Daylight Harvesting Solutions

DAYLIGHT HARVESTING CONTROL SYSTEM

zone5™

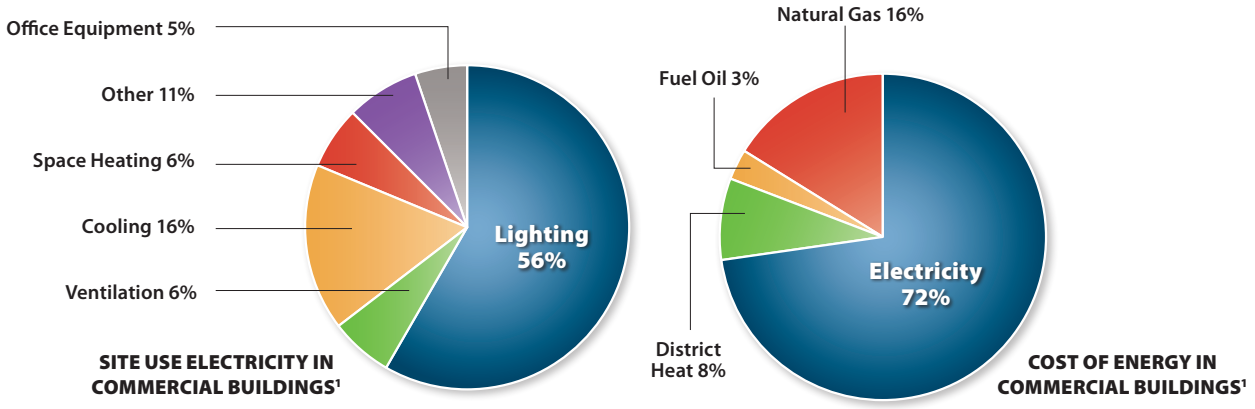
HUBBELL® Building Automation, Inc.

LIGHTING AND ENERGY

LIGHTING IS KEY TO ENERGY REDUCTION STRATEGIES

LIGHTING MATTERS

According to the US Department of Energy, lighting ranks as the most significant use of electricity in commercial buildings. Lighting uses more power on average than cooling, ventilation and refrigeration combined. Whether in existing facilities or in new construction, the easiest route to energy savings is to shed lighting loads.



Energy Information Administration, 1995 Commercial Buildings Energy Consumption Study. www.eia.doe.gov

DAYLIGHTING MAKES A DIFFERENCE

Daylighting controls have real impact on energy budgets. By harnessing the power of the sun, Zone5™ can reduce energy consumption as much as 50% compared to traditional systems. Zone5 offers 1-4 rows of daylight switching, step dimming or full range dimming combined with occupancy sensing and manual control for a full room lighting control solution. A fifth area of control is added for dedicated whiteboard lighting. Color coded plug and play installation and innovative SD Card programming take the guesswork out of start-up.

[1] The EIA graph data cited above is supplied without alteration using rounded source data which may not equal 100% for graph total.

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Application Guide

COMMERCIAL

- Private Offices
- Open Area Offices
- Lobbies
- Break Rooms
- Conference Rooms

EDUCATIONAL

- Classrooms
- Cafeterias
- Libraries
- Learning Labs
- Gymnasiums

RETAIL

- Ambient Lighting
- Perimeter Lighting
- Display Space
- Atriums
- Food Courts

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Zone5™ Controls

SIMPLE AND INTUITIVE Zone5™ CONTROLS

LIGHTING CONTROL SWITCHES

Zone5's Lighting Control Switches are customized for hard-working, multi-use rooms

VERSATILE OPTIONS

GEN/ AV SWITCH
Enables users to switch between General Lighting and Audio/Visual Lighting.

GEN/ AV DIMMING SWITCH
Raises and lowers light levels in both General and Audio/Visual Modes

WHITEBOARD SWITCH
Controls up to two lights dedicated to whiteboards or other primary presentation surface

STUDY TIME SWITCH
Overrides occupancy sensor to provide uninterrupted lighting during periods of low room activity

NEVERDARK FEATURE

When used with programmable start ballasts, NeverDark ensures that lighting will not be interrupted when switching between general and audio/visual modes. This is accomplished by providing a brief, two second overlap in lighting modes.

