

Give the BMS the missing room-level view

(With Koolmesh Intelligence)

Koolmesh BMS



For Lighting OEMs and System Integration Partners

Transmit Koolmesh control, occupancy, daylight, energy and device status data through BACnet/IP, with Modbus/IP and MQTT extensions where required - plus optional IAQ, HVAC and supervisory routes.

Smart Building Intelligence for Every Building

From a single room to a full estate

The Problem:

BMS Often Lacks Room-Level Reality

1

The Opportunity:

From Lighting Control to Smart Building Nodes

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A Practical Route to Smarter BMS Integration

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Koolmesh Lighting Data to BMS via Multi-Protocol Gateway

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Add Advanced Occupancy, IAQ, HVAC and Energy Logic Where the Project Requires It

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Choose the right device and integration route based on required data, control function, existing BMS access and project budget.

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The Problem:

1

BMS Often Lacks Room-Level Reality

BMS systems operate at building level, but decisions happen at room level.

Building-Level Control



Lighting



HVAC



Schedules



The Missing Layer

Room-Level Reality



Occupancy

Occupied or empty



Space Usage

How spaces are used



Lighting Zone Status

Active, dimmed or off



Daylight Levels

Daylight sufficient



Device Health

Faults or abnormal status



Energy Data

Lighting energy or consumption

“ The challenge is not simply collecting more data. It is **getting useful, structured field data** into the BMS in a way that fits the project workflow. ”

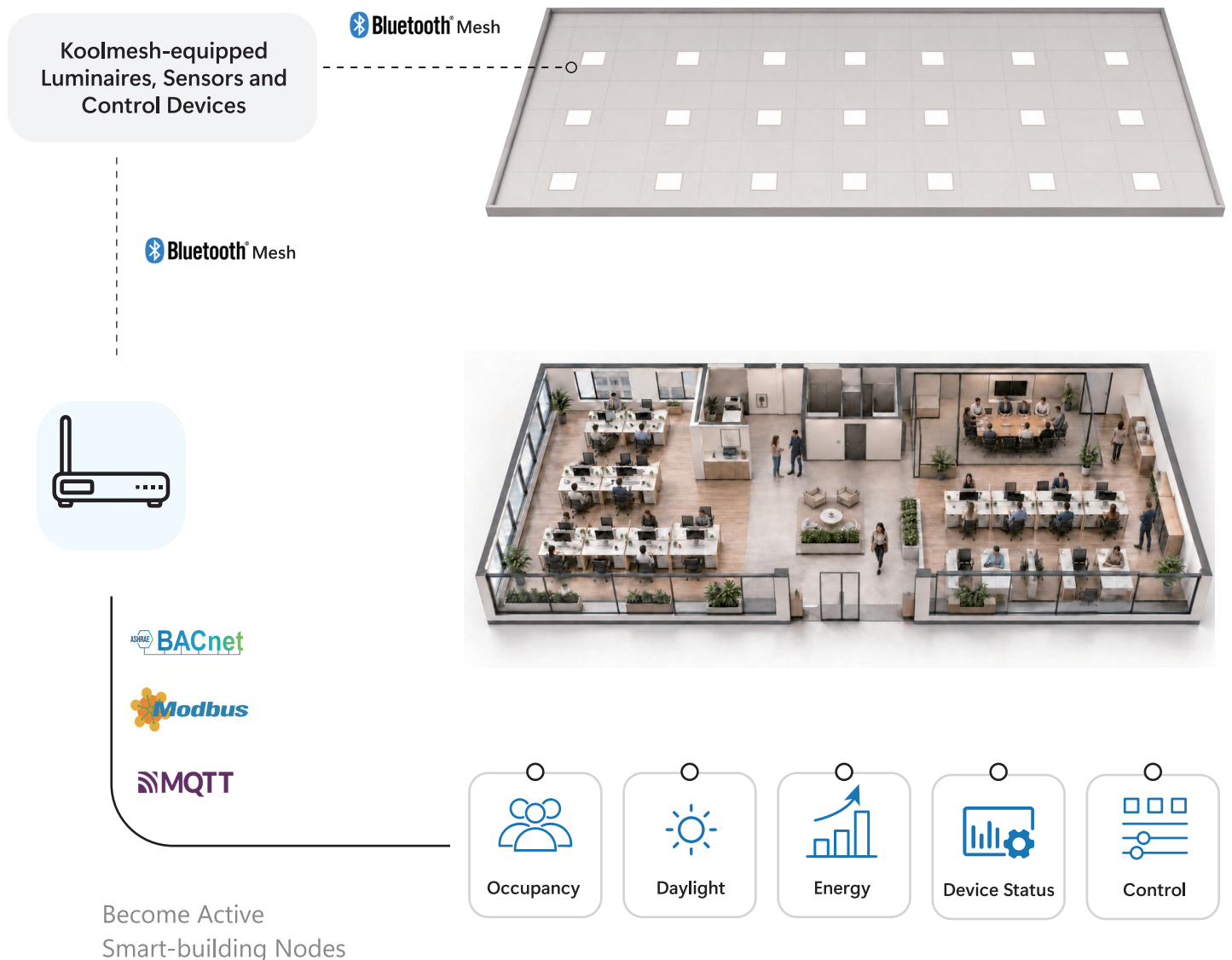
The Opportunity:

2

From Lighting Control to Smart Building Nodes

A luminaire is no longer only a light source.

When lighting controls and sensors are connected, the ceiling becomes one of the most valuable data positions in the building. It is close to occupants, rooms, daylight and lighting zones.



This is not an abstract vision.
It is achievable today.

Through Koolmesh hardware,
lighting control devices / sensors and
Koolmesh BMS gateway integration.

What This Means for Partners

3

A Practical Route to Smarter BMS Integration



For Lighting Manufacturers and Lighting Partners

Transform a lighting-control package into a smart building data point.



Upgrade luminaires into smart sensing nodes



One luminaire, two values: lighting and BMS control



Win more smart lighting and BMS projects



For System Integrators and BMS Partners

It provides a practical field-level data source that can support BMS dashboards, reporting, automation logic and future system expansion.



Reliable field data at room level



Easy to integrate and scale



Enable automation and better outcomes



Consultants / Project Teams

A clearer route can be specified for lighting-control data to support building performance, energy reporting and future expansion.



Clearer BMS specification



Support energy reporting

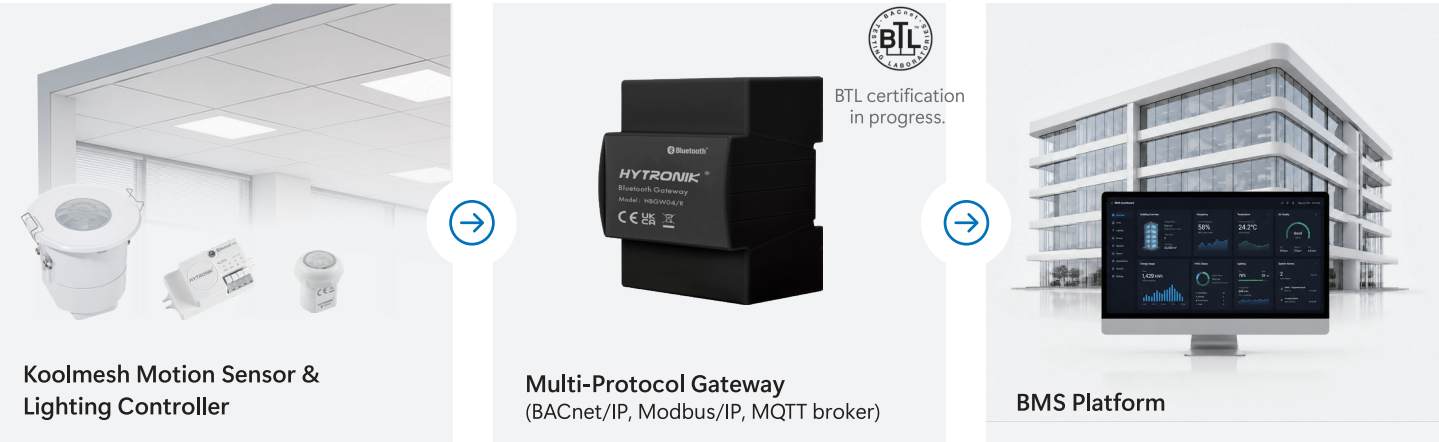


Ready for future expansion



Core Route:

Koolmesh Lighting Data to BMS via Multi-Protocol Gateway



“ This is the core route for lighting OEMs, lighting partners and system integrators who need lighting-side data to be visible in a BMS workflow ”

What Data Can Be Exposed

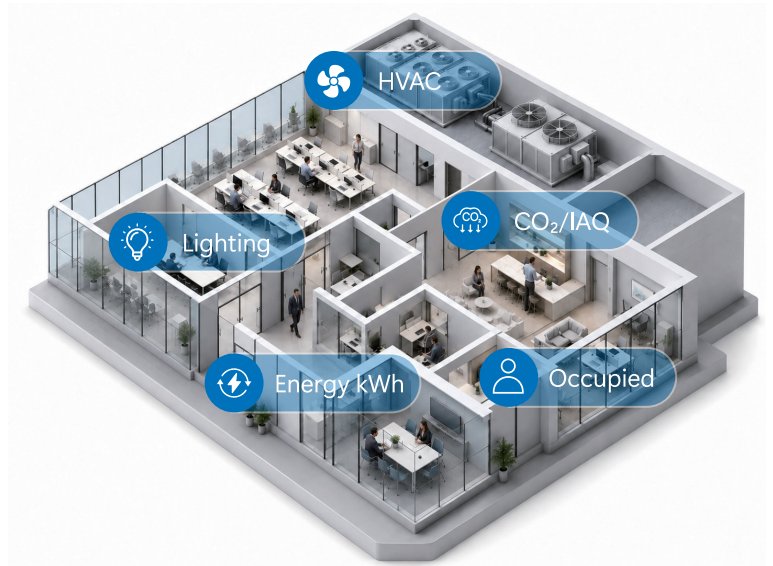
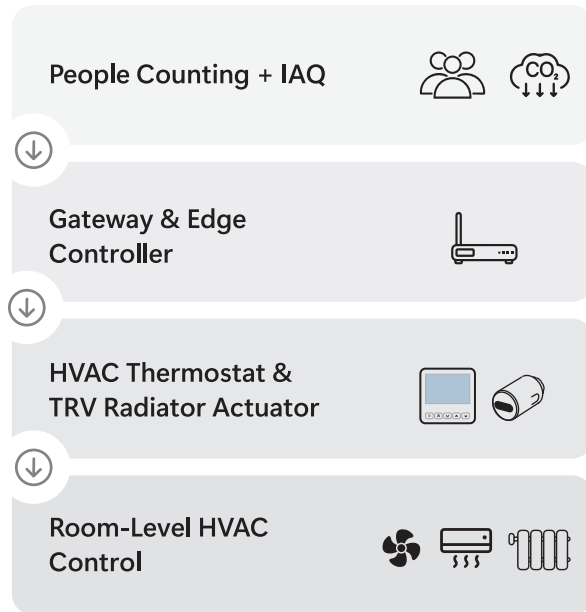
Data Category	Examples	Typical BMS Use
Lighting Control	On/off command, dimming command	BMS control / override
Lighting Status	On/off status, dimming level	Dashboard / monitoring
Occupancy / Presence	Occupied / unoccupied, motion input	HVAC logic, space-use review
Daylight	Lux value / ambient brightness	Daylight report, lighting optimisation
CCT Control	CCT command / CCT status where supported	Human-centric lighting visibility
Energy	Consumption reading where available	Energy reporting
Zone / Group	Zone ID, group status	Room / floor-level dashboard

What Can Be Achieved:

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Add Advanced Occupancy, IAQ, HVAC and Energy Logic Where the Project Requires It

A Practical Route

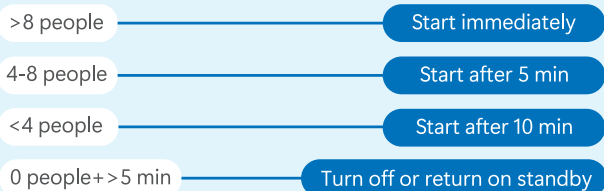


Room-Level Intelligence in Four Key Functions

Occupancy-Ratio-Based Ventilation & HVAC Control



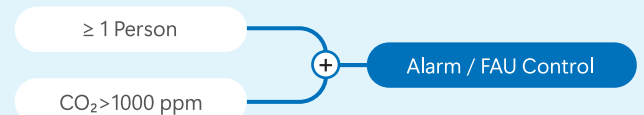
Use people counting data and occupancy ratio to support fresh-air start-up timing, ventilation demand, heating response or AC fan-speed adjustment.



