JOB: VA HOSPITAL RESEARCH OFFICE BLDG
PITTSBURGH,PA 15213

CONTRACTOR: LIGHTHOUSE ELECTRIC
CANONSBURG,PA 15317

SPEC SECTION: 260923 1.4A, 1.4B, 1.4D

TYPE	MANUFACTURE	DESCRIPTION
OCC WALL	SENSOR SWITCH	WSD WALL SWITCH
OCC WALL	SENSOR SWITCH	PTS-720 PROGRAMMABLE TIMER SWITCH
OCC CEILING	LUTRON	EC-DIR DAYLIGHT SENSOR
OCC CEILING	LUTRON	LOS-CDT-2000 CEILING SENSOR
POWER PACK	LUTRON	PP-277H POWER PACK 277V
SENSOR CEILING	LUTRON	QSM2-4W-C QS SENSOR MODULE

OCCUPANCY SENSOR INFORMATION

Technical Services
1.800.727.7483
FX 203.269.9621
Monday – Friday
8:00 am – 7:00 pm EST
tech@sensorswitch.com

SensorSwitch
900 Northrop Road
Wallingford, CT 06492
1.800.PASSIVE
www.sensorswitch.com

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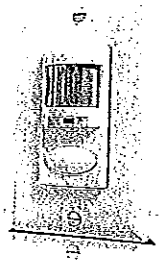
WSD



WALL SWITCH DECORATOR SENSOR
LINE VOLTAGE • PASSIVE INFRARED (PIR)

SPECIFICATIONS

FEATURES
- PIR Occupancy Detection
- Self-Contained Relay - No Power Pack Needed
- Interchangeable Hot & Load Wires - Impossible to Wire Backwards
- No Neutral Required / No Minimum Load
- Small Motion Detection to 20 ft (6.10 m)
- Self-Grounding Mounting Strap
- Compatible w/ Electronic & Magnetic Ballasts, CFLs, & Incandescents
- Push-Button Programmable w/o Removing the Switch Plate
- Adjustable Time Delay
- LampMaximizer® Minimum On Time (disabled by default)
- Non-Volatile Settings Memory
- Green LED Indicator

PHYSICAL SPECS
- SIZE (not including mounting strap) 2.74"H x 1.68"W x 1.63"D (6.96cm x 4.27cm x 4.14cm)
- WEIGHT 5 oz
- MOUNTING Single Gang Switch Box
- MOUNTING HEIGHT 30-48 in (76.2-121.9 cm)
- COLORS White, Ivory, Gray Lt. Almond, Black

ELECTRICAL SPECS
- MAXIMUM LOAD
  - 800 W @ 120 VAC
  - 1200 W @ 277 VAC
  - 1500 W @ 347 VAC
- MINIMUM LOAD None
- MOTOR LOAD 1/4 HP
- FREQUENCY 50/60 Hz (timers are 1.2x for 50 Hz)

ENVIRONMENTAL SPECS
- OPERATING TEMP 14° to 160° F (-10° to 71° C)
- RELATIVE HUMIDITY 20 to 90% non-condensing
- SILICONE FREE
- ROHS COMPLIANT

OVERVIEW

The WSD is a stylish, easy to install, and simple to use Wall Switch Decorator style Passive Infrared (PIR) sensor. It is ideal for private offices, copy rooms, closets, or any small enclosed space without obstructions. A user programmable time delay ensures that once the room is vacated the sensor will time out and turn off the lights. Additionally, the WSD sensor has several On Modes and Switch Modes that can be programmed using the front push-button. For rooms with obstructions, the Dual Technology WSD PDT Series sensor is recommended.

SENSOR OPERATION

The sensor detects changes in the infrared energy given off by occupants as they move within the field-of-view. When occupancy is detected, the relay switches the connected load on as dictated by the sensor's operational settings.

An internal timer keeps the lights on during brief periods of inactivity and turns the lights off when it expires. The default time delay is 10 minutes. This timer is programmable from 30 seconds to 20 minutes, and is reset every time occupancy is re-detected. Patented LampMaximzer technology is also present in this sensor, providing an additional minimum on time (disabled by default) to be used if desired. This state-of-the-art design requires no field calibration or sensitivity adjustments.