MASTER AND ROW CONTROL SWITCHES

The Master and Row Control Switches allow users to manually turn lighting ON and OFF, either in the entire room or in individual rows. Each switch is clearly labeled on the front and back for ease in use and installation.

ENERGY REDUCTION

The Master Off and Row Off functions can contribute to additional energy savings when users turn the lights off ahead of the occupancy sensor detecting that the room is empty.

FLEXIBILITY

All Zone5 switches can be ganged together to form custom switch stations, maximizing flexibility in multi-use rooms. Color coded plug and play jumper cables (ordered separately) make installation effortless.

OCCUPANCY SENSORS

The Zone5 ceiling and wall mounted occupancy sensors turn off lighting when rooms are unoccupied. Occupancy detection is a fundamental element of energy savings.

IntelliDAPT™

Zone5 occupancy sensors feature patented IntelliDAPT™ self-adaptive technology. No manual adjustment is required. The sensor automatically adjusts sensitivity and time delays based on actual occupancy within the classroom, for an "install and forget" operation.

ALL DIGITAL TECHNOLOGY

The Zone5 occupancy sensors feature superior ultrasonic minor-motion detection combined with excellent passive infrared long range major-motion detection.

BAS INTEGRATION

Each Zone5 wall or ceiling mounted sensor includes an isolated Form C relay for seamless integration to Building Automation or HVAC systems.

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SIMPLE AND INTUITIVE Zone5™ CONTROLS

DAYLIGHT SENSOR

The Zone5 Daylight Sensor continuously measures light coming into the room and reduces general lighting levels when sufficient daylight is present.

INDEPENDENT CONTROL

Each zone using daylight sensing will adapt independently to maintain the desired light level in the room.

LOW PROFILE

The Daylight Sensor's architecturally attractive design helps reduce ceiling clutter. The sensor can also be mounted to a skylight for accurate light level readings

CONTROL MODULE

MULTI-ZONE CONTROL

The Control Module allows up 1-4 rows of switching, step dimming or full range dimming control. A fifth zone is included for standard ON/OFF control of lighting of whiteboards or other presentation surfaces.

USER-FRIENDLY PROGRAMMING

SD CARD

The SD Card interface provides a simple way to commission, log, verify and update the Zone5 system. Control parameters can be copied to the SD card from one ZCM to another, email from specifier or field technician or Zone5 PC-based template builder.

LCD MENU

The two line LCD interface is intuitive, easy to use and interactive. The interface allows users to quickly change system settings or monitor system diagnostics in real time.

EASY TO INSTALL

CAT5, plenum rated low voltage plug and play cables (ordered separately) connect to a color coded series of ports. With the exception of dimming functions, connections can be made to any port.

DEMAND RESPONSE

Each Control Module includes a dry contact for input of a demand response for load shedding.

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Daylighting

Let the Sun be Your Light Source

Daylight Harvesting takes advantage of our largest energy source – the sun. The daylight sensor placed in a room continuously measures natural light levels. When sufficient sunlight is present, electric lighting is reduced or eliminated. The room remains well lit but energy use is dramatically reduced.

Daylighting is increasingly recommended as a best practice in lighting design by the US Green Building Council LEED, CHPS Collaborative for High Performance Schools, California Energy Commission, Department of Energy as well as lighting designers, school districts and municipalities nationwide.

Z5-DS – A ceiling or skylight mounted Daylight Sensor senses light coming into the classroom and reduces the Zone5™ GEN (general) lighting levels when sufficient daylight is present.