IAQ-Based Alert & Ventilation Support



Use CO₂, temperature, humidity, PM2.5, TVOC, or other IAQ data to trigger alarms, ventilation actions, or operator notifications



Energy Monitoring & Optimisation Support



Use metering data to support energy dashboards, consumption review, savings analysis and optimisation strategies.

Room-Level Automation & O&M Supervision



Combine device status, alarms, setpoints and operating data for monitoring, diagnostics and basic O&M supervision.

How Extension Routes are Selected:

Choose the right device and integration route based on required data, control function, existing BMS access and project budget.



IAQ Sensing Route

When the project requires temperature, humidity, CO₂ or extended air quality data such as PM2.5, formaldehyde or TVOC.



People Counting Route

When the project needs more detailed occupancy information than standard motion or presence detection.



Wireless Retrofit Route

When IAQ, TRV, FCU, split AC system with IR or other room-level devices are needed but new wiring is difficult.



Wired Field Device Route

When the specification requires Modbus RTU / RS-485, BACnet MS/TP thermostats, controllers or meters.

For split AC load switching, the HBTDB200VFC volt-free contact node is used with an external DIN-rail contactor - contact Hytronik for the full specification.



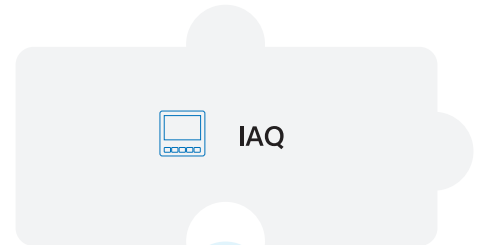
Energy Metering Route

When energy visibility, reporting or optimisation support is required.

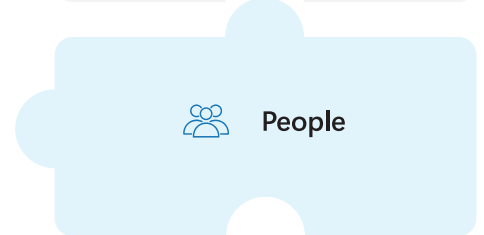


FIN-Based Supervisory Route

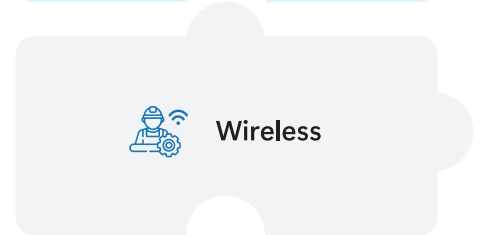
When the project requires dashboards, logic, supervision, reporting and multi-protocol integration under a fuller BMS route.



