



Classroom Control Module (CCM) shown
4"W x 12"H x 15"D

FEATURES

- Energy Management for Classrooms
- Lighting and controls included
- Classroom-in-a-box approach
- Single source using Hubbell components
- LEED for Schools 2009 compatible
- Two light levels standard
- Whiteboard lighting optional
- 1-4 Zones of daylight dimming (DD) or switching (DS) using windows or skylights as sunlight source
- Includes occupancy sensor, teacher controls, entry and exit controls, switch plates, low voltage connections and classroom control module as standard
- Daylight Harvesting (Daylighting) option: 1-4 self-adapting zones
- CHPS programs compatible (requirements vary)
- UL and cUL listed in 120V or 277V
- Systems available for a 30 x 32 classroom at less than 1 Watt per square foot
- 5-Year warranty for electronic components when purchased as a complete package.

PROJECT INFORMATION

Project Name	Type
Catalog No.	Date

OVERVIEW

The A+CLASS™ lighting and controls energy management system has been designed to provide high quality lighting with specialized controls tailored to the specific and demanding needs of the teaching environment. The system includes intelligent controls, SD-card interface, low voltage controls that require no line voltage, high performance lighting with at least two modes of lighting, NeverDark feature, color coding of low voltage components and connections, labeled control buttons, 1-4 zones of self adjusting daylighting for switching or dimming applications, ability to daylight using windows or skylights, demand response connectivity, ability to set parameters for all functions using an LCD interface or electronic media via SD card.

CLASSROOM CONTROL MODULE

- Classroom Control Module (CCM)
- SD Card CCM Interface
- High Performance Lighting
- Whiteboard Lighting
- Occupancy Sensor
- Daylight Sensor
- Low Voltage Teacher Lighting Control (TLC) Station
- Low Voltage Master or Row Switches
- Labeled Control Buttons
- Teacher Controlled Dimming
- Daylight Dimming
- Daylight Switching
- CAT5 Color Coded Plug and Play Cables
- Color Coded Components

CLASSROOM CONTROL MODULE

Classroom control is accomplished through an intelligent Classroom Control Module (CCM) which accurately analyzes and interprets signals from low

voltage switches and peripheral devices to control classroom lighting. The CCM employs an LCD user interface screen to accept input and communicate settings, status, diagnostics and testing. The CCM is UL listed and includes both line voltage and low voltage components separated by a physical barrier. Line voltage input of 120V or 277V can be wired to the CCM for input; output to classroom lighting is provided via clearly labeled relays for enhanced system commissioning and maintenance. The CCM uses an A+CLASS™ SD-card interface, a battery, an element of non-volatile memory, a dry contact for demand response interface, and an option board for future enhancements.

Low voltage CCM connections are made using CAT5, plenum rated, low voltage plug-and-play color coded cables which connect to a color coded series of ports. With the exception of the dimming functions (orange), connections can be made to any port, or the specifier may elect to lay out specific ports in a specific order for the electrical contractor to use at installation.

SD CARD INTERFACE TO CCM

An SD card is used to provide a simple way to commission, log, verify and update the A+CLASS system. Commissioning can be easily performed using control parameters copied to SD-card from:

- One CCM to another
- A+CLASS™ website template page using pre-built control parameters
- Email from a specifier or certified commissioning agent
- A+CLASS™ PC-based template builder

HIGH PERFORMANCE CLASSROOM LIGHTING

Preferred lighting is suspended lighting with both indirect and direct components that complies to

continued on next page...

