

Lighting control solution for classroom and conference room applications

CS/av Description

Litecontrol CS/av, for rooms with presentation requirements, provides an energy-saving control solution while simplifying contractor installation. CS/av projects can save installation time over traditional controls, by including all the major components required to wire the lighting and controls in the room. The modular components minimize the number of required field connections. CS/av can be used with most Litecontrol fixtures and is compatible with the CS/dlh daylight harvesting solution. *The CS/av control solution is patent pending.*

1. CS/av Ordering

CS/av -	3 -	DW -	120 -	ESWH
Series	Lamps in Cross-section	Wall Construction	Voltage*	Options
CS/av	3 2	DW MA	120 277	-- LWH ESWH see below

Lamps in Cross-section

- 3 Three-lamp systems will have the center lamp separately switched from the outer lamps
- 2 Two-lamp systems will switch between both lamps and one lamp

Wall Construction

DW Drywall. The control stations (**MCS** and **ESWH**) are provided with a junction box and plaster ring that are compatible with new drywall construction. NOT for retrofit use.
MA Masonry. Control stations (**MCS** and **ESWH**) are provided with a junction box that is compatible with masonry construction. This type should also be specified for retrofit projects.

*Consult factory for alternative voltages.

2. Fixture Ordering

To ensure a complete system:

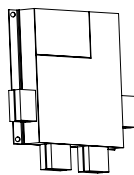
- ADD CS/av/PR** instead of tandem wiring and circuiting in the fixture catalog number for fixtures that are perpendicular to the presentation area, to control the front 8' of luminaires in each row
- ADD CS/av/PL** instead of tandem wiring and circuiting in the fixture catalog number for fixtures that are parallel to the presentation area, to control the entire front row of fixtures
- MATCH** the LAMPS IN CROSS-SECTION either 2-lamps or 3-lamps
- Luminaire rows with CS/av/PR will require two feeds which will be supplied as a dual-feed at one end, where available, to maximize installation savings.

Ordering Example

To specify a classroom with CS/av and the Radi-X (P-ID-8000) fixture:

1. Select the CS/av solution code: **CS/av-3-DW-120** for a 3 "lamps in cross-section" fixture provided with switch boxes for new Drywall construction, 120 volts.
2. Select the fixture catalog number, adding in the CS/av options: **P-ID-8068T8-BLR-CWM-ELB10-CS/av/PR-120** is a typical catalog number for a 6 lamp (3 lamps in cross-section), 8-foot long T8 fixture with Litecycle Resin Baffle, matte white finish, electronic ballast, pre-wired for use with CS/av, that is prepared for installation perpendicular to the presentation area, 120 Volts.

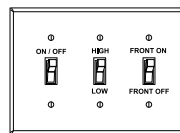
CS/av Components



Control Splice Box (CSB)

INCLUDED

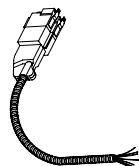
Pre-wired splice box for terminating branch circuit wiring with plug-in connections for luminaires and controls. Feed-through rated. Mount in an accessible location.



Main Control Station (MCS)

INCLUDED

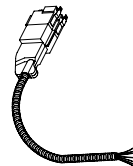
Three gang junction box with pre-installed, pre-wired switches and 10' MC cable with stripped conductors for connection to CWH. Provided with an engraved switch plate for On/Off, High/Low lighting level, and Front On/Front Off for AV presentations.



Luminaire Wiring Harness (LWH)

(2) INCLUDED

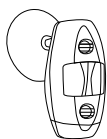
LWH OPTION includes (1) additional for Third Row
30' MC cable with modular plug at one end and labeled, stripped conductors at the other for connecting the CSB with luminaire rows



Control Wiring Harness (CWH)

INCLUDED

15' MC cable with PURPLE modular plug at one end and labeled, stripped conductors at the other for connecting the CSB with the MCS



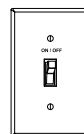
Dual Tech Occupancy Sensor (OSK)

(2) INCLUDED SENSORS

Sensor Wiring Cable (SWC)

(100') INCLUDED CABLE

Dual-Tech (Ultrasonic/PIR) sensor with knuckle mount for wall or ceiling installation. Two provided per room to provide coverage often required in classroom situations. 100', 22/6 CMP-rated cable provided for connection (for use only where permissible).



