

Daylight Control Package

The CES daylight sensor package allows Lutron® lighting control systems to respond to ambient light levels based on the settings of the controller. The package includes a power pack, CES daylight sensor, and LC8 controller. It can be integrated via contact closure into a variety of Lutron® lighting systems.

Features

- Allows management of Lutron® lighting control systems through dry contact closure outputs from the LC8 controller.
- The controller features adjustable On and Off set points.
- The package can be integrated into any Lutron® system that accepts dry contact closure inputs.
- A variety of sensor types are available to fit any application.

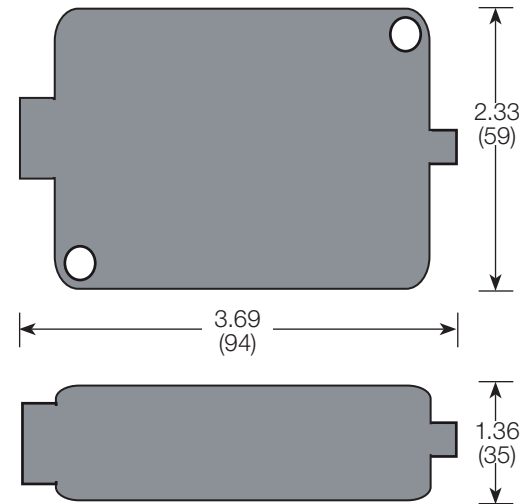
Available Models

Model Number	Usage	Voltage
GRX-CESO-120 PKG	Outdoor	120 V~
GRX-CESO-277 PKG	Outdoor	277 V~
GRX-CESI-120 PKG	Indoor	120 V~
GRX-CESI-277 PKG	Indoor	277 V~
GRX-CESA-120 PKG	Atrium	120 V~
GRX-CESA-277 PKG	Atrium	277 V~
GRX-CESS-120 PKG	Skylight	120 V~
GRX-CESS-277 PKG	Skylight	277 V~

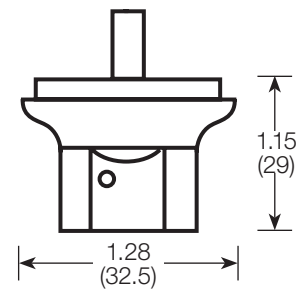
Dimensions

Dimensions shown as: in (mm)

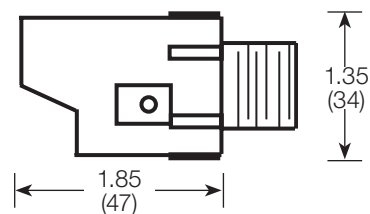
PP



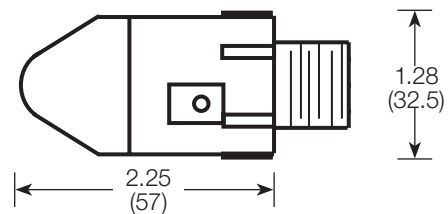
GRX-CESI



GRX-CESO



GRX-CESA or GRX-CESS



Job Name:	Model Numbers:
Job Number:	

Specifications

Power

Power Pack

- Input or Operating Voltage: 120 V~, 277 V~, or universal (call for availability) transformer 60 Hz
- 24 V=== nominal output; 100 mA nominal, full wave rectified and filtered

CES Sensor

- Operating Voltage: 24 V=== IEC PELV/NEC® Class 2.
- Operating Current: 40 mA nominal from 24 V=== supply.
- Control Output: 0 – 10 V=== signal representative of ambient light present (input to LC8 controller).

LC8 Controller

Each Controller is powered by 24 V=== and has separate high and low fully adjustable set points. Signal/set point and relay status indication are provided along with calibration input for adjustment. The controller is in a plastic enclosure for surface mounting installation. The controller provides a 10 A low-voltage Form C relay output.

- Dead Band: Adjustable - 5 to 95%
- Input Delay: Standard - 30 second Sensor (removable for adjustment)
- Output: Standard - Form C SPDT Relay 10 A resistive
- Circuit Board: 3.75 in H x 2.25 in W x 1 in D (95 x 57 x 25 mm)
- Plastic Box: 4.75 in H x 2.25 in W x 1.5 in D (121 x 57 x 38 mm)

General

Environment

- Operating temperature: 13 to 140 °F (-11 to 60 °C).
- All CES sensors are water-resistant and designed to withstand UV radiation.
- LC8 Controller and PP Power Packs are for indoor use only.