OPTIONS

VANDAL-RESISTANT LENS (V)
- Ideal for high abuse or public areas
- Decreases detection range by 50%

INHIBIT PHOTOCELL (P)
- Auto set-point calibration
- Photocell prevents lights from turning on if adequate daylight is available, but does not turn lights off

347 VAC (347)
- Allows sensor to be powered from and switch 347 VAC
- Wall plate provided (Ivory & White only)

COLOR
- White, Ivory, Gray, Lt. Almond, Black
- Wall plate provided
- Must be specified when ordered

LOW TEMP/HIGH HUMIDITY (LT)
- Sensor electronics are coated for corrosion resistance
- Operates down to -40° F/C
- Required for bathroom & cooler/freezer applications

ON MODES

AUTOMATIC ON (default) - Lights come on when occupancy is detected.
MANUAL ON - Requires the occupant manually turn on lights via the push-button.
REDUCED TURN ON - Sensor is initially set to only detect large motions, effectively ignoring PIR signals reflected off of surfaces, while still sensing occupants when they enter the room. Once lights are on, the sensor returns to maximum sensitivity.

SWITCH MODES

PREDICTIVE OFF MODE (default) - This mode allows occupants to turn lights off via the switch without losing the convenience of having the lights automatically turn on when they re-enter the room. Pressing the switch turns the lights off and temporarily disables the occupancy detection in the sensor. After a short exit time delay, the occupancy detection reactivates and monitors for an additional grace period. If no occupancy is detected, the zone will remain in Automatic On operation. If occupancy is detected, the zone will go to a Permanent Off mode, requiring the switch to be pressed again in order to turn the lights on and restore the sensor to Automatic On operation.
PERMANENT OFF - Pressing the switch turns the lights and the sensor off. Lights will not come on until switch is pressed again.
SWITCH DISABLE - Prevents user from manually turning off the lights via the push-button. Button can still be utilized for programming.

c UL US LISTED

TITLE 24
ASSEMBLED IN U.S.A.
5 YEAR WARRANTY

ORDERING INFO

WSD [LENS] [PHOTOCELL] [VOLTAGE] [COLOR] [TEMP/HUMIDITY]

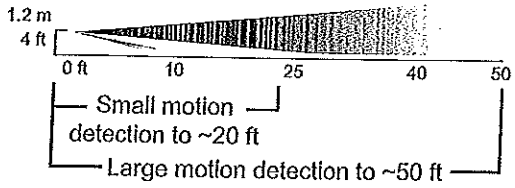
LENS	PHOTOCELL	VOLTAGE	COLOR	TEMP/HUMIDITY
Blank = Standard	Blank = None	Blank = 120/277 VAC	WH = White	Blank = Standard
V = Vandal Resistant	P = Photocell	347 = 347 VAC	IV = Ivory	LT = Low Temp
			GY = Gray	
			AL = Lt. Almond	
			BK = Black	

COVERAGE PATTERN

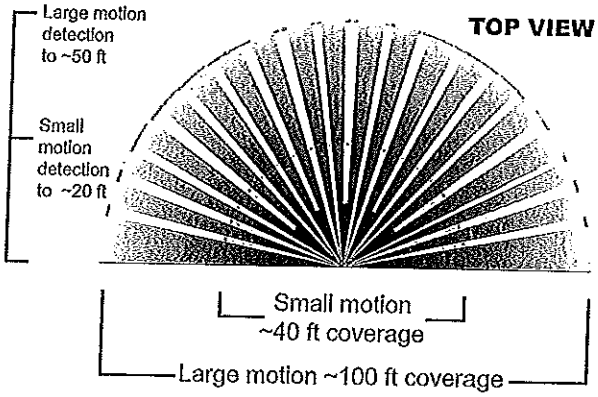
WALL SWITCH DECORATOR LENS

- Small motion (e.g. hand movements) detection up to 20 ft (6.10 m)
- Large motion (e.g. walking) detection up to 50 ft (15.24 m), ~3925 ft²
- 180° wall-to-wall coverage