Entrance Control Station with Wiring Harness (ESWH)

OPTIONAL

Optional separate ON/OFF switch for rooms with a second entrance or where the MCS is located away from the entrance. Switch mounted in a 1-Gang device box with engraved switch plate. 40' MC cable attached with labeled, stripped conductors at the other end for connection to the CSB.

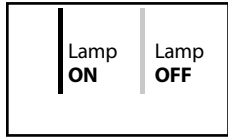
CS/av System

Litecontrol CS/av, combined with Litecontrol luminaires, delivers an energy efficient, occupant-focused lighting solution to meet aesthetic and functional lighting goals. The essence of the solution is to make designs easier and faster to specify, easier and faster to install, and optimized for occupant flexibility.

With an objective of satisfying LEED for Schools and CHPS requirements, the CS/av solution has been designed to be robust enough to satisfy many conditions with a simple switching system. Additional flexibility is provided with several options that will accommodate the majority of designs.

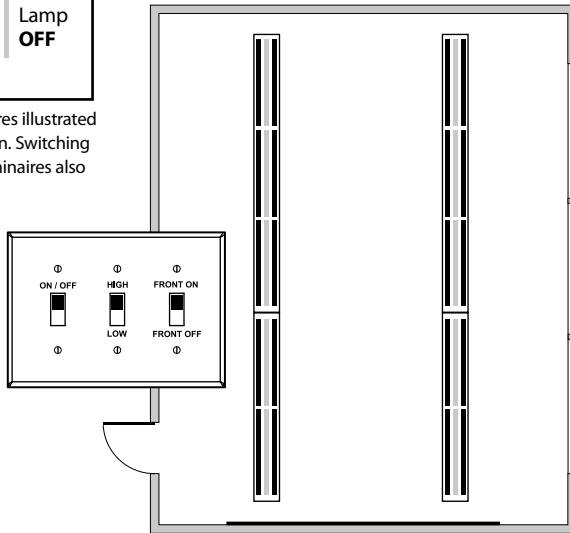
The CS/av solution delivers four lighting scenes, plus all-off, with three clearly marked switches. The examples below are shown with luminaires perpendicular (PR) to the presentation area in which the front 8' of the luminaires rows are controlled with the Front ON/OFF switch. For luminaires installed parallel (PL) to the presentation area the Front ON/OFF switch controls the entire front row.

Key:



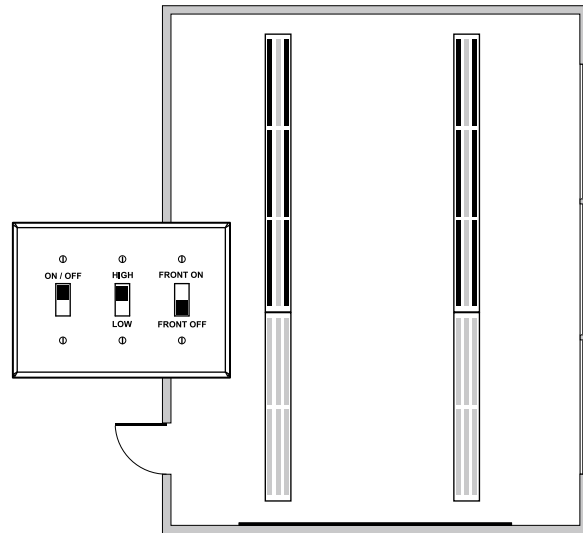
Three-lamp fixtures illustrated for demonstration. Switching for two-lamp luminaires also available.

All ON - HIGH Lighting Level



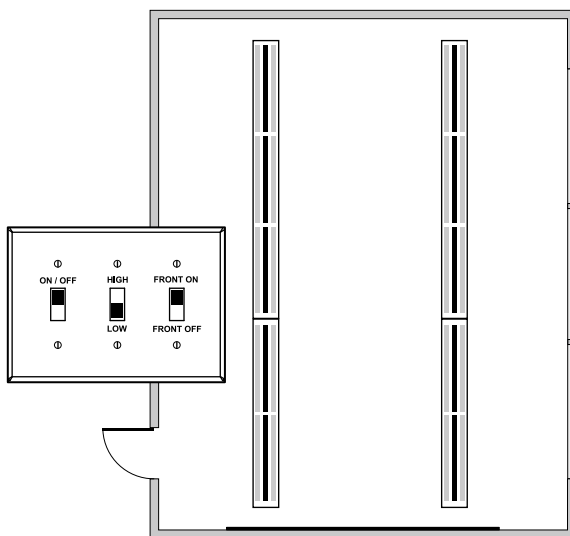
All ON - HIGH Lighting Level: For normal activities, all luminaires have two lamps on, providing the targeted normal illumination.

