

One Gateway. Complete Control

Connecting Lighting Networks from Commissioning to Operation



Gateway:

The Coordination Layer for Complex Lighting Projects



In large-scale lighting projects, a single site often includes multiple device types, control layers, and integration requirements — distributed across different areas, floors, and use cases.

Without a coordination layer, commissioning becomes fragmented, system visibility is limited, and long-term operation and maintenance quickly turn into a heavy manual workload.

Hytronik gateways provide the missing system-level layer:

They enable centralized access, structured network management, and seamless integration — **whether you are expanding a Bluetooth Mesh deployment or connecting lighting networks to a Building Management System (BMS)**.

With a gateway in place, commissioning, scaling, monitoring, and maintaining complex installations becomes more efficient, reliable, and future-read.

From fragmented networks → to a coordinated, scalable system

Traditional lighting gateways often face challenges in large or complex projects – from complicated setup and limited scalability to unstable operation and costly maintenance.

Hytronik Gateway solutions, powered by Koolmesh, are designed to address these challenges at a system level, delivering reliable, scalable, and easy-to-manage lighting control for modern buildings.

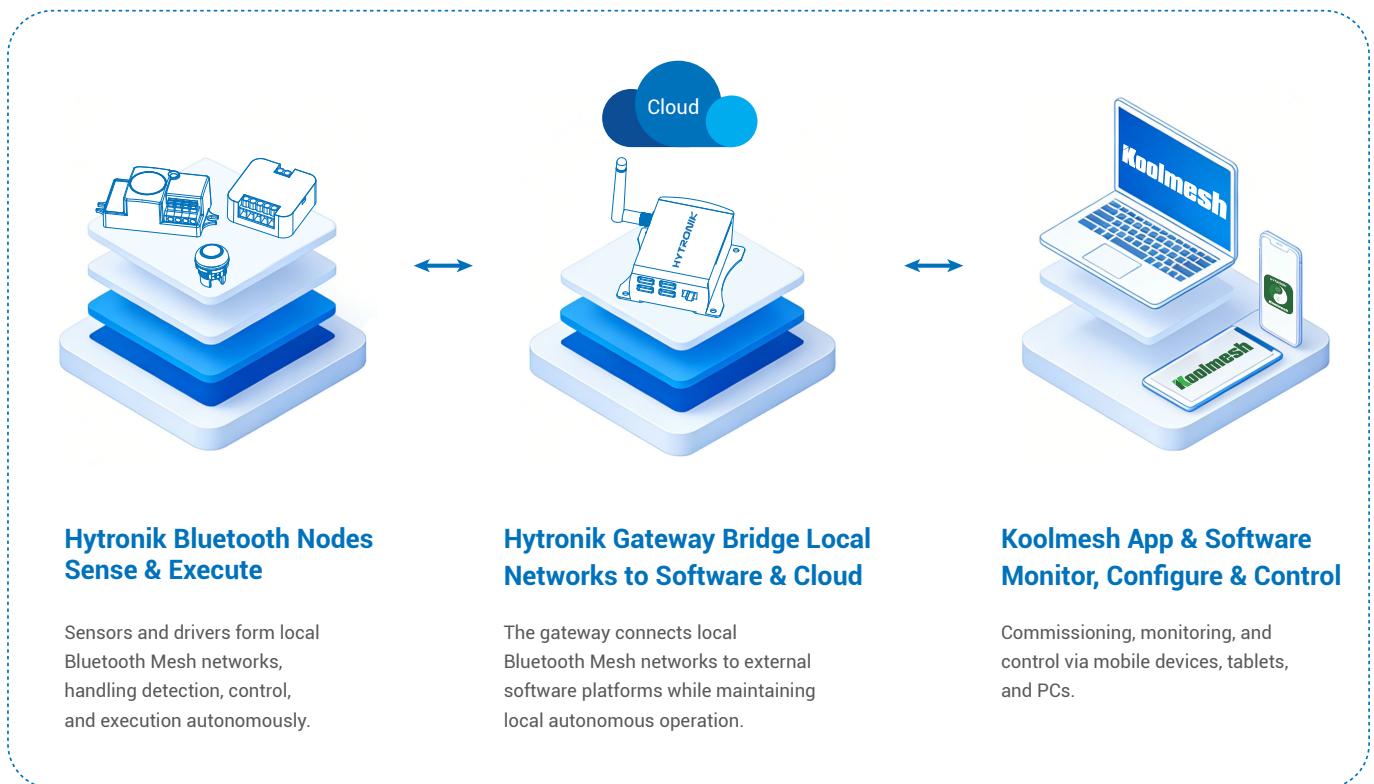
Customer Pain Points

- **Complex deployment** Manual configuration, complex wiring, and high commissioning effort.
- **Poor system stability** Network dropouts, delayed response, unreliable automation.
- **Limited scalability** Restricted node capacity and network coverage.
- **Difficult system integration** Closed protocols and data silos.
- **High maintenance costs** On-site updates and complex troubleshooting.

