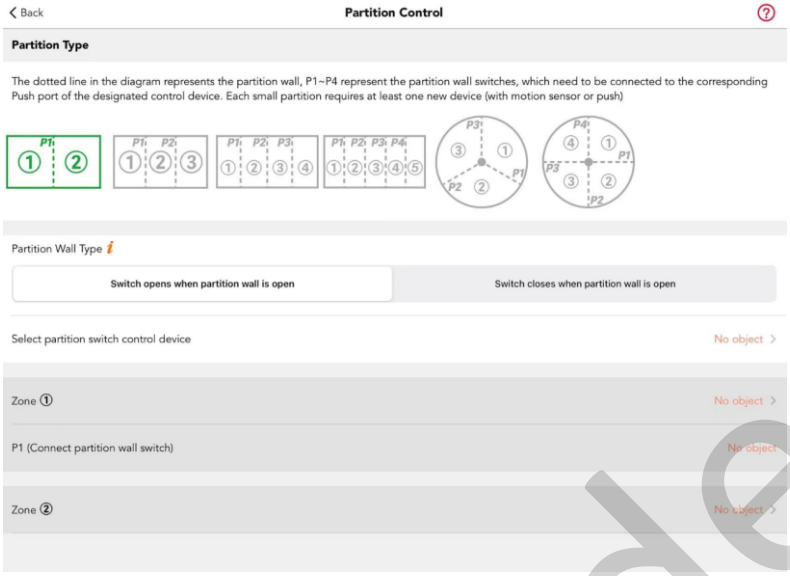
The Koolmesh system provides **6 predefined Partition Control solutions**, covering various partition layouts and room combinations.
Key advantages:

- Supports **multiple rooms divided by one or more motorized partitions**
- Simple configuration — users only need to **select the appropriate solution** based on the actual installation
- No custom logic programming required
- Highly scalable for small meeting rooms to large ballrooms



7. RGBW Function

Casambi:
Casambi provides an intuitive **RGBW color picker** combined with **sliders for color hue and saturation**, allowing users to visually adjust lighting color easily.
This approach focuses on **user-friendly manual tuning**, enabling quick color adjustments to suit different environments and preferences without requiring deep technical knowledge.

Koolmesh:
Koolmesh offers **advanced multi-dimensional color control**, supporting **RGBW, xyY, and DUV color spaces**, enabling precise tuning.
Users can **input exact RGBW values**, or adjust via **RGBW sliders**, **RGBW color picker**, select from **default common RGBW modes**, and—when using **Bridgelux LEDs—shift the standard blackbody curve upward or downward** to optimize lighting performance.

Key Differences:
Both systems provide **functionally equivalent RGBW control capabilities**.
However, **Koolmesh offers greater flexibility and more alternative control methods**, enabling users to select the most suitable approach based on application requirements, performance targets, and LED characteristics.

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8. Network accessibility

Casambi:
Casambi's Sharing Settings enable multi-device access and permission management within a lighting network through predefined sharing modes and hierarchical access control. Four sharing modes are available: Administrator only, Password protected, Open, Not shared.

Koolmesh:
Koolmesh's **Permission Management** provides comprehensive network access control through role-based authorization, secure sharing mechanisms, and ownership management. Core functions include:
• Admin: Full control over whole network functions and settings.
• Installer: Authorized to configure and modify programming, but cannot delete the network
• Sub-user: Permissions assigned explicitly by the Admin
• Secure sharing via QR code or email for project or network access
• Account-based protection with up to eight changeable passwords

Key Differences:

Casambi is centered on **sharing modes**, defining network accessibility and access scope through four preset sharing states, with permission hierarchy acting as a secondary layer.
In contrast, Koolmesh is built around **role-based authorization**, using fixed user roles as the foundation of its permission model. Sharing methods, operational rights, and ownership transfer are tightly bound to these roles, placing stronger emphasis on secure collaboration and long-term network management.

9. Emergency

Casambi:
Casambi has partnered with **Tridonic** to provide an emergency lighting monitoring and reporting solution.
In this architecture, a **gateway** connects wireless emergency luminaires to a **sceneCOM evo controller**.
Through the Casambi system, users can:

- Read emergency mode status
- View device status and fault information
- Check emergency test results

However, **system configuration, emergency management, and compliance report generation** must be performed in **Tridonic Lichtmonitor**.

Koolmesh:
Koolmesh provides **two fully integrated emergency lighting solutions** within the Koolmesh system.

1) Hybrid Emergency Solution
The Hybrid solution integrates:

- Motion sensing
- Emergency lighting

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- Bluetooth communication
- Normal lighting control

into **a single device**.
This high level of integration significantly **reduces hardware requirements and project cost**, while also simplifying **installation, commissioning, and maintenance**.

2) Koolmesh DALI Emergency Translator
The Koolmesh DALI Emergency Translator acts as a **DALI-to-Bluetooth interface**, converting DALI emergency data into Bluetooth communication.
This enables users to:

- Configure emergency parameters
- Monitor emergency mode and device status
- View test results
- Generate and download compliance reports

—all **directly within the Koolmesh system**.

Key Differences:
Casambi's emergency solution separates **monitoring** and **management** across **two platforms**: Casambi and Tridonic Lichtmonitor. Configuration and compliance reporting must be completed in the Tridonic system, increasing **system complexity and operational dependency**.
In contrast, **Koolmesh** provides a **fully unified emergency lighting solution**, where configuration, monitoring, testing, and compliance reporting are all handled within **one platform**, accessible via both **mobile APP and web interface**. Koolmesh delivers a **complete, independent, and cost-efficient emergency lighting solution** without reliance on third-party systems.

Overall Comparison Summary

Both **Casambi** and **Koolmesh** are focused on the **lighting control domain**, delivering reliable wireless lighting solutions.
Casambi is primarily **lighting-centric**, with its core strength in intuitive lighting control, scene configuration, and streamlined commissioning workflows. Its design philosophy emphasizes simplicity and efficiency for lighting professionals, making it well suited for projects where lighting control is the primary requirement.
Koolmesh, while also focused on the lighting domain, provides a **more system-oriented platform**. Beyond basic lighting control, it offers extended capabilities covering the **entire lifecycle of a project**, including commissioning, debugging, diagnostics, network management, permission control, and long-term operation and maintenance. This makes Koolmesh more suitable for complex projects that require structured management, collaboration among multiple roles, and ongoing system visibility.
In summary, **Casambi excels as a specialized lighting control solution**, whereas **Koolmesh positions itself as a lighting-focused system platform**, integrating control, diagnostics, and management into a unified framework.

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