Front OFF - HIGH Lighting Level



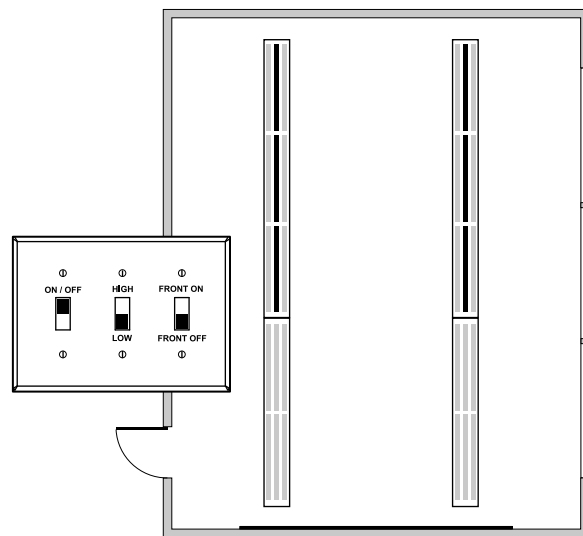
Front OFF - HIGH Lighting Level: For an AV presentation where extra light is desired for the audience (detailed note taking, physical object review, etc.) the front 8' of the luminaires are switched off to reduce light on the projection area, but the remaining luminaires have two lamps on, providing a higher level of light.

All ON - LOW Lighting Level



All ON - LOW Lighting Level: For normal activities where less light is required, or when sufficient daylight is present, all luminaires have one lamp on, providing a uniform, lower light level.

Front OFF - LOW Lighting Level (AV mode)



Front OFF - LOW Lighting Level: For an AV presentation, the front 8' of the luminaires are switched off, while the remaining luminaires have one lamp on, providing adequate light for note-taking while minimizing light on the projection area.

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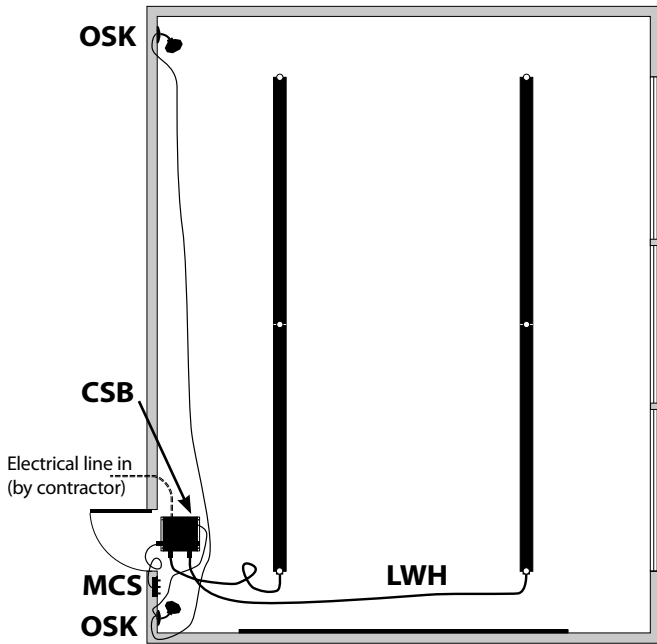
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CS/av Room Configuration Examples

Perpendicular Row Configuration (PR)