A+CLASS™ SYSTEM ORDERING INFORMATION

EXAMPLE: APCS-2-277-TLC1-02-DDZ2

ROOM NO.	NO. OF ROWS	NO. OF TEACHER STATIONS	MANUAL CONTROL AT ENTRY	SWITCH BUTTON LABELS	DAYLIGHT ZONES
- Type Mark (Max 10 characters. Will appear on separate line of order and label.)	2 Two 3 Three 4 Four	1 One (Std.) 2 Two	Blank Single master on/off control for all rows MC2 Two sets of master on/off switches that control all rows (for dual entry/exit points) ² RC Independent row control on/off switches for all rows (1 switch for each row, ganged) RC2 Two sets of independent on/off switch stations for all rows ² MRC One master on/off plus one row control on/off switch for each row (ganged together) MRC2 Two sets of master on/off plus one row control on/off switch for each row (ganged together) NA None supplied by Alera	Blank Button labeling supplied as standard O2 Two Occupancy Sensors ²	Blank None Z1 Row nearest the window ² Z2 2 Rows nearest the window ² Z3 3 Rows nearest the window ² Z4 4 Rows nearest the window ²
	VOLTAGE 120 120V 277 277V	WHITEBOARD Blank No Whiteboard Lighting Control WT Whiteboard Lighting Control at Teacher Station ⁴ WS Independent whiteboard lighting switch (not in teacher station) ³		OCCUPANCY SENSOR Blank One Occupancy Sensor	DAYLIGHT SENSOR AND CONTROL Blank None DD Daylight Dimming: daylight sensor for dimming general mode ^{1,2} DS Daylight Switching: Daylight sensor for switching general mode off when daylight is sufficient ²
SYSTEM APCS A+CLASS	TEACHER STATION TLC General, A/V, Study Time AVD A/V Teacher Dimming added to TLC ^{1,2,3} GMD General Teacher Dimming added to TLC ^{1,2,3} AGD General and A/V Teacher Dimming added to TLC ^{1,2,3}				

¹ Requires 0-10V dimming ballast in lighting fixture.

² Includes additional plug & play cable.

³ Adds Raise/Lower dimming switch to TLC. 3-gang switch station consists of General/A/V switch, Raise/Lower switch, Study Time switch

⁴ WT when used with 2 Teacher Stations will control one whiteboard from 2 locations.

best practice standard as provided by Alera Lighting. The standard lighting system employs three lamps in cross section where the two outdoor lamps provide GEN (general) lighting and the center lamp provides A/V (audio-visual) lighting. The standard ballasting is program rapid start non-dimming; these ballasts provide the best solution for use with occupancy detection for auto on/off (standard) and/or optional daylight switching (DS). For classrooms where dimming features are specified: daylight dimming (DD), teacher controlled A/V dimming (AVD), teacher controlled GEN dimming (GMD) or both teacher controlled A/V and GEN dimming (AGD), 0-10V ballasts are required. Teacher controlled dimming options can be combined with DD options to optimize on the flexibility afforded by 0-10V dimming.

WHITEBOARD LIGHTING

High performance asymmetric distribution whiteboard lighting is recommended as a best practice to focus attention to the primary teaching surface. Optional whiteboard lighting is available as suspended or recessed asymmetric product provided as part of the A+CLASS lighting and controls package.

Whiteboard lighting control is typically placed in the Teacher Lighting Control (TLC) station as option WT. However, where applicable, whiteboard lighting control can be supplied as a single gang switch station placed separately from the TLC. When these options are ordered as part of the A+CLASS package, all components, including switch station, labeled button function, switch plate and low voltage CAT5 cable connectivity is provided.

For classrooms with one, two or three rows of GEN/AV lighting, A+CLASS can provide independent on/off function for up to two whiteboard lighting rows. Classrooms with four rows of GEN/AV may elect a single whiteboard circuit.

NeverDark feature is provided standard at a 2 second overlap and can be varied through selection in the CCM user interface menu to accommodate new or emergent technologies as they arise.

SUPPLEMENTAL LIGHTING

For classrooms with low ceiling heights, attractive recessed lighting can be incorporated into the A+CLASS™ system as an alternate to high performance best practice lighting. 2x4 and 2x2 recessed lay-in products with lenses are the most common (example: EPC by HLI Columbia). Recessed supplemental lighting can be used for GEN and A/V or whiteboard lighting if desired.

RECESSED DOWNLIGHT OPTION

For areas with alcoves and entryways or unusual classroom architecture, recessed downlights by HLI Prescolite can also be included in the A+CLASS system. Downlights will energize in GEN or Whiteboard modes only and will not participate in A/V lighting.