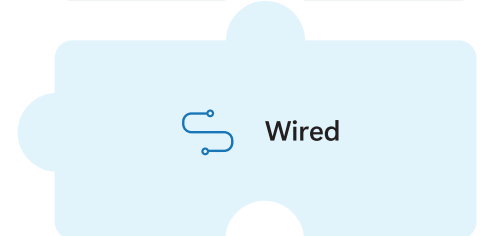
IAQ



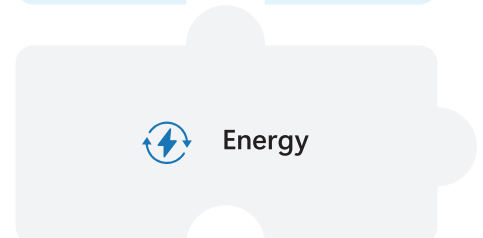
People



Wireless



Wired



Energy



FIN Supervisory

Start from the Right Layer, Combine Modular Paths Freely

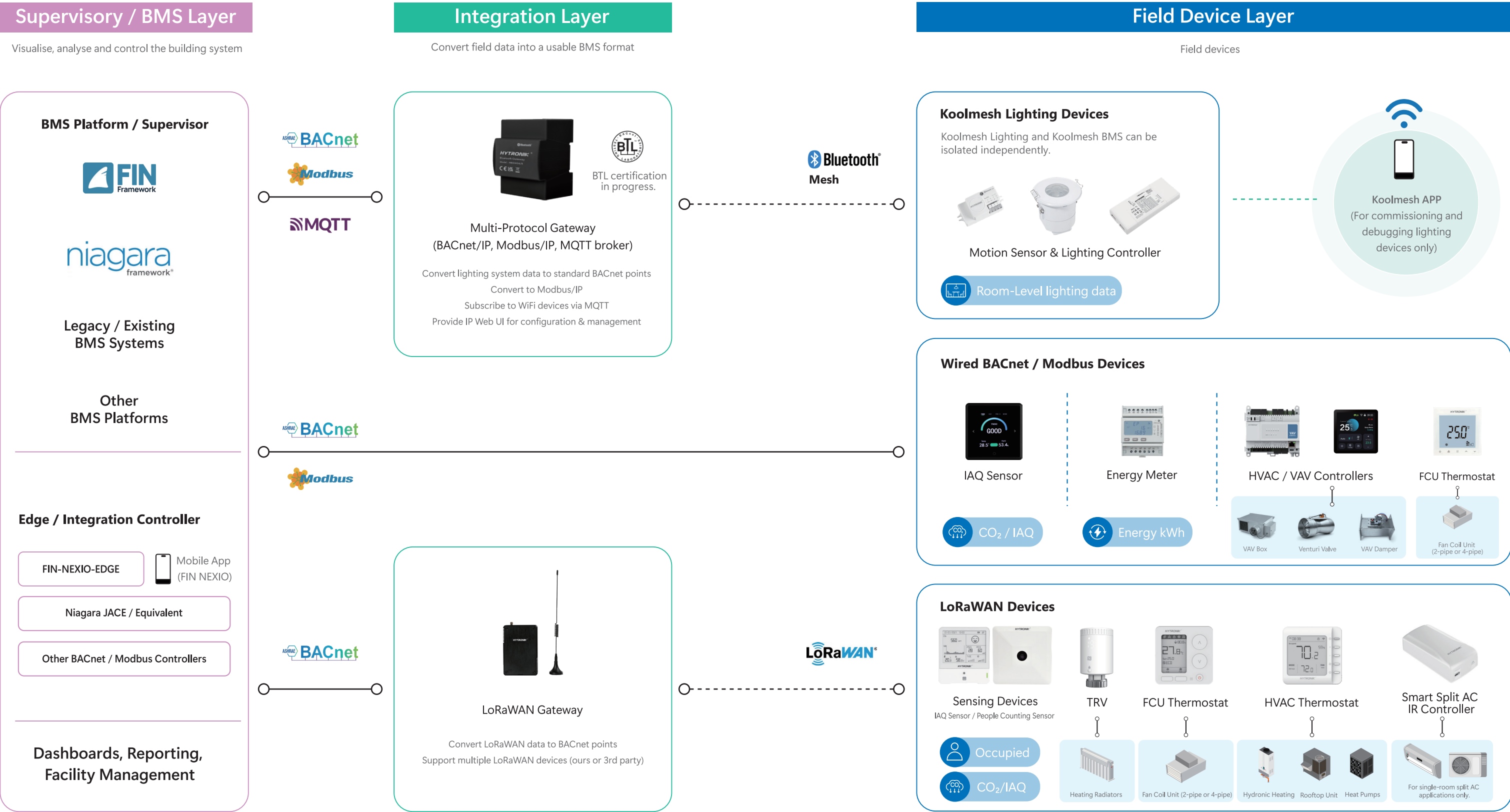
The aim is not to push every project into the full architecture. The aim is to define the right starting route based on the required data, control functions, existing BMS access and project budget.

System Architecture:

From Field Data to BMS Supervision

Koolmesh BMS is designed to fit into existing BMS projects without replacing the BMS platform or the customer's established workflow.