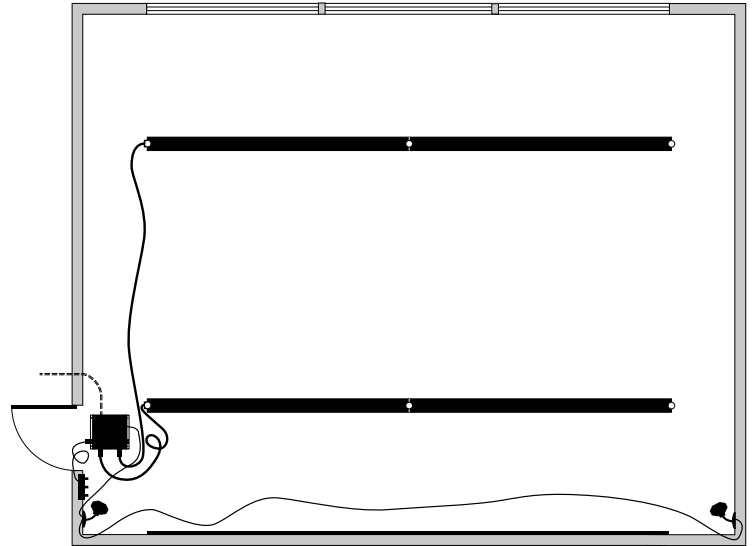
- 24' x 30' Room
- 2 Rows of Pendant ID Luminaires Perpendicular to the presentation area
- No Options Required



1. Order **CS/av-3-DW-120**
2. Specify **CS/av/PR** in luminaire catalog number

Parallel Row Configuration (PL)

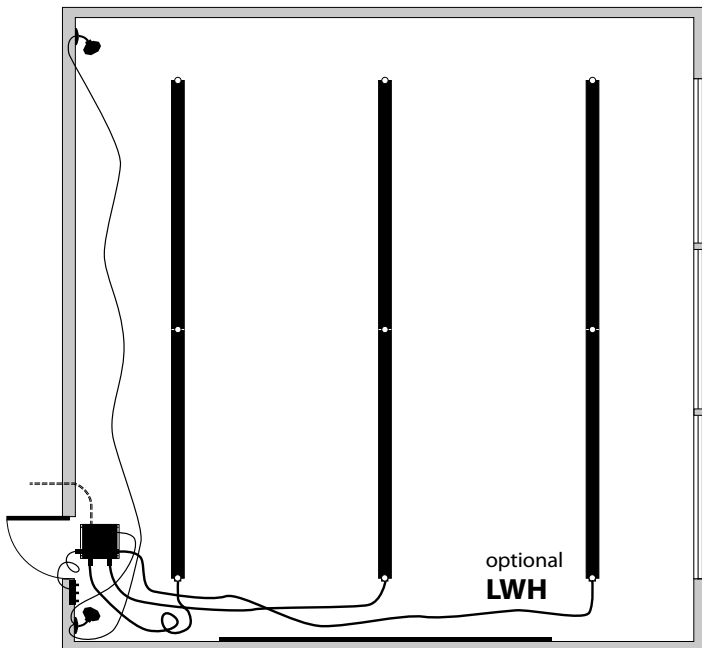
- 24' x 30' Room
- 2 Rows of Pendant ID Luminaires Parallel to the presentation area
- No Options Required



1. Order **CS/av-3-DW-120**
2. Specify **CS/av/PL** in luminaire catalog number

Three-Row Perpendicular Configuration (PR)

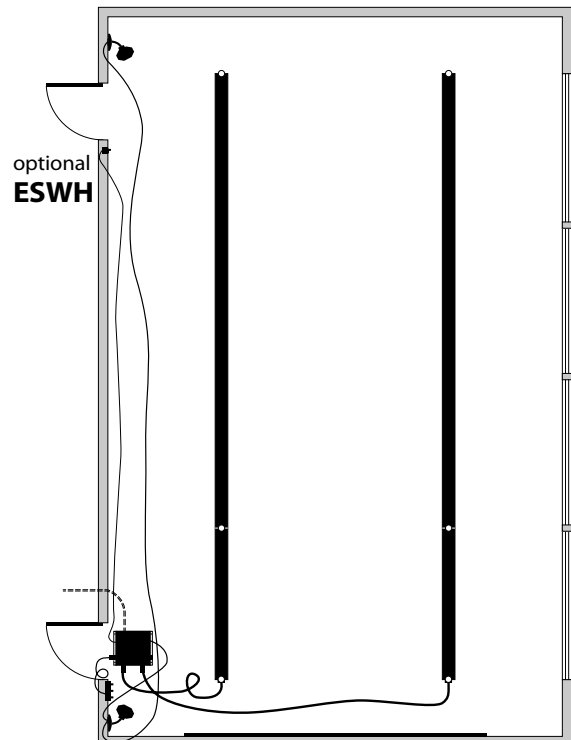
- 30' x 30' Room
- 3 Rows of Pendant ID Luminaires Perpendicular to the presentation area
- Add **LWH** option to CS/av catalog number for connection of third row