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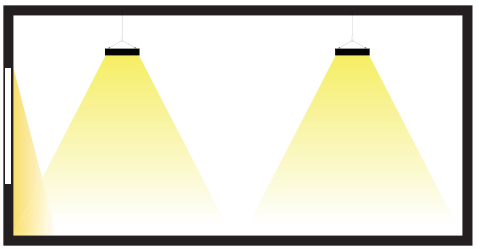
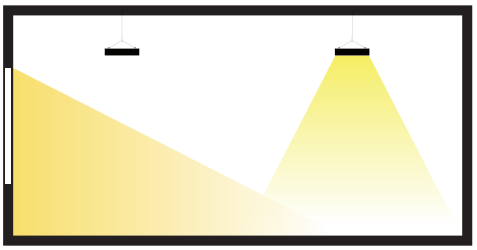
SMART STRATEGIES

DAYLIGHT SWITCHING

Daylight Switching is recommended for spaces where non-stationary tasks will be performed, such as atriums and lobbies. When sufficient natural light is available, the lighting zone is switched off entirely. The lighting is automatically switched on when sunlight is no longer available in sufficient amounts to meet minimum light levels required.



Bright Bright



Off Bright

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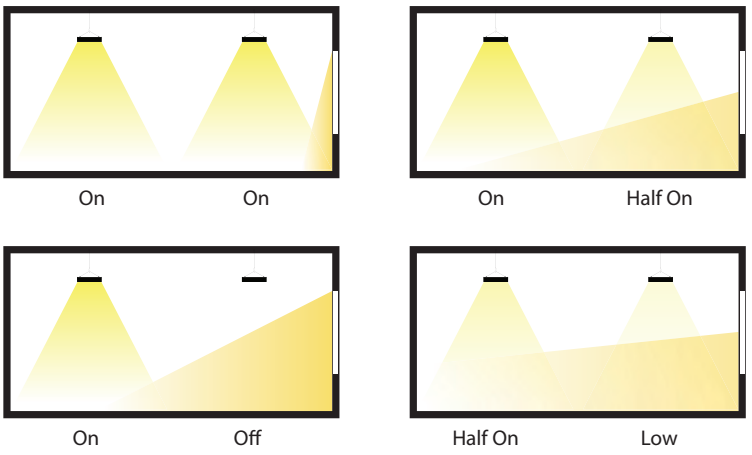
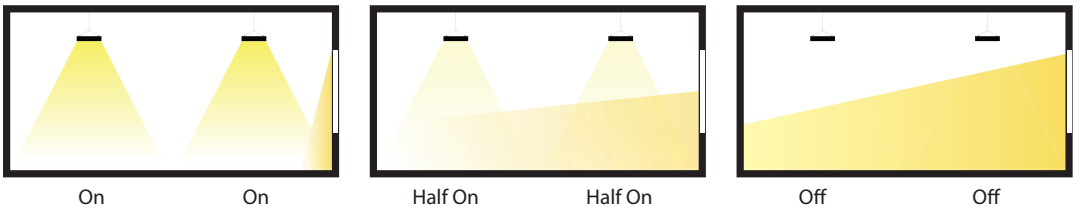
FULL RANGE DIMMING

Full range dimming is ideal for environments where variations in lighting should be subtle, such as classrooms or offices. Daylight dimming can be applied to up to four rows of lighting when 0-10v dimming ballasts are installed in the lighting luminaires. Zone5™ automatically adjusts light levels up or down depending on how much available sunlight is penetrating the room. Each zone is independently adjusted so that lighting is maintained and energy savings are maximized.



STEPPED DIMMING

Stepped dimming offers many of the advantages of full range dimming without the expense of dimming ballasts. Lamps are either fully turned off or partially turned off depending on natural light levels.



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Customized Controls

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Zone5™ Switches

The Zone5's Switches are tailored to get the most out of room lighting. Switches can be ganged together to form user-friendly custom switch stations.

Z5-SW-GAV, Z5-SW-AVD, Z5-SW-WB, Z5-SW-ST

Zone5™ Occupancy Sensors

Occupancy sensors are a key contributor to energy savings. Zone5's occupancy sensors combine all digital passive infrared and ultrasonic technology to prevent disruptive false offs. Patented IntelliDAPT technology automatically adjusts to the environment for maintenance free operation.