NEVERDARK FEATURE

The A+CLASS™ lighting and control energy management system provides, as standard, an assurance that when switching between GEN (general) and A/V (audio-visual) modes, lighting will not be interrupted. In a 3-lamp cross section system this is accomplished by providing a brief interval where the modes overlap. This provides a sense of safety and avoids disrupting classroom activities. Without this exclusive feature, the classroom lighting would be turned off for approximately two seconds when transitioning between GEN and A/V modes. NeverDark feature is provided standard at a 2 second overlap and can be varied through selection in the CCM user interface menu to accommodate new or emergent technologies as they arise.

CLASSROOM LIGHTING ROW CONTROLS

A+CLASS will accommodate up to four rows of GEN/AV lighting with one whiteboard, or up to three rows of GEN/AV lighting with two whiteboards. For scenarios outside these parameters, contact factory.

DEMAND RESPONSE

A+CLASS includes, as standard, a dry contact for input of a demand response signal for load shedding. A+CLASS demand response parameters are easily established through the CCM LCD user interface or SD-card interface. See CCM instructions for additional details.

A+CLASS CONTROLS TEACHER LIGHTING CONTROL STATION (TLC)

Teacher Lighting Control (TLC) Station: Recommended for placement within 6" of the primary teaching location. TLC includes, as standard, the ability to switch between GEN and A/V modes and a Study Time switch with LED indicator. TLC can also include teacher controlled dimming and/or whiteboard on/off switch. All TLC controls include labeled buttons as standard. On the reverse of each TLC control a color coded label is provided for ease of installation to identify matching components. The TLC operates entirely low voltage, wires through plenum rated, low voltage, color coded CAT5 cable (50' provided), and requires no line voltage connection to the switches or TLC station.

STUDY TIME

Study Time control with LED indicator is included, as standard, in the TLC. Study Time control can be utilized, at the teacher's discretion, during periods of low activity such as testing. The Study Time switch is set for 60 minutes as standard. The standard setting can be modified by the installer or commissioning party through the CCM if a different, more age appropriate setting is desired (example: kindergarten: 30 minutes). The Study Time switch LED indicator will blink during the last two minutes of the cycle. At any time during the cycle the Study Time switch can be pressed once to return the "clock" to the full cycle (60 minutes standard) or pressed and held until the LED light turns off to end the cycle ahead of the fully elapsed set time. Study time switch wires through low voltage, color coded plug-and-play jump cable (provided), and requires no line voltage to the switch or TLC station.

MASTER ON/OFF

Master On/Off control (MC) is provided standard for manual on or off of GEN (general) lighting prior to occupancy detection. The Master On/Off switch is placed at the primary entry point. Button labeling is provided standard. For classrooms with multiple entry points, additional Master On/Off controls can be ordered as optional. The MC operates entirely low voltage, wires through plenum rated, low voltage, color coded CAT5 cable (50' provided), and requires no line voltage connection.

ROW ON/OFF

For classrooms desiring on/off control for each individual row of GEN (general) lighting, ROW buttons (up to four rows) provide a clearly labeled supplement to Master on/off control. Each button is labeled ROW 1, ROW 2, ROW 3 or ROW 4. Row switches also include, on the back of the switch, a color coded product label for ease of installation. Row On/Off switches operate entirely low voltage, wires through plenum rated, low voltage, color coded CAT5 cable (50' provided), or appropriate jump (provided) and require no line voltage connections. Switch plate(s) are included. The standard configuration places all ROW On/Off controls together as a gang.

TEACHER CONTROLLED DIMMING

Optional teacher controlled dimming can be specified to enhance teaching in A/V or GEN modes and may be used in conjunction with Daylight Dimming (DD) or Daylight Switching (DS). Teacher controlled dimming functions are added to the TLC. Options include:

- AVD: A/V teacher controlled dimming
- GMD: GEN teacher controlled dimming
- AGD: Both A/V and GEN teacher controlled dimming

Teacher dimming controls include a color coded label for ease of installation. When teacher controlled dimming options are specified 0-10V ballasts are required for each participating mode. All required CAT5 low voltage cables are provided for installation. Teacher controlled dimming is entirely low voltage and requires no line voltage connection for operation.