CES Sensors

The photoelectric device is a IEC PELV/NEC® Class 2, low-voltage, ambient light sensor designed to interface directly with the analog input of the Lighting Control System. The sensor supplies an analog signal to the EMS system proportional to the light measured. The sensor output provides for zero or offset based signal. The sensor is capable of a fully adjustable response from 0 to 10,000 foot candles, with a +/-1% accuracy at 70 °F (21 °C).

The sensitivity adjustment is at the sensor body, and outside of the sensor’s viewing angle. The sensor housing is constructed from GE Cylolac (R) ABS, is flame retardant, and meets UL 94 HB standards.

Indoor

Indoor sensors have a Fresnel lens, with a 60 degree cone of response. Indoor sensors require a penetration hole in the ceiling of 3/8 in (9.5 mm) diameter, and the sensor mounts to the ceiling using adhesive tape. The indoor sensor range is 0 to 750 fc.

Factory default: 100 fc.

Outdoor

Outdoor models have a hood over the aperture to shield the sensor from direct sunlight. The outdoor sensor circuitry is completely encased in an optically clear epoxy resin. Outdoor sensors mount to a standard threaded 1/2 in (13 mm) conduit or fit a 1/2 in (13 mm) knockout. The Outdoor sensor range is 0 to 750 fc.

Factory default: 250 fc.

Atrium or Skylight

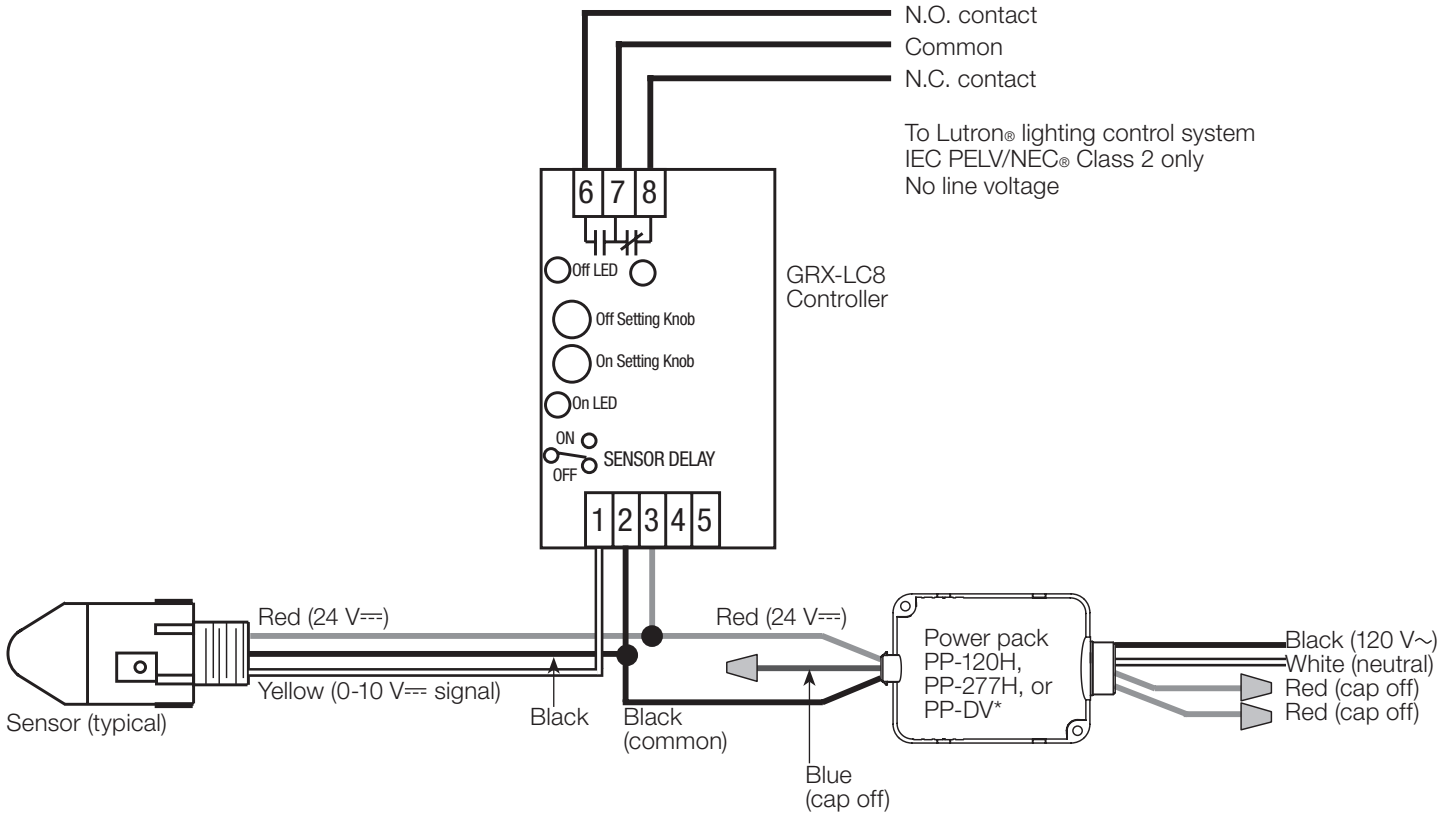
The Atrium or Skylight sensors have a translucent dome with a 180 degree field of view. Atrium or Skylight sensors mount to a standard threaded 1/2 in (13 mm) conduit or fit a 1/2 in (13 mm) knockout. Atrium sensor range is 2 to 2500 fc. Skylight sensor range shall be between 10 and 7500 fc.