Z5-OS-OMDT2000RP

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Lighting Modes

GENERAL (GEN) LIGHTING MODE

General (GEN) lighting is the primary mode of lighting for each room. General lighting mode produces uniform light across the room to produce a high quality learning environments in schools, productive work areas and cheerful retail sales floors

AUDIO/VISUAL (A/V) LIGHTING MODE

The Audio/Visual (A/V) lighting mode significantly lowers light levels to focus attention at the front of the room. Adequate light is still provided for note-taking, making the mode ideal for classroom presentations or office training.

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WHITEBOARD LIGHTING MODE

The Whiteboard lighting mode is used to highlight a whiteboard, blackboard or other primary presentation surface. This mode can also be dedicated to ON/OFF control of retail display windows.

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INSTALLATION

Master On/Off Control

Row On/Off Control

Lighting Control

Shown with General, A/V, and Study Time

Lighting Control

Shown with separate Whiteboard Switch

Optional Dimming Functions available up to 4 rows. Plug into orange port number which corresponds to dimming lighting row. Dimming functions require 0-10V dimming ballasts. PLK shown below. Light fixture styles may vary.

Daylight Dimming

- One connection required for each participating row
- Requires 0-10V dimming ballast
- 1-4 zones Daylight Harvesting zones available

Lighting Control Dimming

- One connection required for each row with General or A/V Dimming
- Requires 0-10V dimming ballast

Combined Daylight Dimming and Lighting Control Dimming

- Any row which utilizes both Daylight Dimming and GEN or A/V Dimming
- One connection required for each participating row
- Requires 0-10V dimming ballast

LOW VOLTAGE CONNECTIONS

Occupancy Sensor

Plug into any White port

Daylight Sensor

Plug into any Green port

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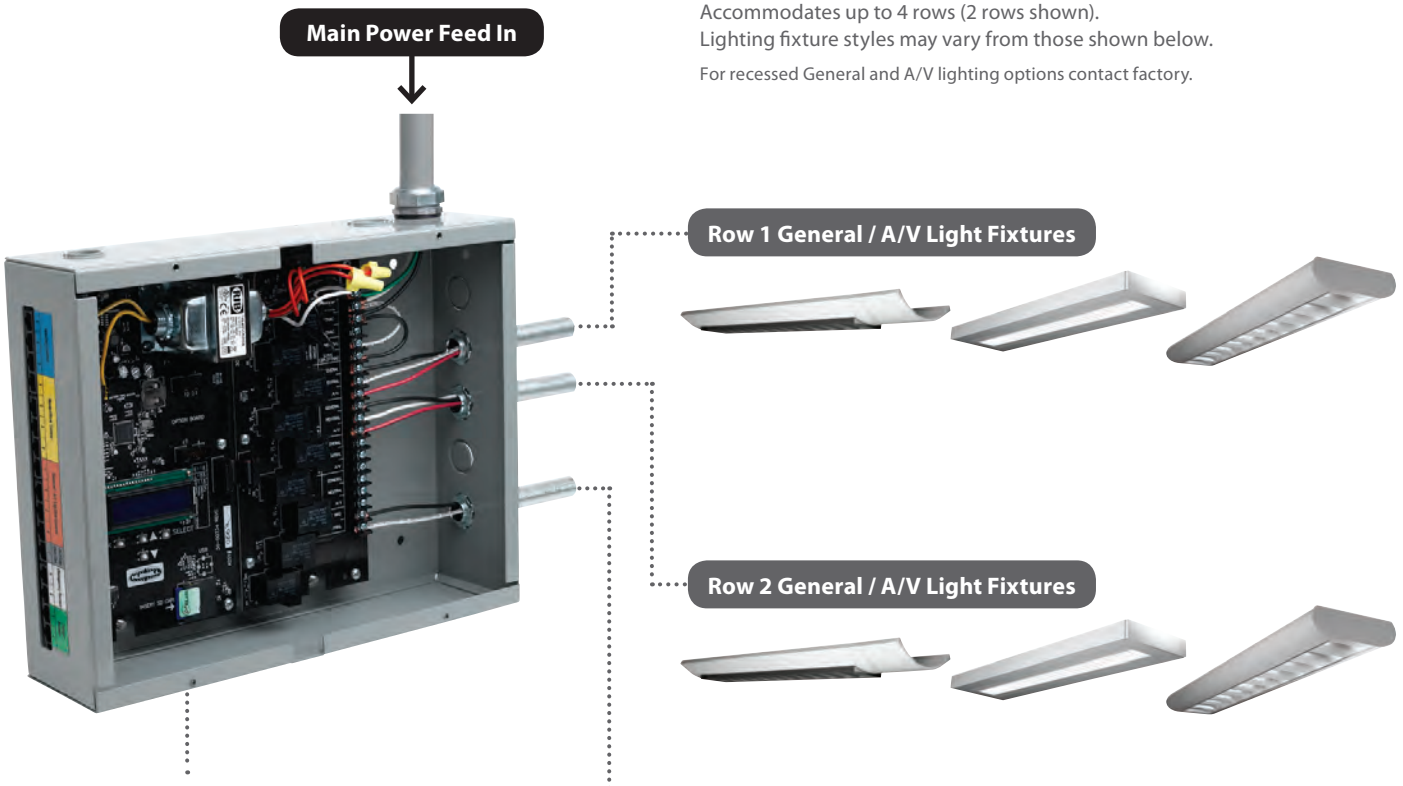
LINE VOLTAGE OUTPUT CONNECTIONS