DAYLIGHT DIMMING OR SWITCHING

A+CLASS features an option for Daylighting, a recommended or required practice for educational facilities. Optional Daylighting dimming or switching reduces electric GEN mode lighting when sufficient daylight is provided to the classroom. Daylighting uses an open loop ceiling mounted daylight sensor to return a signal to the CCM which instructs each participating row

to self-adjust to maintain the correct light level. Up to four rows or zones can participate; each participating row will self-adjust to maximize energy savings.

Daylight dimming requires 0-10V ballasts. Daylight switching requires program rapid start ballasts (standard in the A+CLASS™ lighting provided). The Daylight Sensor is provided, standard, with plug and play connectivity to 50' of color coded, low voltage, plenum rated CAT5 cable for return to the CCM. Daylight dimming must specify the number of Zones (rows) participating so that low voltage, color coded cable (50' per row) can be provided for connection to 0-10V dimming at light fixtures. For additional daylight sensor details, see separate specification and technical installation data sheets.

DAYLIGHT DIMMING SMARTSENSE

A+CLASS Daylight Dimming includes SmartSense. SmartSense combines the best features of both Dimming and Switching. SmartSense can increase energy savings using an exclusive, intelligent dimming and switching strategy.

SmartSense uses Dimming as the primary daylight strategy. It adds a feature which prevents GEN lamps from running continuously at the low end of their range where lamp color or effectiveness may be compromised. SmartSense also prevents the abrupt, disruptive lighting condition associated with Switching (where lights abruptly turn on or off) by only turning GEN lamps off when they have remained below a designated level of dimming for a specific period of time. GEN lamps are energized again when SmartSense determines sunlight has been reduced and electric light is needed. This eases the lamps into and out of the dimming cycle at the low end of the range where switching is not disruptive.

OCCUPANCY DETECTION

A+CLASS provides, as standard, one Occupancy Sensor, Dual-Technology PIR/US, with IntelliDapt technology. One provided per 30'x30' or 30'x32' classroom. For classrooms with ceiling heights above 12', contact factory. For larger classrooms or classrooms with architectural features that may precipitate a second sensor, an option for two occupancy sensors is available. If more than two sensors are required, contact factory. Each occupancy sensor operates entirely off of low voltage, requiring no line voltage connections. Occupancy sensors are provided, standard, with snap-fit connection to color coded, plug-and-play CAT5, plenum rated cable (50'). See separate A+CLASS™ occupancy sensor specification and technical installation data sheets.

BUTTONS, SWITCH PLATES AND CABLES

A+CLASS provides labeled control buttons standard to provide clear, intuitive control operation instruction to the teacher, substitute, administrator, facility manager or guest who needs to operate the classroom lighting controls.

Switch plates for single or multi-gang switch stations, including but not limited to teacher station and on/off control, are provided standard and furnished in accordance with the ordering guide specification. Individual or customized control station configurations are available; contact factory.

All low voltage cables are required for installation of A+CLASS. 50' of plenum rated, color coded, low voltage CAT5 cable is provided for each peripheral as indicated through the ordering guide nomenclature. CAT5 jump cables are provided for multi-gang control (switch) stations. Snap-fit connections are provided for daylight sensor and occupancy sensor to appropriate color coded CAT5 A+CLASS™ cable. Cables are coded according to their function and match to color coded ports on the CCM.

CERTIFICATIONS AND ELECTRICAL

The A+CLASS system is UL and cUL listed. Available in 120 or 277V. Fluorescent T8 or T5 electronic program start ballasts supplied standard for non-dimming systems using GEN/AV and/or Whiteboard lighting. Dimming systems require dimming ballasts. All ballasts are selected by the factory; if a specific vendor or ballast is desired, contact factory.