SIDE VIEW



TOP VIEW



WIRING (DO NOT WIRE HOT)

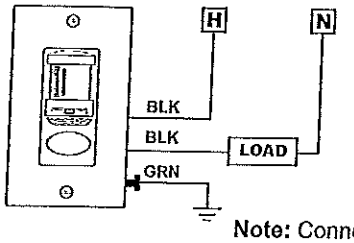
STANDARD WIRING

BLACK* - Line Input
BLACK* - Load Output
} *BLACK wires can be reversed
GREEN SCREW - Ground (required connection)

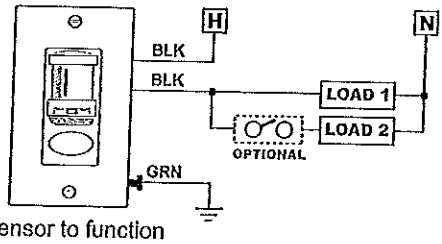
347 VAC OPTION (347)

Black wires are replaced w/ Red wires

STANDARD CONFIGURATION



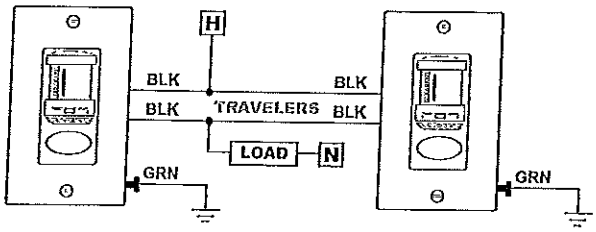
BI-LEVEL CONFIGURATION

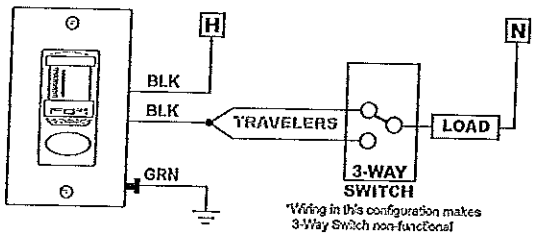


Note: Connection to Ground required for sensor to function

3-WAY CONFIGURATIONS

Travelers are used to wire sensors (or sensor and 3-way switch) in parallel.





Note: Connection to Ground required for sensor to function

PROGRAMMING

Refer to included Instruction card IC2.002 for default settings and directions on programming the sensor via the push-button.

WARNING

Fire Hazard Caution: Maximum Lamps 1500 Watts, Type 347 VAC.
Attention: Risque d'incendie : Pauissance Maximales Des Lampes 1500 Watts, Type 347 VAC.
Warning: The units are intended to be installed by a qualified person with properly rated branch circuit protectors as per applicable local and national regulations (CEC, NEC).

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WARRANTY: Sensor Switch, Inc. warrants these products to be free of defects in manufacture and workmanship for a period of 60 months. Sensor Switch, Inc., upon prompt notice of such defect, will, at its option, provide a Returned Material Authorization number and repair or replace returned product.
LIMITATIONS AND EXCLUSIONS: This Warranty is in full lieu of all other representation and expressed and implied warranties (including the implied warranties of merchantability and fitness for use) and under no circumstances shall Sensor Switch, Inc. be liable for any incidental or consequential property damages or losses.

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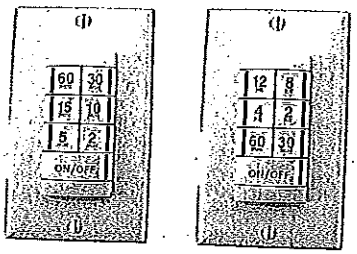
PTS 60
PTS 720



PROGRAMMABLE (INTERVAL) TIMER SWITCH
LINE VOLTAGE • DECORATOR STYLE

SPECIFICATIONS

APPLICATIONS
- Fluorescent/Incandescent/LED Lighting In Meeting rooms, Library Aisles, Stock Rooms, & Mechanical Rooms
- Exhaust Fans