Accommodates up to 4 rows (2 rows shown).
Lighting fixture styles may vary from those shown below.

For recessed General and A/V lighting options contact factory.



Zone5 SD Card ships installed.

ZONE5™ CONTROL MODULE (ZCM)

Microlyne Aysmmetric (MA) Suspended

Enhance (EN) Recessed Option

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Quick Start Commissioning

READY. SET. GO.

Zone5™ makes start-up painless. Unique features take the guesswork out of commissioning, regardless of the building's layout.

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1-4 Rows Daylighting

	EASY	EASIER	EASIEST
	ZCM (Classroom Control Module)	**Zone5 SD CARD**	**Zone5 TEMPLATE BUILDER**
WHEN CLASSROOMS ARE:	Program each room using the LCD menu in the ZCM	Program one room. Copy to the SD Card. Upload to ZCM in next room.	Download the free Zone5 template Builder software from the HBA website. Use the tool to visualize and build classroom templates. Download templates to the Zone5 SD Card. Upload to appropriate ZCM.
Identical	√	√	√
Similar	√	Make minor adjustments as necessary	√
Unique	√	Make adjustments as necessary	√
Description	Delivered with pre-installed software based on common room settings. Select setting by simply scrolling through the interactive LCD menu and entering the values that are different from the default settings.	Set up a typical room and copy the control settings to the Zone5 SD card. Take the SD Card to the next ZCM. Copy the settings onto that devise. Repeat for each room, making minor adjustments as necessary.	Taking the guesswork out of custom templates, this tool provides a basic, graphic interface for correlating Zone5 control elements to the ZCM menu. All system setup parameters found in the ZCM menu are duplicated in an easy to use, drop down menu.

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System Features

REAL TIME LOGGING

Zone5™ logs all user and system actions for easy verification. System logs are time-stamped and open as plain text files.

DAYLIGHT SIMULATOR

The daylight simulator eliminates the need for multiple measurements by quickly showing how daylight harvesting settings affect lighting operation throughout the day.

SYSTEM TEST AND STATUS

The system test feature allows testing of general and audio/visual lighting dimming and ON/ OFF modes, whiteboard lighting, demand response and occupancy sensors at the push of a button. Real-time status is given for all connected devices.