A typical project works across three layers:



Control Strategy:

Avoiding Conflict Between Systems

When everything acts on one room, who wins?

In Koolmesh BMS / FIN-based projects, priority logic can be defined to avoid conflicts between operator override, schedules, IAQ alerts, occupancy and local user input. In existing BMS integration projects, the final control hierarchy depends on the agreed BMS strategy and available write access.



Example

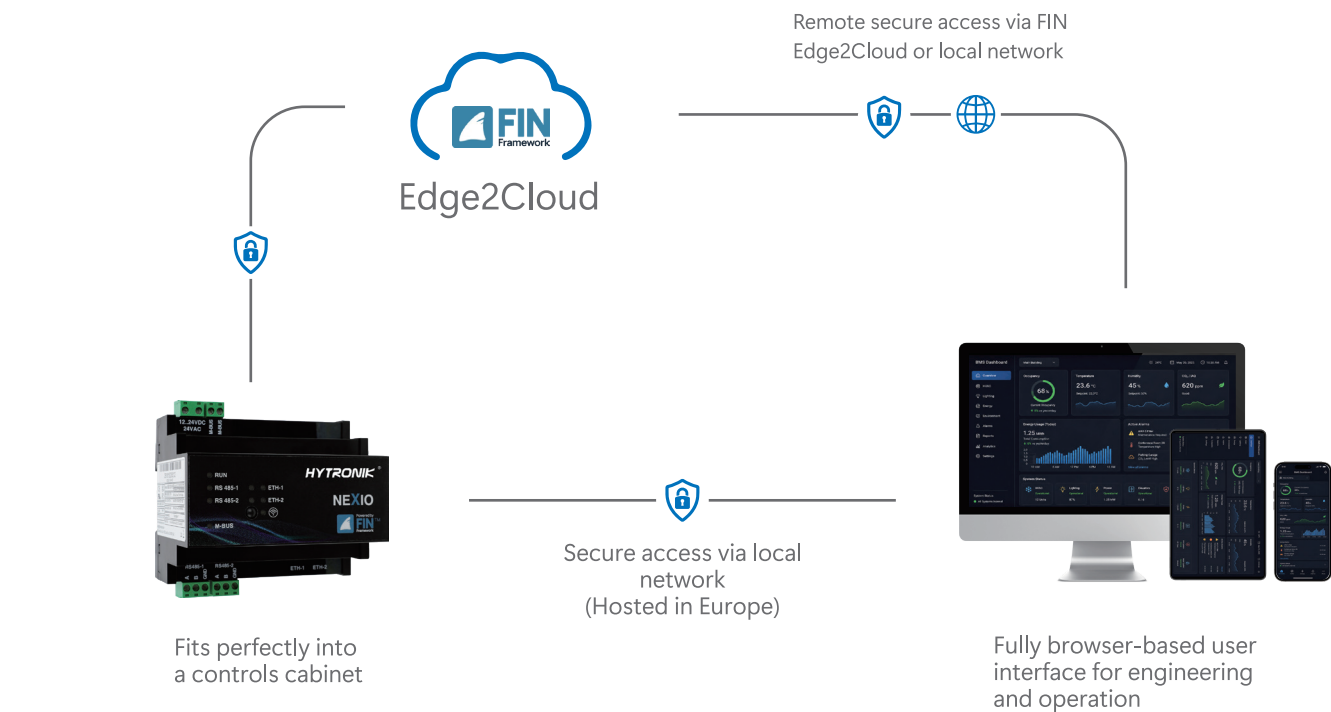
A CO₂ alert (level 3) can open ventilation even if the schedule (level 2) indicates it is outside hours. Operator override (level 1) can take priority. The hierarchy is adjustable per project, and control logic depends on the agreed BMS strategy.

Note: Control logic and priority levels can be configured according to project requirements and BMS strategy.

Secure Access. Reliable Support.

Koolmesh BMS secures building operation across every layer with encrypted communication, role-based access, signed firmware, controlled OTA updates and network segmentation.

FIN-Based Engineering & Operation



What if the gateway or cloud goes down?

A real differentiator — but it must be precise, because resilience differs by technology.