Hytronik + Koolmesh Gateway Solutions

- **Simplified configuration & flexible power options** Streamlined setup with PoE and USB-C power supply, adapting to diverse installation scenarios.
- **Industrial-grade reliability** Industrial-grade chipset with dual-link redundancy ensures stable and reliable operation.
- **Ultra-high scalability** Supports large-scale deployments with 200 Bluetooth nodes and 400 receivers for each network.
- **Multi-protocol & open integration** Built-in support for open APIs and BMS protocols enables seamless system-level integration.
- **Centralized OTA maintenance** Batch firmware upgrades via OTA reduce maintenance effort and operating costs.

How the Hytronik Gateway Work



The Hytronik gateway serves as the communication bridge between local Bluetooth Mesh networks and external platforms, providing stable and reliable connectivity, supporting remote control, network monitoring, and seamless integration with third-party systems, while ensuring local autonomous operation remains unaffected.

By using a gateway, it is possible to access and control Hytronik Bluetooth networks remotely or interface Building Management Systems(BMS) and other third-party services (via a Cloud API). It also allows for network monitoring.

Integrating Lighting Systems with BMS

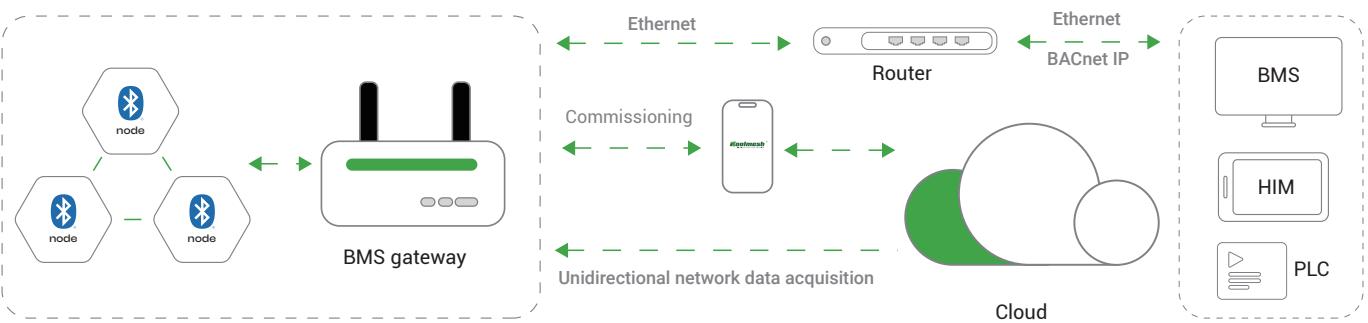
Protocol Conversion and Cross-System Interconnection

Hytronik BMS Gateway enables seamless integration between lighting systems and Building Management Systems (BMS), delivering centralized control, intelligent automation, and optimized energy performance across the entire building.

BMS Integration

The Koolmesh BMS gateway supports **BACnet**, **KNX**, and **MQTT**, ensuring compatibility with mainstream BMS platforms.

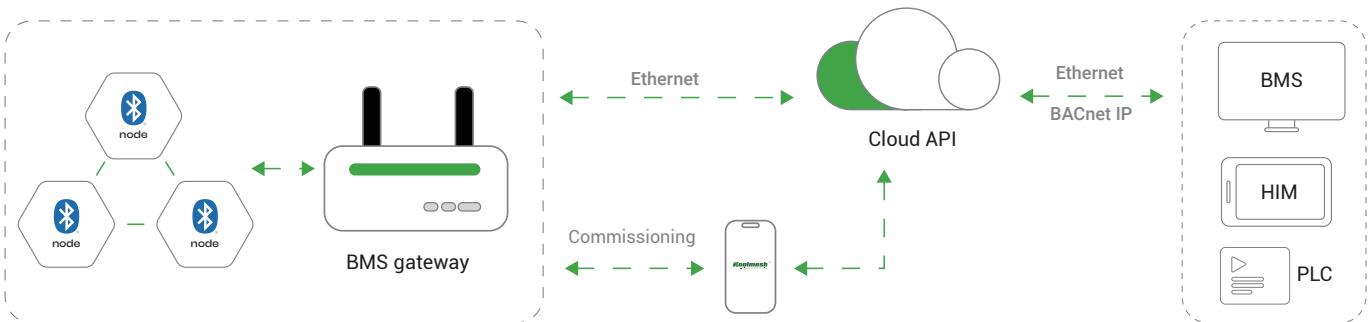
- Lighting networks are exposed to BMS via BACnet/IP
- Secure web-based configuration with user authentication
- Network commissioning via the Koolmesh App
- Basic lighting control available to third-party BMS systems



Cloud API Integration

For cloud-based or remote systems, the **Koolmesh Cloud API** provides a flexible integration option.