Ordering Information

CONTROL MODULE

MODEL	
Z5-CM	Zone5 Control Module

DAYLIGHT SENSOR

MODEL	
Z5-DS	Zone5 Daylight Sensor

OCCUPANCY SENSORS

MODEL	
Z5-OS-OM-DT2000RP	Zone5 Occupancy Sensor, Ceiling Mount, PIR and Ultrasonic, Form C Relay, 2000 Sq. Ft.
Z5-OS-LOD-TRP	Zone5 Occupancy Sensor, Wall Mount, PIR and Ultrasonic, Form C Relay, 1600 Sq. Ft.

SWITCHES

MODEL	
Z5-SW-GAV	Zone5 General-A/V Mode Switch
Z5-SW-AVD	Zone5 General-A/V Dimming Switch
Z5-SW-ST	Zone5 Study Time Switch
Z5-SW-WB	Zone5 Whiteboard Switch
Z5-SW-MC	Zone5 Master On/Off Switch
Z5-SW-RCR1	Zone5 Row 1 Control Switch
Z5-SW-RCR2	Zone5 Row 2 Control Switch
Z5-SW-RCR3	Zone5 Row 3 Control Switch
Z5-SW-RCR4	Zone5 Row 4 Control Switch

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The First Step to Savings

This brochure is merely a window into the possibilities that are available in lighting controls. Let our experts help you find the solutions that are particular to your application, so you can start saving money. Hubbell Building Automation offers the following services to help you get started:

- No obligation walk-thru of your building or campus
- Complimentary layout assistance with Performance Guarantee
- Payback analysis report
- Samples available for test installations
- Training for maintenance staff
- Toll free LIFETIME Technical Support
- Five year warranty on Occupancy Sensors

Lighting Control Panels

Networked Systems and Commercial Control

LX Networked Lighting Control – Multiple panels systems with intelligent devices that provide broad programming capabilities, interface to users via LAN/Internet or touch screen tablet and communications to Building Automation Systems.
CX Commercial Control – Master and secondary panels up to 24 relays per panel with simple easy to use programming and connections to a wide variety of low voltage devices. CX provides a cost effective replacement for conventional time clocks and contactors.

Occupancy Sensors

HBA occupancy sensors meet a wide range of applications. Ceiling and wall-mounted sensors are available with the most advanced sensing technologies on the market today. HBA offers passive infrared and ultrasonic sensors as well as a dual technology version. HBA occupancy sensors provide simple installation, easy setup, and reliable maintenance free operation.

Daylight Harvesting

HBA's suite of Daylight Harvesting controls provides the ideal solution to save energy by taking advantage of natural daylight. Daylight Harvesting systems consist of two basic types, dimmed and switched. Dimming control varies the artificial light output over a wide range to maintain the desired light level. Switching controls turn individual lamps off or on as required.

High Bay Lighting Controls

HBA delivers energy saving controls for most high bay lighting applications using HID and high-output fluorescent fixtures. The LightBAT uses passive infrared sensing for bi-level HID switching for up to 50 feet mounting heights. The HBA WASP offered in a wide variety of versions controls T5HO and T8 fixtures up to 45 feet high.

Wireless Lighting Controls

The use of wireless controls is one of the most exciting frontiers in lighting control, offering significant benefits over traditional wired solutions for both existing buildings and new construction. In a typical wired lighting control system, control signals are sent using low-voltage communications wires. In a wireless system, devices communicate through the air utilizing radio frequency (RF) waves – eliminating the need for expensive dedicated control communications wiring. Hubbell Building Automation's wiHUBB® Wireless Lighting Control System provides wireless controls for both indoor and outdoor lighting applications.

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HUBBELL – A NAME YOU CAN TRUST

Founded in 1888 by Harvey Hubbell II, Hubbell Inc. has been a long time contributor to new product design and manufacturing innovation. In 1896, Hubbell invented the world's first lighting control device, the pull chain switch. Over 120 years later, Hubbell Building Automation, headquartered in Austin, Texas continues this tradition of innovation with the development of a vast array of innovative energy saving lighting controls.

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