FEATURES
- Self-Contained Relay
- Interchangeable Hot & Load Wires - Impossible to Wire Backwards
- No Neutral Connection Required
- Self-Grounding Mounting Strap
- No Minimum Load Requirement
- Push-Button Programmable w/o Removing Switch Plate
- Fixed or Adjustable Preset Times
- Optional Audible Timeout Warning at 45, 30, and 15 sec
- Optional Flicker Timeout Warning at 2 and 1 min
- Continous LED Flash for Last 30 sec of Button's Time Setting
- Green On/Off Switch Status LED
- Green LED Time Indicators

PHYSICAL SPECS
- SIZE 4.2"H x 1.8"W x 1.5"D (10.67cm x 4.57cm x 3.81cm)
- WEIGHT 5 oz
- MOUNTING Single Gang Switch Box
- COLORS White, Ivory, Gray, Lt Almond

ELECTRICAL SPECS
- MAXIMUM LOAD
  - 800 W @ 120 VAC
  - 1200 W @ 277 VAC
  - 1500 W @ 347 VAC
- MINIMUM LOAD None
- MOTOR LOAD 1/4 HP
- FREQUENCY 50/60 Hz

ENVIRONMENTAL SPECS
- OPERATING TEMP 14° to 160° F (-10° to 71° C)
- STORAGE TEMP -14° to 160° F (-26° to 71° C)
- RELATIVE HUMIDITY 20 to 90% non-condensing
- ROHS COMPLIANT
- SILICONE FREE

OTHER
- ETL Listed
- ASHRAE 90.1 Compliant (PTS 60)
- IECC Compliant (PTS 60)
- Title 24 Compliant (PTS 60)
- 5 Year Warranty
- Assembled in the U.S.A.

The **PTS 60** and **PTS 720** Series Electronic Auto Shut-off Timer Switches provide a simple to use and simple to apply lighting control alternative to wall switch occupancy sensors. These elegant decorator style wall stations each provide six preset countdown timer selections as well as an on/off push-button. The **PTS 60** and **PTS 720** units are powered from 120/277 VAC (optional 347 VAC) and are intended to switch a line voltage lighting load or small motor load (see specifications). Additionally, the **PTS 60** and **PTS 720** can be applied without requiring a neutral wiring connection, making them ideal for retrofit applications.

TIMER OPERATION

When the unit's on/off button is pressed, the self-contained relay closes, turning the connected load on. The LED on the button of the last time selected will also turn on, indicating the time remaining before the unit turns the lights off. Optionally, this default timer setting can be fixed. If a different timer selection is required, the user simply presses the button labeled with the time of their choice. If desired, a maximum timer setting can also be programmed into the switch. Once time has elapsed below the point of the next lowest time option, the LED on that button will light and the original time selection's LED will turn off.

At the two and one minute remaining point, the unit will issue a flicker warning to occupants indicating that the lights will shut off if another time selection is not chosen. Additionally, an audible beep warning is issued at 45, 30 and 15 seconds. Both warning indicators can be disabled if desired. Finally, a button's LED will flash continuously during the last 30 seconds of its time setting.

OPTIONS

TIME SCALE [60 / 720]
- 60, 30, 15, 10, 5, 2 min
- 12 hr, 8 hr, 4 hr, 2 hr, 60 min, 30 min

347 VAC (347)
- Allows sensor to be powered from and switch 347 VAC
- Wall plate provided (White/Ivory only)

COLOR
- White, Ivory, Gray, Lt. Almond
- Wall plate provided
- Must be specified

LOW TEMP/HIGH HUMIDITY (LT)
- Sensor is corrosion resistant
- Operates down to -40° F/C

ORDERING INFO

PTS [TIME SCALE] [VOLTAGE] [COLOR] [TEMP/HUMIDITY]

TIME SCALE	VOLTAGE	COLOR	TEMP/HUMIDITY
60 = 60 min max	Blank = 120/277 VAC	WH = White	Blank = Standard
720 = 12 hr max	347 = 347 VAC	IV = Ivory	LT = Low Temp
		GY = Gray	
		AL = Lt. Almond	

