

Application Guide: Education



HUBBELL[®] Control Solutions



POWERHUBB[™] POE LIGHTING & CONTROL

Hubbell's PowerHUBB[™] is an enterprise-level, Power over Ethernet (PoE), lighting and control platform that seamlessly integrates luminaires, sensors, user interfaces and software for a scalable, intelligent building control solution.

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Software & Controls

Hubbell Control Solutions' PowerHUBB platform delivers intelligent sensors, intuitive user interfaces and scalable PoE technology that enables a highly configurable, enterprise software solution with cloud analytics.

PoE Enabled Luminaires

Hubbell Lighting's portfolio of PowerHUBB enabled luminaires deliver quality illumination while reducing energy consumption, and total cost of ownership for PoE installations.

Table of Contents

- 4 Code Compliance
- 6 **Classroom Applications**
- 8 **Product Portfolio**
- 10 **PowerHUBB Support**



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Infrastructure

Hubbell Premise Wiring manufactures a fully integrated system of copper and fiber network cabling, and components that are designed to meet PoE performance and reliability standards.



PowerHUBB Advanced Energy Software Package Shown.

Energy Savings and the **Building Environment**

PowerHUBB[™] empowers building owners to reduce energy consumed by lighting which, on average, is 17% of the total energy consumption in a building. While commercial lighting energy use continues to decline as a result of increased LED lighting efficacy and more stringent energy codes, there are still opportunities for energy savings. For example, additional savings can be seen through the deployment of dimmable LED luminaires controlled with occupancy and/or daylight sensors.

Additional HVAC Savings

The Automation Access service package provides BACnet™ Integration with Building Management Systems (BMS) allowing an exchange of occupancy and daylight information to help manage energy strategies and promote additional energy efficiency improvements through other building systems, such as HVAC. Integrating lighting control equipment through BACnet has the added benefit of reducing the initial equipment cost, reducing wall and ceiling clutter by eliminating the need for duplicate sensors and leveraging Hubbell Controls Solutions advanced sensor technology. Enabling BMS control of dimmable LED luminaires may represent an additional point of control which reduces the overall thermal load within a conditioned space.



Code Complianc at Every Level of Scalability	l ^{fcc2015} a	ASHRAE 90, 2	energy Co	odes 9/0201 bdyv	Basic Packago	Automation Access	UBB lutions
INDOOR							
High-End Tuning		1	·		~		
Local Control	C405.2.2.3	9.4.1.1 (a)	130.1 (a)		\checkmark		
Multilevel Control	C405.2.2.2	9.4.1.1 (b)	130.1 (b)		\checkmark		
Timeclock Off	C405.2.2.1	9.4.1.1 (i)	130.1 (c) 4		\checkmark		
Occupancy Sensor Full OFF	C405.2.1.1	9.4.1.1 (h)	130.1 (c) 6		\checkmark		
Occupancy Senor Partial ON	C405.2.1.1	9.4.1.1 (c)	130.1 (c) 5		\checkmark		
Occupancy Sensor Partial OFF	C405.2.1.2	9.4.1.1 (g)	130.1 (c) 6		\checkmark		
Daylighting	C405.2.3	9.4.1.1 (e)	130.1 (d)		\checkmark		
BMS Integration					Contact Closure	BACnet™	
Egress Lighting				\checkmark			

PowerHUBB provides a complete networked building approach, that can maximize energy savings and meet or exceed today's energy code requirements.



High-End Trim - An artificial maximum light output set below actual maximum light output for each space



Local Control - Manual lighting controls that control all the lights in that space and requires human intervention

Multilevel control - Providing additional light levels in a space beyond Full ON and Full OFF



Continuous Daylighting - Automatically turns lights down to a reduced level or off based on the amount of daylight present in a space

Daylight OFF - Automatically turns the lights off based on the amount of daylight



Egress Lighting - The code establishes minimum criteria for the design of egress facilities so as to allow prompt escape of occupants from buildings, or where desirable, into safe areas withing buildings.



Demand Response - A defined temporary reduction of lighting load or load shedding in response to a request from an energy authority such as a utility or regional transmission operator



Scheduling - Controls light levels based on facility schedule



Full OFF - Automatically turns the lights off within a set period of time after all occupants leave the space

Partial ON - Automatically turns lights on to a reduced level between full on and full off when occupants enter the space

Partial OFF - Automatically turns lights down to a reduced level between full on and full off after all occupants leave the space





BMS Integration - The data exchange for control and monitoring from a facilities Building Management System or Energy Management System using a common protocol such as BACnet[™]

TYPICAL ROOM SOLUTION, NON-EMERGENCY LIGHTING REQUIRED



BILL OF MATERIAL:

QT	Y. Catalog #	Description
6	LCATPH24-35MLG-PM	LCAT LED troffer, PowerHUBB enabled, no control inputs
3	LCATPH24-35MLG-PMC	LCAT LED troffer, PowerHUBB enabled, with control inputs
1	OMNIDT2000	Dual technology occupancy sensor
1	LUXSTATLS	Open loop daylight sensor
1	LVSM2PLWH	Low voltage wall station, 2 button, pilot light
2	LVSM4PLWH	Low voltage wall station, 4 button, pilot light
1	PoE Switch	Power Supply Equipment (Provided by others), size to be determined by application

CONTROL STRATEGIES

- 1. Master Station 2-button station at the door provides on and off for the whole room. Capable to perform vacancy. a. Top Button ON b. Bottom Button OFF
- 2. Whether the occupancy or vacancy mode is enabled the motions sensor will turn off the lights upon loss of occupancy a. Zone A = Whiteboard/General Space b. Zone B = General Space c. Zone C = Daylighting Zone/General Space
- 3. Daylighting Zone C a. Daylighting always functioning, cannot be overridden aside from manual or automatic off
- 4. Teacher Station 4 button station to control zones A, B & C a. Station 1 i. ON – 100% Entire Room ii. ON – 50% Entire Room iii. ON – 10% Entire Room iv. OFF Entire Room b. Station 2 i. B & C - OFF, A – 80% ii. B & C - OFF, A – 20% iii. A – OFF, B & C -50% iv. OFF Entire Room

в в в Γo/From the next PSE 88 888888 Fixture A-EM -LVSM2 (A,B, C UL924 Rated Uninterrupted Power Supply (UPS) To/From the next PSE Normal Main Powe





BILL OF MATERIALS:

QTY.	Catalog #	Description
6	LCATPH24-35MLG-PM	LCAT LED troffer, PowerHUE
2	LCATPH24-35MLG-PMC	LCAT LED troffer, PowerHUE
1	LCATPH24-35MLG-PMTE	LCAT LED troffer, Emergenc with control inputs
1	OMNIDT2000	Dual technology occupanc
1	LUXSTATLS	Open loop daylight sensor
1	LVSM2PLWH	Low voltage wall station, 2
1	LVSM4PLWH	Low voltage wall station, 4
2	PoE Switch	Power Supply Equipment (I determined by application
1	Uninterrupted Power Supply	Emergency power supply (

TYPICAL CLASSROOM WIRING DIAGRAM

TYPICAL ROOM SOLUTION, EMERGENCY LIGHTING REQUIRED



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- c. Zone C = Daylighting Zone/General Space
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- 5. Emergency Lighting A-EM fixture to go into emergency mode, 100%, when normal power is lost to the Gateway due to loss of normal power.

IBB enabled, no control inputs IBB enabled, with control inputs cy Node, PowerHUBB enabled,

- cy sensor
- 2 button, pilot light
- button, pilot light
- (Provided by others), size to be
- (to be energized)

PRODUCT PORTFOLIO



POWERHUBB NODES

- Provide power distribution and data connectivity for luminaires and control devices
- RJ45 ports provided for PoE power and bidirectional Input/Output (I/O) connections
- 1% to 100% dimming range in 1% increments
- 60W peak operating power
- External sensor/relay and wall switch connections
- Emergency Node provides UL924 listed functionality

PHM1P-xxx0	PowerHubb, Master Power Node, 1 output, xxx0mA, Black
PHS1P-xxx0	PowerHubb, Satellite Power Node, 1 output, xxx0mA, Black
PHM1PC-xxx0	PowerHubb, Master Power and Control Node, 1 output, xxx0mA, Black
PHS1PC-xxx0	PowerHubb, Satellite Power and Control Node, 1 output, xxx0mA, Black
PHM4PC-XXX0	PowerHubb, Master Power and Control Node, 4 outputs, xxx0mA, Black
PHS4PC-XXX0	PowerHubb, Satellite Power and Control Node, 4 outputs, xxx0mA, Black
PHM4PC-XXX0-EM	PowerHubb, Master Emergency Power and Control Node, 4 outputs, xxx0mA, Black
PHS4PC-xxx0-EM	PowerHubb, Satellite Emergency Power and Control Node, 4 outputs, xxx0mA, Black

For a complete list of luminaires with integrated PowerHUBB options please visit www.hubbellcontrolsolutions.com



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OMNI°

- Occupancy/Vacancy Ceiling Mount Sensor
- Passive Infrared (PIR), Ultrasonic (US) and Dual Technology (DT) versions available
- Proprietary IntelliDAPT[™] Technology
- Optional relay and photocell control