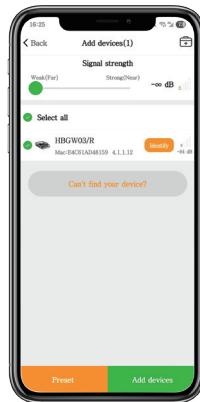
- Secure gateway-to-cloud communication
- Remote access and system integration
- Seamless connectivity with third-party platforms



*Please always check the latest datasheet for technical requirements-----<http://hytronik.com>

Industrial-grade BACnet Gateway

For Building Management System Integration



Easy Configuration via Koolmesh App

Installation



DIN rail, wall, or flat surface mounting

Main Function



Real-time readouts occupancy, light levels, energy use, alerts



Fully local operation – no mandatory cloud dependency



USB-C+ POE power supply options



Direct BACnet/IP integration



Dual-band Wi-Fi or Ethernet connectivity

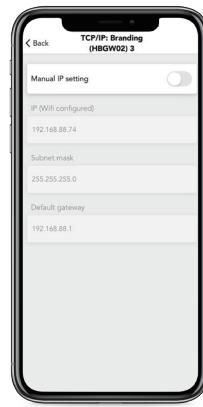
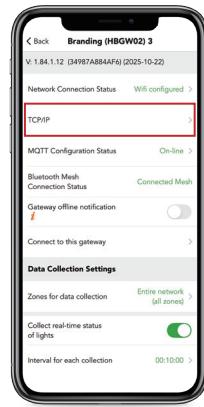
Technical Specifications

Network protocol	Bluetooth frequency	Bluetooth transmit power	Bluetooth range	Bluetooth system	Wi-Fi frequency	Operating voltage	Power supply
BACnet IP Ethernet Wi-Fi Bluetooth mesh	2.4 GHz - 2.483 GHz	19.5±1 dBm	50m	Koolmesh	2.4GHz/5GHz	DC5V/3A	USB-C: 5 VDC, 3A Ethernet (POE): 5 VDC, 3.5 A

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Bluetooth Mesh Gateway

For medium to large-scale network deployments



Easy Configuration via Koolmesh App

Main Function



Real-time readouts occupancy, light levels, energy use, alerts



Local operation without cloud dependency



POE power options



Frequency-hopping Bluetooth ensures stable multi-device connections



Dual-band Wi-Fi or Ethernet options

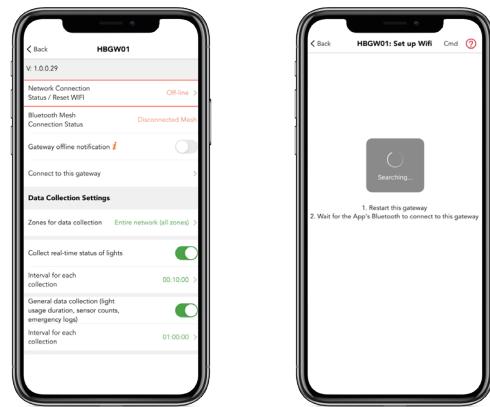
Technical Specifications

Designation	Network protocol	Bluetooth frequency	Bluetooth transmit power	Bluetooth range	Bluetooth system	Wi-Fi frequency	Operating voltage	Power supply
HBGW02	Ethernet WiFi Bluetooth mesh	2.4 GHz - 2.483 GHz	19.5±1 dBm	10- 30m	Koolmesh	2.4GHz	DC5V/3A	Ethernet (POE): 5 VDC, 3.5 A
HBGW02/D	WiFi Bluetooth mesh	2.4 GHz - 2.483 GHz	19.5±1 dBm	10- 30m	Koolmesh	2.4GHz/5GHz	DC5V/3A	Conventional power supply

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Compact Bluetooth Mesh Gateway

For small-scale or cost-sensitive projects



Easy Configuration via Koolmesh App

Main Function

- Real-time readouts occupancy, light levels, energy use, alerts
- All local. No cloud
- DC and PoE power options
- Dual-band Wi-Fi or Ethernet
- Stable Bluetooth Mesh connectivity

Technical Specifications

Designation	Network protocol	Bluetooth parameter	Bluetooth range	Bluetooth system	Wi-Fi frequency	Operating voltage	Power supply
HBGW01	WiFi Bluetooth mesh	Bluetooth parameter	10m	Koolmesh	2.4GHz/5GHz	DC5V/2A	Conventional power supply+POE

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Designed for Scalable, Multi-Network Lighting Systems

Multi-Network Synchronous Control

Enables centralized and synchronized management of multiple independent Bluetooth Mesh networks within a single project.

Remote Access & Cloud Connectivity

Monitor, control, and configure your lighting system anytime, anywhere via app or cloud.

Improved Efficiency for Large-Scale Deployments

By coordinating multiple networks through gateways, system configuration and daily management become significantly more efficient, reducing operational complexity.

Scalable Support for Complex and Multi-Scenario Applications

Gateways provide strong support for large node counts and multi-area installations, enabling flexible expansion and reliable operation across diverse application scenarios.



HYTRONIK
SENSORS & LIGHTING CONTROL



Koolmesh
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