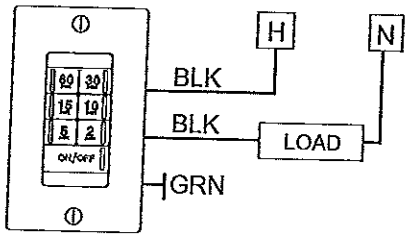
WIRING (DO NOT WIRE HOT)

STANDARD WIRING

BLACK* - Line Input
BLACK* - Load Output
} *BLACK wires can be reversed
GREEN SCREW - Ground (required connection)

347 VAC OPTION (347)

Black wires are replaced w/ Red wires



Note: Connection to Ground required for sensor to function

PROGRAMMING INSTRUCTIONS (PLEASE READ ALL 7 STEPS BEFORE PROGRAMMING)

1. Enter programming mode by pressing & holding upper left button until LED flashes rapidly. Release button.
2. Enter a specific programming function by pressing button the number of times as the desired function number from the tables on the following pages (e.g., for a PTS 60, press five times for function 5, *Max Time Allowable*).
3. The selected function's current setting will then be read out in a sequence of LED flashes (e.g., one flash for 60 min). To change setting, proceed to step 4 before sequence repeats 10 times.
4. While the switch is flashing back current setting, interrupt it by pressing button the number of times for the new desired setting as indicated in the particular function's detailed table (e.g., press twice for 30 min). Switch will begin to flash new setting as confirmation.
5. Next, while the switch is flashing back new setting, interrupt it by pressing and holding button until LED flashes rapidly. Release button.
6. As final confirmation and activation of the new setting, re-enter the programming function number that was changed (e.g., press five times for function 5, *Max Time Allowable*).
7. LED will flash twice indicating acceptance of new setting. If two flashes are not seen, repeat 7 step process.

Note: To exit programming mode without saving or to change to a different function, wait for blink back sequence to repeat 10 times then return to step 1.

Function Number	Function Name	Settings (* indicates default setting)		
2	Blink Warning	1. Enabled 2 min & 1 min*	3. Enabled 1 min	
		2. Disabled	4. Enabled 2 min	
3	Beep Warning	1. Enabled*	2. Disabled	
4	Status Tick	1. Enabled (ticks every 1 sec)	2. Disabled*	3. Enabled, (ticks every 0.5 sec)
5	Max Time Allowable (model # PTS 60)	1. 60 min	3. 15 min	5. 5 min
		2. 30 min	4. 10 min	6. 2 min
5	Max Time Allowable (model # PTS 720)	1. 12 hr	3. 4 hr	5. 60 min
		2. 8 hr	4. 2 hr	6. 30 min
6	Default Time - when on/off button pressed (model # PTS 60)	1. 60 min	4. 10 min	7. Last time selected*
		2. 30 min	5. 5 min	
		3. 15 min	6. 2 min	
6	Default Time - when on/off button pressed (model # PTS 720)	1. 12 hr	4. 2 hr	7. Last time selected*
		2. 8 hr	5. 60 min	
		3. 4 hr	6. 30 min	
9	Factory Defaults	1. Maintain current*	2. Restore defaults	

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WARRANTY: Sensor Switch, Inc. warrants these products to be free of defects in manufacture and workmanship for a period of 60 months. Sensor Switch, Inc., upon prompt notice of such defect, will, at its option, provide a Returned Material Authorization number and repair or replace returned product.
LIMITATIONS AND EXCLUSIONS: This Warranty is in full lieu of all other representation and expressed and implied warranties (including the implied warranties of merchantability and fitness for use) and under no circumstances shall Sensor Switch, Inc. be liable for any incidental or consequential property damages or losses.

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FUNCTION DF NS

1 BUTTON MODE
Enables the unit to operate as a toggle switch by disabling the PIR sensor (recommended for testing purposes only).

2 OCCUPANCY TIME DELAY
The length of time an occupancy sensor will keep the lights on after it last detects occupancy (assuming *Minimum On Time*, if engaged, has been met).

3 ON MODE
AUTOMATIC ON
Sensor automatically turns the lights on when it detects occupancy.

MANUAL ON
Sensor requires pressing the button to turn the lights on.