Factory defaults: Atrium 1000 fc; Skylight 2000 fc.

<p>Job Name:</p> <p>Job Number:</p>	<p>Model Numbers:</p>
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Wiring

- When interfacing to a Lutron® system, the N.C. contact will turn lights on (contact closure close) when daylight levels are low, and turn lights off (contact closure open) when daylight levels are high.
- When the Off or On LED is lit, the light level is above the setting of its respective knob.



Note: Before October 2011, sensor wired to terminals 1, 4, and 5.

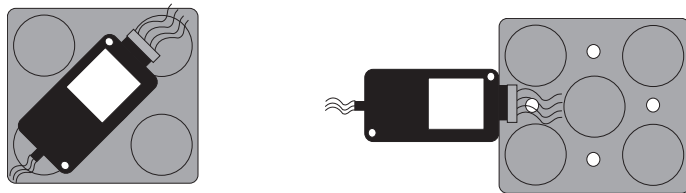
*Check with Lutron for availability.

Job Name:	Model Numbers:
Job Number:	

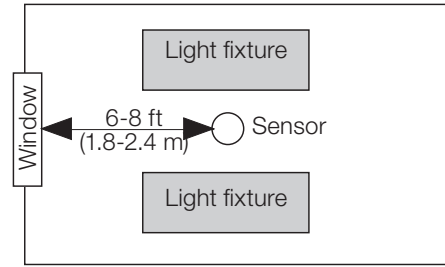
Mounting

- LC8: Mount the controller using the adhesive strips provided. Choose a location where the PP series power pack can be provided with power.
- GRX-CES1: Mount in $\frac{3}{8}$ in (9.5 mm) hole using the adhesive backing (included).
Ceiling mount: 6 to 8 ft (1.8 to 2.4 m) from window, centrally located.
Reflected wall mount: Facing the reflecting wall, not in line with any indoor lighting.
Sconce wall mount: Mount at same height as sconce, but not directly in line.
- GRX-CESO: Mount in standard $\frac{1}{2}$ in (13 mm) conduit or knockout. Mount horizontally, facing north, with the hooded portion on top.
- GRX-CESA: Mount in standard $\frac{1}{2}$ in (13 mm) conduit or knockout, opposite the atrium window.
- GRX-CESS: Mount in standard $\frac{1}{2}$ in (13 mm) conduit or knockout, near the center of the skylight well, at least 12 in (305 mm) from the sides. Mount vertically, facing up, with top of sensor level with top of skylight curb.
- PP: Power pack fits inside junction box. Mount with $\frac{9}{32}$ x 1.25 in (5 x 32 mm) pan head screws. Or mount to standard 4 x 4 in (102 x 102 mm) junction box through knockout with $\frac{1}{2}$ in (13 mm) EMT threaded nipple.

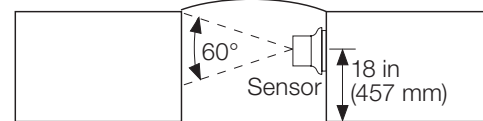
Note: Always turn power off and lock out during unit installation. Always install unit in accordance with applicable national and local electrical codes.



