sensorswitch

ON/OFF PHOTOCELL SENSOR - CEILING MOUNT, LOW VOLTAGE

TYPICAL APPLICATIONS

- Daylight Harvesting
- On/Off Lighting Control

FEATURES

- Full On/Off Switching of Lighting
- Works as Stand Alone Unit or with Occupancy Sensor System
- Capable of finding optimum set-point
- Digital Set-Point Control
- Programmable via simple push-button commands
- Outputs to Power Pack or Lighting Control System via SPDT Relay
- Green LED Activity Indicator
- 100 Hour Lamp Burn-in Timer Mode

AVAILABLE OPTIONS

- Dual Zone Control (-DZ)
- Low Temp/Hi Humidity (-LT)

SPECIFICATIONS

- Size: Circular, 4.55" Dia., 1.55" Deep (11.56 cm Dia., 3.94 cm Deep)
- Sensor Weight: 5 Ounces
- Sensor Color: White
- Mounting: Ceiling Tile Surface, Round Fixture or Junction Box
- Relative Humidity: 20 to 90% non-condensing
- Operating Temp: 14º to 160º F (-10° to 71° C)
- Storage Temp: -14º to 160º F (-26° to 71° C)
- Operating Voltage: 12-24 VAC/VDC
- UL, CUL, and Title 24 Compliant
- 5 Year Warranty
- Made in U.S.A.

LOW TEMP/HI HUMIDITY(-LT)

- Conformally coated Circuit Board is corrosion resistant from moisture
- Operates down to -40º F(-40º C)

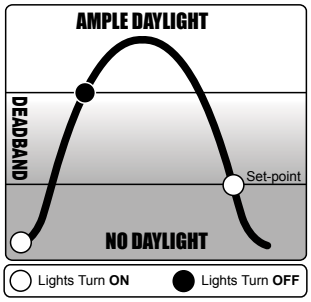
CM-PC

w/ Dual Zone Option!

The *CM-PC* series of On/Off Photocell sensors provide the industry's most intelligent control of lighting for daylight harvesting applications. Ideal for public spaces with windows like vestibules, corridors, or bathrooms; the sensors work by monitoring daylight conditions in a room, then controlling the lighting so as to insure that adequate lighting levels are maintained. The *CM-PC* is used for On/Off lighting control; turning off the lights when sufficient natural light is present and turning them on when additional lighting is necessary. Additionally with the Dual Zone (-DZ) option, a second set of customized control outputs is provided. All *CM-PC* sensors can be used alone or as part of an occupancy sensor system. The sensors are powered with 12 to 24 VAC/VDC and typically operate with a PP-20 or MP-20 Power Pack; enabling complete 20 Amp circuits to be controlled. To add dimming control to the On/Off switching provided by the *CM-PC*, see the Technical Data Sheet on the CM-PC-ADC sensor.

ON/OFF SWITCHING OPERATION

The lights turn "On" when the space's overall light level drops below a programmable threshold called a "set-point". The lights turn "Off" when light is above the set-point plus a 10 to 20% safety factor and deadband. The safety factor will prevent the system from cycling when the light level is very near the set-point. The deadband is the level of light contributed by the artificial lights being controlled. This level is tracked so if the lighting conditions change (for example a lamp burns out) the point at which the lights turn off is adapted accordingly. If the photocell is looking up at skylights and can not view the lights being controlled, there is no deadband and the sensor is said to be working "open loop". There is also an adaptive 5-25 minute delay before the photocell turns the lights off to prevent the system from cycling on a cloudy day; and a 45 second delay before switching from "Off" to "On".



DUAL ZONE (-DZ) OPTION

With the -DZ option, a second low voltage output is provided to control an additional zone of lighting according to one of two operational modes. The default mode, referred to as "Duo" operation, is ideal for A/B switching applications (also called inboard/outboard) as it determines the necessary On/Off combination of the zones in order to maintain adequate lighting. The alternate mode uses a relative set-point for the second zone that is a selected percentage higher than the primary zone's set-point. This mode accounts for the fact that daylight contribution diminishes as the distance from the source (windows) increases. Called "Percentage" operation, this second mode is ideal for classrooms with individually controlled parallel rows of lights. A single shared set-point is used by both modes and can be user programmed or automatically determined by the sensor itself.