REDUCED TURN-ON
Sensor is set to initially only detect large motions, effectively ignoring any reflected Passive Infrared (PIR) signals. Occupants will still be detected immediately when they enter the room as their PIR signal is large. Once lights are on, the sensor returns to maximum sensitivity.

4 SWITCH MODE
SWITCH ENABLE (OVERRIDE OFF)
Button will turn lights off and keep them off until pressed again. The lights will remain off until the button is pressed again, restoring the sensor to Automatic On mode.

SWITCH DISABLE
User is prevented from turning off the lights via the push-button.

PREDICTIVE OFF
Pressing the push-button switch overrides the lights off and temporarily disables the occupancy detection. After 10 seconds, the occupancy detection reactivates and monitors for an additional 5 seconds. If no occupancy is detected during this period, the sensor will revert to Automatic On operation. If occupancy is detected, the sensor will remain in Override Off mode and requires the switch to be pressed again in order to restore the sensor to Automatic On.

5 PHOTOCELL INHIBIT SET-POINT
The ambient light level at which the sensor prevents the lights from turning on. The lights will remain on until the occupancy timer expires and turns them off.

6 100 HOUR BURN-IN / AUTO SET-POINT
100 HOUR BURN-IN
Overrides relay on for lamp seasoning.

AUTO SET-POINT
Photocell calibration procedure for detecting optimum lighting control level.

7 LED OPERATION
Indicates behavior of device's LED.

8 NIGHT LIGHT OPERATION
Indicates behavior of device's night light LED push-button.

9 RESTORE FACTORY DEFAULTS
Returns all functions to original settings.

10 MINIMUM ON TIME
The length of time required for lamps to be on regardless of occupancy (provides increased protection of lamp life). If the occupancy time delay expires prior to minimum on time being satisfied, the lamps will remain on until time has been met.

11 SEMI-AUTO GRACE PERIOD
The time period after lights are automatically turned off that they can be reactivated with movement. Applicable only when sensor is in *Manual On (Semi-Auto)* mode.

12 DUAL TECHNOLOGY (MICROPHONICS™)
The secondary method of occupancy detection that allows the sensor to hear occupants.

13 MICROPHONIC GRACE PERIOD
The time period after lights are automatically turned off that they can be voice reactivated.

15 PREDICTIVE EXIT TIME
The time period after manually switching lights off for the occupant to leave the space. Applicable only when sensor is in *Predictive Off* mode)

16 PREDICTIVE GRACE TIME
The time period after the *Predictive Exit Time* that the sensor rescans the room for remaining occupants. Applicable only when sensor is in *Predictive Off* mode)

NOTE:

For assistance with programming, contact:
Technical Support: 1.800.727.7483

DOC# IC2-002
Date Code 1211

WALL SWITCH SENSOR
PROGRAMMING INSTRUCTIONS

sensorswitch
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1.800.PASSIVE

STANDARD F' NS

1 Button Mod
2 Occupancy Time Delay
3 On Mode
4 Switch Mode
6 100 hr Burn-In
7 LED Operation
9 Restore Factory Defaults
10 Minimum On Time
11 Semi-Auto PIR Grace Period
15 Predictive Exit Time
16 Predictive Grace Time

OPTIONAL FUNCTIONS

		-PDT	-NL	-P
5	Photocell Inhibit Set-Point			•
6	Photocell Auto Set-Point			•
8	Night Light Operation		•	
12	Dual Technology (Microphonics™)	•		
13	Microphone Grace Period	•		

PROGRAMMING INSTRUCTIONS

PLEASE READ ALL 7 STEPS BEFORE PROGRAMMING

1. Enter programming mode by pressing & holding button until LED flashes rapidly. Release button.
2. Enter a specific programming function by pressing button the number of times as the desired function number from the tables on the following pages (e.g., press twice for function 2, *Occupancy Time Delay*).
3. The selected function's current setting will then be read out in a sequence of LED flashes (e.g., five flashes for 10 min). To change setting, proceed to step 4 before sequence repeats 10 times.
4. While the sensor is flashing back current setting, interrupt it by pressing button the number of times for the new desired setting as indicated in the particular function's detailed table (e.g., press seven times for 15 min). Sensor will begin to flash new setting as confirmation.
5. Next, while the sensor is flashing back new setting, interrupt it by pressing and holding button until LED flashes rapidly. Release button.
6. As final confirmation and activation of the new setting, re-enter the programming function number that was changed (e.g., press twice for function 2, *Occupancy Time Delay*).
7. LED will flash twice indicating acceptance of new setting. If two flashes are not seen, repeat 7 step process.