1. Order **CS/av-3-DW-120-LWH**
2. Specify **CS/av/PR** in luminaire catalog number

Multiple Door Perpendicular Row Configuration (PR)

- 24' x 38' Room
- 2 Rows of Pendant ID Luminaires Perpendicular to the presentation area
- Add **ESWH** to CS/av catalog number for additional ON/OFF switch at rear door



1. Order **CS/av-3-DW-120-ESWH**
2. Specify **CS/av/PR** in luminaire catalog number

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Note: Example ordering codes assume 3-lamp fixtures and drywall construction, 120 volts.

Specifications

CONTROL SPLICE BOX (CSB). 10" x10" steel pre-wired enclosure, with separate removable cover for contractor access, to be securely mounted in an accessible location including in air-handling spaces other than ducts or plenums per NEC 300.22(c). Modular wiring connection ports provided for connecting the MCS (Main Control Station) and up to three luminaire rows with included wiring harnesses. Connection ports are keyed to prevent mismatching of harnesses. Concentric 1/2"-3/4" knock-out provided for "Line In" home-run wiring in the field. Additional concentric 1/2"-3/4" knock-outs provided for optional "Line Out" through wiring and for the optional ESWH (Entrance control Station with Wiring Harness). Installed low voltage power pack provides low-voltage Class 2 wiring connections to provided occupancy sensors. All Class 1 wiring utilizes #12 AWG solid copper conductors and all landing terminals are sized to accept 8-20 AWG, solid or stranded conductors.


MAIN CONTROL STATION (MCS). Three gang junction box for drywall or masonry construction with pre-wired switches and 10' of Metal Clad Cable (type MC) with 8" stripped conductors consisting of 90°C insulated #12 AWG solid copper conductors and #12 AWG solid copper ground for connection to CWH. Switches are white 20-Amp commercial grade toggle type. Provided with an engraved switch plate for On/Off, High/Low lighting level, and Front On/Front Off for AV presentations.

LUMINAIRE WIRING HARNESS (LWH). 30' Metal Clad Cable (Type MC) consisting of 90°C insulated, #12 AWG solid copper conductors, accompanied by a #12 AWG solid copper ground conductor. Conductor insulation colors are custom to match feed cable colors to simplify wiring. Harness includes a CLEAR (120V) or BLACK (277V) voltage-specific load side (power in) connector differently keyed to prevent mismatching of voltages. The line side (power out) conductors are eight inches long and are stripped and labeled. Refer to installation instructions for junction box sizing at luminaire row connection.

CONTROL WIRING HARNESS (CWH). 15' Metal Clad Cable (Type MC) consisting of 90°C insulated, #12 AWG solid copper conductors, accompanied by a #12 AWG solid copper ground conductor. Conductor insulation colors are custom to match feed cable colors to simplify wiring. Harness includes a PURPLE voltage-specific load side (power in) connector differently keyed to prevent mismatching of voltages. The line side (power out) conductors are eight inches long and are stripped and labeled. Refer to installation instructions for junction box sizing at MCS-CWH connection.

OCCUPANCY SENSOR, KNUCKLE MOUNT (OSK). Leviton OSW12-MOW Dual-Technology (Ultrasonic and Passive Infrared) sensor provided with a mounting knuckle for installation on the wall or ceiling. Sensor is a Class 2 low-voltage device that can be mounted to a junction box (by others) or directly to the wall. Supplied with 100' 22/6 CMP-Rated **Sensor Wiring Cable (SWC)** (for use only where permissible). Refer to installation instructions for suggested sensor layout for optimized coverage.

ENTRANCE CONTROL STATION WITH WIRING HARNESS (ESWH). Single gang junction box for drywall or masonry construction with pre-wired switch and 40' of Metal Clad Cable (type MC) with 8" stripped conductors consisting of 90°C insulated #12 AWG solid copper conductors and #12 AWG solid copper ground for connection to CSB. Switch is white 20-Amp commercial grade toggle type. Provided with an engraved switch plate for On/Off operation.