Bluetooth Mesh · Koolmesh Native

Mesh topology, logic at the edge. Local lighting control and scenes **keep working** if the gateway or cloud fails — intelligence is distributed across the mesh. No gateway dependency for local control.

LoRaWAN Layer

Star topology — devices talk to their gateway, not each other. If the LoRaWAN gateway fails, those devices lose communication.
Gateway-dependent — handle per project design.

"No BMS or cloud outage turns into a lighting outage."



For corporate BMS projects, security is a mandatory question. A concrete, specific answer builds credibility with the technical buyer.



Encrypted Channels

Encrypted communication and secure device commissioning across every layer.

Role-Based Access

Distinct operator / integrator / admin roles with scoped permissions.

Signed Firmware & OTA

Signed firmware and controlled over-the-air updates only.

Network Segmentation

Segmentation between field, integration and supervisory layers.

SECURE REMOTE ACCESS

FIN Edge2Cloud — EU-Based

Secure remote access via FIN Edge2Cloud, EU-based. Koolmesh BMS stays the lead brand; FIN is the engine underneath.

Typical Project Opportunities

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Lighting is the entry point.

From a lighting or luminaire project, the same Koolmesh infrastructure opens the door to wider building control — HVAC, air quality and energy — **without changing the whole system.**

OEM Luminaire Projects

Turn luminaires and lighting-control packages into smart-building data nodes, the natural starting point for our audience, and the pivot into every scenario below.



Retrofit Without Rewiring

From lighting upgrades, extend into building efficiency — integrate HVAC, energy and air quality control with minimal disruption and no additional cabling works.



New-Build / Major Refurbishment

Design smarter from the start with flexible wireless solutions that reduce cabling requirements and simplify system integration.



Integration with an Existing BMS

Where a BMS already exists, integrate via BACnet/IP, Modbus, MQTT to give it the missing room-level visibility, including occupancy, daylight, lighting status, IAQ and energy. Read everything; write what the BMS exposes.



Service, Warranty & Ongoing Support

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Area	Hytronik Support	Partner Role	Commercial Principle
INCLUDED AS STANDARD			
Product Warranty	5-year warranty for Hytronik supplied hardware under normal use	First-line customer contact and basic fault information collection	Included with product supply
Remote Technical Support	Online troubleshooting, gateway/data point review and integration guidance	Provide project information, logs, screenshots and site feedback	Included for reasonable pre-sales and technical support
OPTIONAL PAID SERVICES			
Site Survey & Design	Can provide guidance on device scope, network route and system architecture	Usually delivered by local partner / SI	Optional paid service Indicative: £750–£1,500/site or £650–£950/day
Deployment & Commissioning	Technical guidance and commissioning support where required	Partner normally delivers local installation and commissioning	Optional paid service Project-specific Indicative: 12–18% of hardware value or £750–£950/engineer-day
Cloud Monitoring	Remote access, dashboards, alarms and data history where required	Partner may offer this as an optional service to end users	Optional paid service Project-specific Indicative: £0.40–£0.60/point/month
Analytics & Reporting	Energy analysis, fault analytics, optimisation and compliance reporting	Partner may package this as an added-value service	Optional paid service Project-specific Indicative: £0.65–£0.90/point/month or £6,000–£12,000/building/year
Annual Maintenance	Health check, update support, monitoring review and response support	Partner may self-deliver or coordinate with Hytronik	Optional paid service Indicative: 10–15% of installed value/year

Note:

Indicative prices are for partner planning and budget guidance only. Final pricing depends on project size, device quantity, integration scope, local service model and agreed commercial terms.

Partner Support and Next Steps

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Hytronik can support partners from early project evaluation to pilot deployment, helping define the right data route, device scope and integration method.

Support may include:



Multi-protocol gateway and data point review



System architecture discussion



Demo hardware or pilot project support



IAQ, HVAC, LoRaWAN or wired field device guidance where required



FIN-based project structure support where suitable

To start a discussion, please share:



Project type and target application

Existing or planned BMS platform

Required data points or control functions

Whether Koolmesh lighting controls are already specified or installed

Whether the project needs BACnet/IP, Modbus/IP and MQTT, optional extensions or a fuller Koolmesh BMS route



Scan to explore
integration opportunities
with Koolmesh BMS.



For more information,
please contact:

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