Model Numbering System: CM-PC-[DUAL ZONE]-[TEMP/HUMIDITY]

SERIES #	DESCRIPTION	DUAL ZONE	TEMP/HUMIDITY
CM-PC	On/Off Photocell Sensor - Ceiling Mount, Low Voltage	Blank = Single Zone -DZ = Dual Zone	Blank = 14º to 160º F -LT = -40º to 160º F

LIGHT LEVEL SET-POINT

The sensor functions by comparing the amount of daylight available with a defined acceptable lighting level. This threshold, called the set-point, is utilized in all daylight harvesting lighting control decisions. The sensor can find its optimum set-point via the **Automatic Set-Point Programming** mode. In this mode, the sensor sets the minimum light level to be the amount contributed by the artificial lights being controlled. It is assumed that the space is properly lit by design, however, if this is not the case the set-point may be easily adjusted to the occupant's preference. All modes and settings are entered digitally via a push button sequence. Once programmed, the exact value of the set-point (in foot candles) can be read out from the sensor via a series of LED flashes.

DIGITAL SET-POINT CONTROL

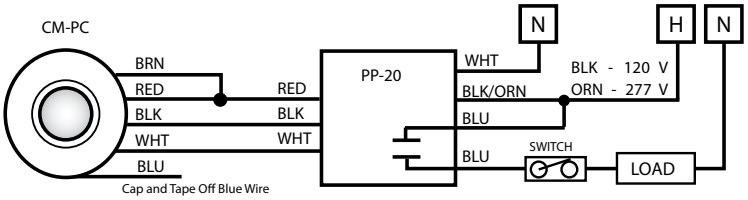
Each sensor contains a microcontroller that enables the user to engage the Automatic Set-Point Programming mode or to manually set / adjust the set-point. The manual process involves calculating and inputting the exact foot-candle value of the desired set-point into the sensor. It is important to note that the set-point is the light level required at the face of the sensor and that this value will be much different than the level required at a work surface. Typically, light levels at the ceiling are 3 to 5 times less than the work surface. For example, if 50 fc is desired at the work surface, the sensor should be set at 10 fc. For best results, measure the levels at both locations using a foot-candle meter before programming the set-point.

WIRING INSTRUCTIONS

Wire lead connections are Class II, 18 to 22 AWG.

STANDARD CM-PC

WHITE - Outputs high VAC/VDC (from Brown wire) when sensor calls for Lights "On" (eg. the room is Dark)
BLUE - Outputs high VAC/VDC (from Brown wire) when sensor calls for Lights "Off" (eg. adequate daylight light is present)
RED - 12 to 24 VAC/VDC
BLACK - Common
BRN - Connect to Low Voltage Control input (Red wire on a Power Pack, White wire on an occupancy sensor)

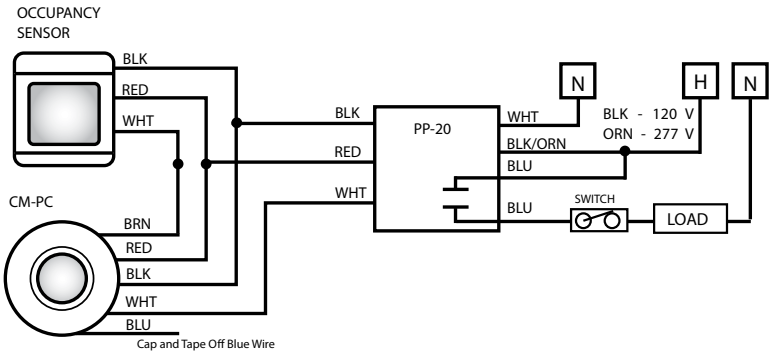


DUAL ZONE OPTION (CM-PC-DZ)

BLUE wire will output high DC when sensor calls for Lights "On" for Zone 2.
(Note: With the -DZ option the SPDT Relay is no longer present and the White wire will output only DC)

WIRING TOGETHER WITH OCCUPANCY SENSORS

Wire upstream occupancy sensor White wire to sensor Brown wire. When the space is unoccupied, the lights stay off regardless of daylight levels. However when occupied, the photocell sensor will control the lights according to daylight level and set-point.



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