Note: To exit programming mode without saving or to change to a different function, wait for blink back sequence to repeat 10 times then return to step 1.

DETAILED FUNCTION TABLES

1 = Button Mode
4 Normal (PIR Enabled)* 5 Button Mode (PIR Disabled)

2 = Occupancy Time Delay[1]
1 30 sec 4 7.5 min 7 15.0 min
2 2.5 min 5 10.0 min* 8 17.5 min
3 5.0 min 6 12.5 min 9 20.0 min

3 = On Mode
1 Automatic On*
2 Manual On**
3 Reduced Turn-On

4 = Switch Mode
1 Switch Enable (Override Off)**
2 Switch Disable
3 Predictive Off*

5 = Photocell Inhibit Set-Point
1 Disabled* 6 20 fc 11 70 fc
2 2 fc 7 30 fc 12 80 fc
3 5 fc 8 40 fc 13 90 fc
4 10 fc 9 50 fc 14 100 fc
5 15 fc 10 60 fc 15 200 fc

6 = 100 hr Burn-In / Auto Set-Point
1 100 hr Burn-In Disabled*
2 100 hr Burn-In Enabled
3 100 hr Burn-In Enabled then run Auto-Setpoint
4 Run Auto Set-Point
5 Blink back Set-Point[2]

7 = LED Operation
1 Normal* 2 Inhibited (Disabled)

8 = Night Light Operation
1 Normal** 2 Inhibited (Disabled)

9 = Restore Factory Defaults
1 Maintain Current** 2 Restore Defaults*

10 = Minimum On Time
1 0 min** 3 30 min 5 60 min
2 15 min 4 45 min

11 = Semi-Auto Grace Period[1]
1 0 sec 3 15 sec**

12 = Dual Technology (Microphonics™)
1 Normal* 2 Off 3 Medium 4 Low

13 = Microphone Grace Period
1 0 sec 3 20 sec 5 40 sec 7 60 sec
2 10 sec* 4 30 sec 6 50 sec

15 = Predictive Exit Time
1 5 sec 3 7 sec 5 9 sec 7 15 sec 9 30 sec
2 6 sec 4 8 sec 6 10 sec* 8 20 sec

16 = Predictive Grace Time
1 0 sec 3 10 sec 5 30 sec 7 50 sec
2 5 sec* 4 20 sec 6 40 sec 8 60 sec

* Factory Default (unless otherwise indicated by **)

** Factory Default for -SA, and -NL

[1] For additional time settings, contact technical support at 1.800.PASSIVE

[2] The LED will blink back the ten's digit, then pause, then blink back the one's digit. For a "0" the LED will blink very rapidly. The sequence is repeated 3 times.

How a sensor works. When the sensor detects motion the internal time delay starts and the white wire sends a signal to the power pack to close the contacts and turn the lights on. When no occupancy is detected the white wire stops sending a signal to the power pack and the preset time delay starts timing out. When the preset time limit is reached the relay opens and the lights turn off.

First, check to see that all switches and circuit breakers are in the "on" position
The following instructions are assumed that a qualified person has verified that there is line voltage power at the Control Relays (PP-20). If that is not the case, call your electrician.