CERTIFICATION. CS/av and components shall be UL and/or CUL Listed.  The CS/av solution utilizes a modular wiring system in accordance with NEC Article 604. This construction type may not be permissible in all locations. Check with local codes and inspectors to verify compliance.

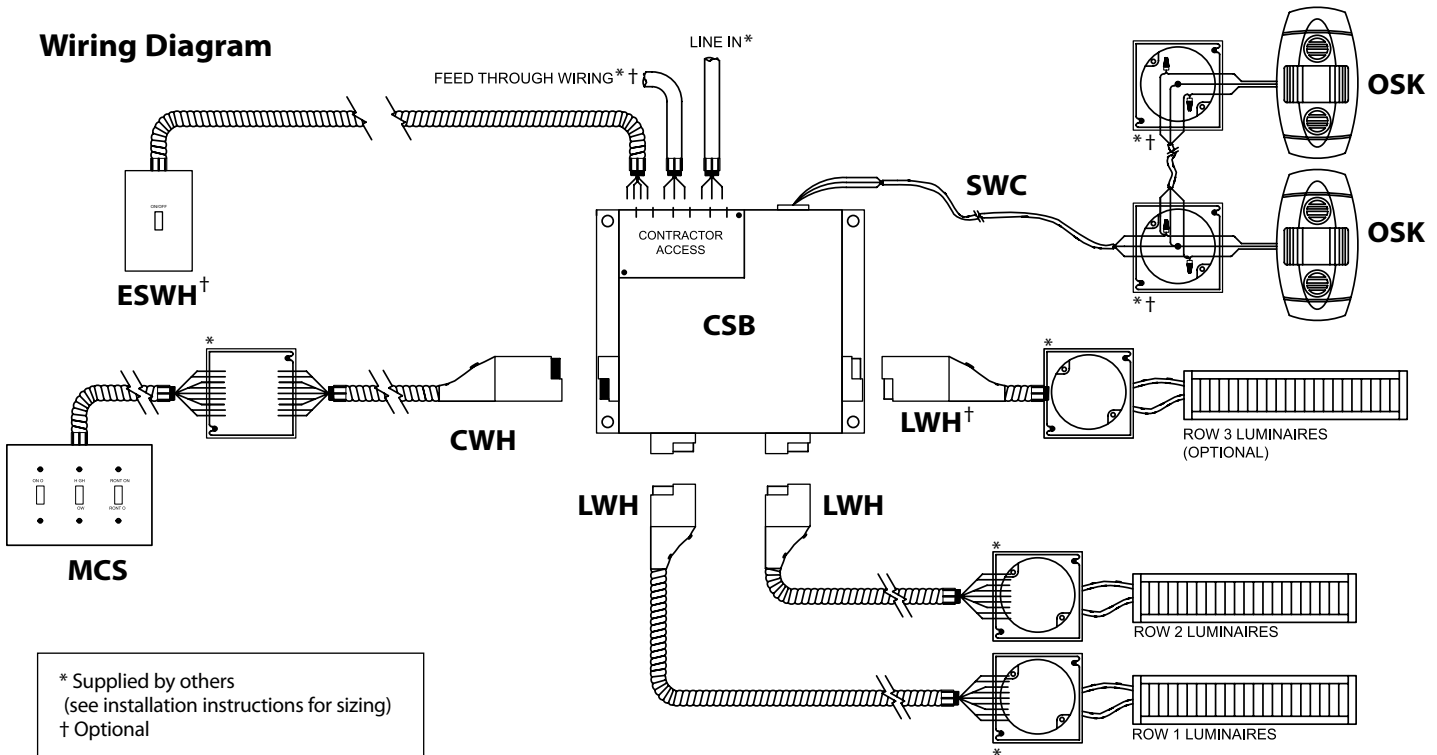
Note: Litecontrol reserves the right to change specifications without notice for product development and improvement.

Whiteboard Lighting



A custom engraved switch plate that matches the CS/av plate is available. The whiteboard wiring and switching are independent of the CS/av system and provided by others. Switching schemes can integrate operation of a whiteboard light – consult Litecontrol for details and requirements.

Wiring Diagram



* Supplied by others
(see installation instructions for sizing)
† Optional

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