

CS/dlh Overview



CS/dlh is a complete solution for daylight harvesting. The fixture-integrated photosensor for active daylight harvesting works in conjunction with a 0-10V dimming ballast to provide continuous dimming based on available daylight levels. One sensor can control a continuous row of luminaires with up to 50 ballasts.

The CS/dlh is a “closed loop” system that considers both daylight and electric light within the space to determine dimming levels. The system maintains the desired illuminance levels via separate night and day values, using a sliding setpoint control algorithm. Light levels slowly vary to avoid sudden changes that can annoy occupants.

Once the luminaires are installed, final setup adjustments are made using the CS/dlh wireless programming remote. After setup, the sensor automatically adjusts the output of the luminaire (or row of luminaires) based on available daylight, to meet target illuminance levels.

Specifications

CS/dlh Sensor. Watt Stopper FD-301 dimming photosensor with FS-PP power pack installed and wired in the fixture by Litecontrol. One sensor can control a single luminaire, a full row of luminaires, or a part of a luminaire row; from 1 to 50 ballasts.

Ballast. Requires a dimming ballast, 0-10V. Dimming range of the system is determined by the ballast specified. Unless otherwise specified, a compatible ballast from a UL-listed manufacturer will be selected by Litecontrol.

CS/dlh Programming Remote. Watt Stopper LSR-301-S remote provides both setup and manual user dimming. One Programming Remote is provided with the system; additional remotes may be ordered. Universal handheld infrared remote will operate any sensor. (2) AA Batteries required (provided). Mounting bracket with adhesive backing provided for mounting the remote on a wall or other surface.

CS/dlh User Remote (Optional). Watt Stopper LSR-301-P remote provides manual user dimming, without the setup functionality of the Programming Remote. The User Remote is not provided with the system, but may be ordered separately from Litecontrol. Universal handheld infrared remote will operate any sensor. (2) AA Batteries required (provided). Mounting bracket with adhesive backing provided for mounting the remote on a wall or other surface.

Ordering Guide

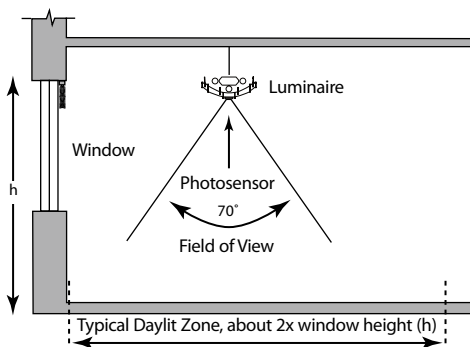
Compatible fixtures for the CS/dlh system are listed below. Contact Litecontrol for inclusion of CS/dlh in other fixtures.

Arcos M5 P-ID-59M	Arcos Perf II P-I-5900	Latitude – C P-ID-93M	SAE P-ID-7700
Arcos ID P-ID-5900	Latitude – L P-ID-82M	Radi-X P-ID-8000	

See the individual fixture technical sheet for full ordering details.

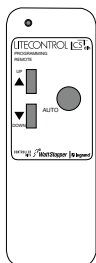
To have the fixture provided with the CS/dlh system, select a 0-10V dimming ballast and add **CS/dlh** in the options column.

Luminaire / Photosensor Placement



The photosensor has a 70° field of view. Sensor should not be located where its field of view intersects a window or wall opening. When multiple sensors are used in the same space, fixture locations should be avoided where the light from one controlled fixture falls within the view of an adjacent photosensor. Specular or highly reflective surfaces in the sensor’s field of view can interfere with correct operation. Avoid placement directly above these areas.

The CS/dlh Contractor Guide provides step-by-step instructions for field setup and troubleshooting.



User Control Options

On-off control of the lighting can be provided with a manual on/off switch or with an occupancy sensor connected in-line with the luminaire. Occupant dimming control is provided by either the CS/dlh Programming Remote or the optional CS/dlh User Remote. The remote control allows the occupant to temporarily adjust lighting levels up to +25% of the sliding Daylighting Setpoint down to the lowest level capable of the 0-10V dimming ballast. The “Auto” button returns the system back to normal operation.