- Split or fully controlled 15A or 20A options
- Downstream Branch Circuit Control Straight Blade Switched Duplex
- Receptacle 2 Pole, 3 Wire Grounding





• Offered in 1, 2, 3 and 4 button configurations

Low Voltage Wall Stations

- Momentary button action
- Optional LED indicators available
- 24 VDC low voltage device





Standard Lighting Control Software

PHSL1	PowerHUBB Lighting Contr
PHSL2	PowerHUBB Lighting Contr
PHSL3	PowerHUBB Lighting Contr



Service Package





Service (via cloud portal)

Advanced Energy* (via cloud portal)

Enterprise Management Package*

Advanced Energy Package*

PHSC	PowerHUBB Connectivity Software Pac
PHSBAA	PowerHUBB Automation Access Softwa
PHSS	PowerHUBB Service Software Package
PHSAE	PowerHUBB Advanced Energy Software
PHSEM	PowerHUBB Enterprise Management So



Occupancy/Vacancy Wall Mount Sensor



- LightOWL°
- Proprietary IntelliDAPT Technology
- Optional relay and photocell control

== LightHAWK®

Occupancy/Vacancy Wall Switch Sensor

- Passive Infrared (PIR), Ultrasonic (US) and Dual Technology (DT) versions available
- Proprietary IntelliDAPT Technology Optional relay and photocell control







LIGHTING CONTROL SOFTWARE SUITE

Standard Lighting Control Software Package

• Supports lights, wall controls On/Off/Dim, motion sensors, and daylight sensors

• Lighting system commissioning, rapid-commissioning, and diagnostic tools

Occupancy control (software-defined)

• High and low end trimming (software-defined)

• Daylight harvesting (software-defined)

• Lighting scheduling

rol Software Package, 1-100 Device Count

rol Software Package, 101-500 Device Count

rol Software Package, 501+ Device Count

ADVANCED SOFTWARE SERVICE PACKAGES

Connectivity

 API access and test suite Multi-IP network binding management

Automation Access

 Accepts BACnet[™] commands and inquiries Supports temperature sensors

 Near real-time system monitoring • System status, analytics, statistics, and dashboards

Advanced multi-recipient email alerts for critical system status

• Daily backups of configuration

• Energy analytics, statistics, dashboards, and interactive reports Energy data repository

Enterprise Management* (via cloud portal)

• Multi-site enterprise performance and service dashboards · Advanced log dashboard and analyzer · Multi-user multi-role cloud portal logins

*Service Package Required

kage

are Package

(Subscription per device)

e Package, (Requires Service Package), (Subscription per device)

oftware Package, (Requires Service Package), (Subscription per device)

Comprehensive Support Options to Meet Project Needs



Phone and Online Support

While it is our goal to provide you with intelligent, simple and scalable control solutions, customer experience level and project complexity may necessitate additional support during the design development, construction and post-occupancy stages of a project. The Hubbell Control Solutions support team is available for consultation to evaluate multiple control scenarios to identify the ideal lighting control device or system to meet energy code requirement and customer criteria. Additionally, our team of friendly and experienced professionals is enabled to assist on-site personnel, such as installation contractors, third party integrators, certified field technicians and facilities personnel, to quickly resolve issues and provide additional support.



Design Service

Our team of lighting control system design professionals are available to provide sensor layouts, networked system design services and third party integration support for new and retrofit projects. Our goal is to provide you with on-time and accurate delivery of design deliverables optimized for your specific application, compliant with local building codes and project specifications.



On-site Support

Hubbell Control Solutions offers on-site support service to ensure your project goes smoothly. While Hubbell Control Solutions products are designed with simplicity in mind, some projects may benefit from a Certified Field Technician to perform an on-site preinstallation walk-through, after-hours and remote startup assistance, occupant training, sensor tuning, preset programming and other pre/post-occupancy services.



Warranty

Hubbell Lighting provides a 5-year limited warranty for LED luminaires and Hubbell Control Solutions devices. Hubbell Premise Wiring provides the MISSION CRITICAL 25-year warranty providing assurance of the overall structured cabling system. To qualify for this warranty, start with HPW end-to-end cabling system and have the system installed by a HPW Certified Installer.

Technical Service Center: (800) 888-8006

CONNECT. ILLUMINATE. CONTROL. EMPOWER.





ALERA LIGHTING

ARCHITECTURAL AREA LIGHTING

BEACON PRODUCTS

COLUMBIA LIGHTING

COMPASS

DUAL-LITE

HUBBELL CONTROL SOLUTIONS

HUBBELL INDUSTRIAL LIGHTING

HUBBELL OUTDOOR LIGHTING

KIM LIGHTING

KURT VERSEN

LITECONTROL

PRESCOLITE

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