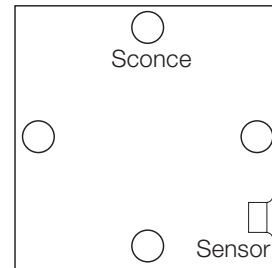
GRX-CES1: Ceiling Mount



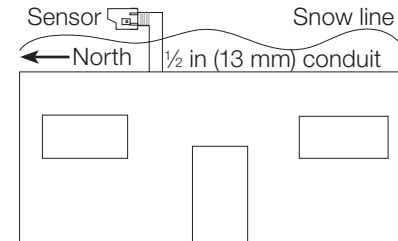
GRX-CES1: Reflected Wall Mount



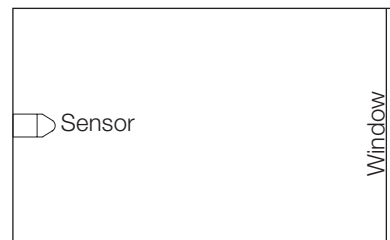
GRX-CES1: Sconce Wall Mount



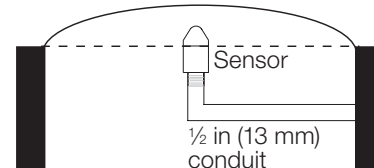
GRX-CESO



GRX-CESA



GRX-CESS



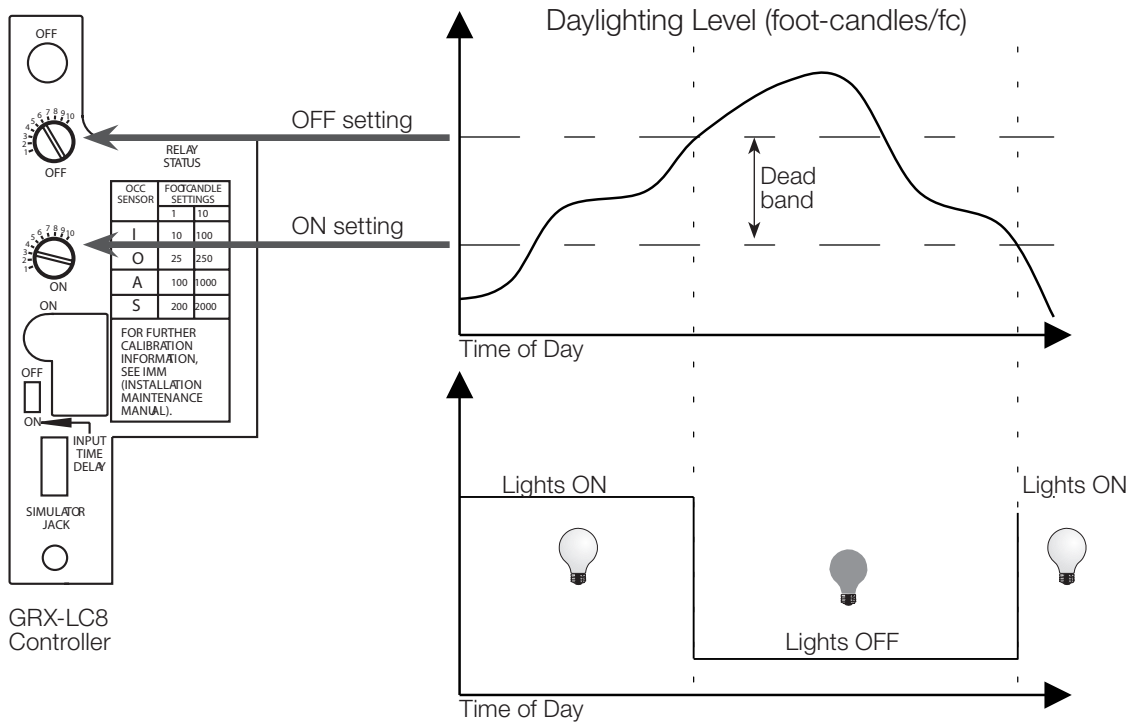
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Calibration

Each GRX-CES sensor is calibrated during manufacturing to the light levels in its intended environment (indoor, outdoor, etc.). Below is a chart of the settings for each model. The first column corresponds to the settings on the adjustment knobs in the GRX-LC8 controller.

Adjustment Knob Setting	Corresponding Foot-Candle (fc) Thresholds (based on factory default sensor setting)			
	GRX-CESI	GRX-CESA	GRX-CESS	GRX-CESO
Below 1	0	2	10	0
1	10	100	200	25
2	20	200	400	50
3	30	300	600	75
4	40	400	800	100
5	50	500	1000	125
6	60	600	1200	150
7	70	700	1400	175
8	80	800	1600	200
9	90	900	1800	225
10	100	1000	2000	250

Using the chart above, set the On adjustment knob: This is the low light level that will trigger your lights to go on. Set the Off adjustment knob: This is the high light level that will trigger your lights to turn off. For proper operation, set the On knob to at least 10% (1 tick mark on the knob) lower than the Off knob to create the dead band.



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