Lamp Burn-in

Refer to lamp manufacturer’s recommendation for lamp burn-in prior to dimming or setup of the system. If the lamp manufacturer’s guidelines are not followed, premature lamp failure may occur. Once power is supplied to the luminaires for the first time, the photosensor will drive the lamps at full output until the “Night” adjustment has been completed using the Programming Remote. Refer to section titled “Photosensor Setup”.

Photosensor Setup (see the CS/dlh Contractor Guide for a field setup checklist)

The photosensor is set up with two setpoints; DAY and NIGHT. Either adjustment may be completed first. The red LED under the photosensor lens flashes continuously until both the DAY and NIGHT adjustments are completed. The photosensor will not begin actively dimming based on available daylight until both adjustments have been made.

Room Conditions for Setup

Begin the sensor setup process only AFTER all furnishings have been installed in the space as placement of objects affects the way light reflects from various surfaces. Assure that:

- Furniture, floor and wall coverings are installed and clean.
- All luminaires in the room are installed and fully operational.
- Any window coverings are installed, clean and operable.
- All unnecessary objects, such as tools and installation materials, are removed from the photosensor's field of view.
- Primary sources of electric light or daylight are not blocked from the photosensor's field of view (i.e. no temporary partitions).

For the "DAY" setting, window coverings should be adjusted to maximize daylight while not allowing direct beam sunlight to enter the controlled area.

For the "NIGHT" setting, window coverings should be adjusted such that they block lighting from outdoor fixtures.

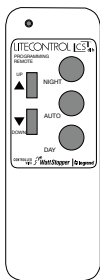
The CS/dlh is a closed-loop system. Any other fixtures that contribute to the lighting level viewed by the photosensor must be ON and at full output when programming both DAY and NIGHT settings, even if those fixtures are not controlled by the sensor.

Target Illuminance Levels

If a target illuminance level (footcandle value) is specified for the space, an illuminance meter should be used to measure levels before and during the setup process. Choose a reference location that is most likely to have the lowest illuminance level when daylight and is located farthest from the window or skylight, while still receiving light from the controlled fixtures.

If no target illuminance is specified, adjustments can be based on user perception or preferences.

Setup Procedure



Initial Setup is performed entirely using the CS/dlh Programming Remote and does not require additional access to the sensor or luminaire. The LED on the remote control should light every time a button is pressed. A corresponding LED also flashes in the sensor during every button press.

- Up Arrow – Increases light level
- Down Arrow – Decreases light level
- NIGHT – Used to begin and end the Night adjustment process
- AUTO – Used to begin automatic dimming
- DAY – Used to begin and end the Day adjustment process

Establishing the DAY Setpoint

Refer to section titled "Photosensor Setup - Target Illuminance Levels" above for recommendations on illuminance measurement locations. Perform setup of this setpoint during daytime conditions. Open all shades / blinds or window coverings.

- Press the "DAY" button once. A green LED in the photosensor will flash once.
- Press the "UP" and/or "DOWN" arrow to adjust the lighting level desired. A green LED in the photosensor will flash continuously as either button is held down. Light levels will change slowly so continue to hold button until desired illuminance is achieved.
- Press and Hold the "DAY" button for 3 seconds. A green LED in the photosensor will flash twice for 3 seconds each time.

The DAY setpoint is now established.

Begin Automatic Dimming

To immediately begin automatic dimming based on available daylight press the "AUTO" button after both the DAY and NIGHT setpoints have been established. If "AUTO" is not pressed, the photosensor will go into automatic mode 10 minutes after the NIGHT setpoint is successfully set up.

Troubleshooting

If there is a red flashing LED in the photocell, the system is not set up properly.

- Upon press of the "AUTO" button – the light goes to full output, the DAY setpoint is not set up correctly.
- Upon press of the "AUTO" button – the light stays at its dimmed level, the NIGHT setpoint is not set up correctly.
- The NIGHT setpoint must always be set with higher levels of electric light than the DAY setpoint. Assure both setpoints are adjusted properly.

LITECONTROL

100 Hawks Avenue Hanson, MA 02341
781 294 0100 f: 781 293 2849 litecontrol.com

CONTROLLED WITH  WattStopper | 