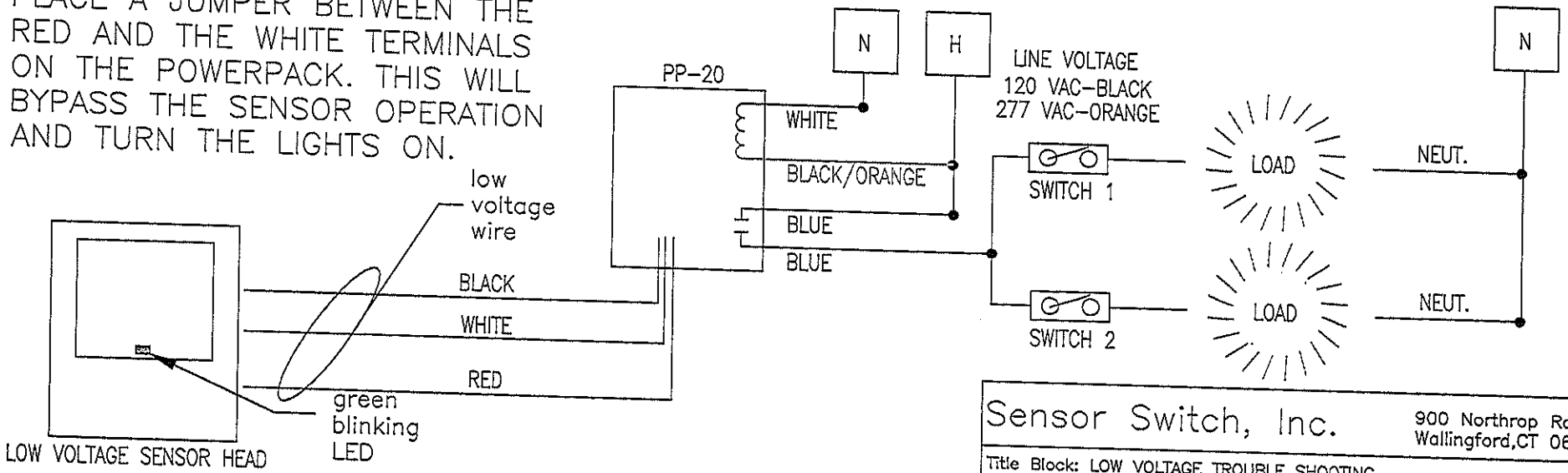
In a low voltage installation (where you have sensor "heads" on the ceiling, corner mounted or a low voltage wall switch) and a control relay (PP-20) in a junction box in the ceiling or mounted on top of a fixture:

1.) If the lights are off and won't come on - Put a jumper wire across the red & white terminals on the low voltage side of the PP-20. A) If the lights come on - possible defective sensor(s), B) If the lights remain off - possible defective PP-20

2.) If the lights are on and won't turn off - remove the white wire from the low voltage terminal on the PP-20
A) If the lights turn off - possible defective sensor(s), B) If lights remain on - possible defective PP-20

Important note: If you determine that you have a sensor problem and you have more that 1 sensor per PP-20(s), you need to isolate each sensor from the PP-20(s) to troubleshoot!!!

TO OVER-RIDE THE SENSOR PLACE A JUMPER BETWEEN THE RED AND THE WHITE TERMINALS ON THE POWERPACK. THIS WILL BYPASS THE SENSOR OPERATION AND TURN THE LIGHTS ON.



LOW VOLTAGE SENSOR WITH A/B SWITCHING

Sensor Switch, Inc.				900 Northrop Road Wallingford,CT 06492
Title Block: LOW VOLTAGE TROUBLE SHOOTING				
Item ref: LOW-TB	Dwg #: .001	Approved by:		
File Name: LOW-TB		Date: 04/06/04	Revision: 0	Sheet: 1 of 1

CEILING SENSOR PROGRAMMING INSTRUCTIONS

1. Enter Function Number (FN #): i.e., Press button twice for FN #2 Time Delay.
2. LED will flash indicating the current FN's setting: i.e., 5 flashes for 10 minute Time Delay. This will repeat up to 3 times.
3. Press button the number of times for desired setting: i.e., Press twice for 2.5 minute Time Delay. LED will flash the new setting 3 times.

PROGRAMMING FUNCTIONS

FN #2: Time Delay

Push Button the number of increments desired.

1 – 30 Sec	4 – 7.5 Min	7 – 15.0 Min
2 – 2.5 Min	5 – 10.0 Min*	8 – 17.5 Min
3 – 5.0 Min	6 – 12.5 Min	9 – 20.0 Min

*Factory Setting 10 Min

FN #4: 100 Hour Burn In Timer

Once engaged, the sensor will stay "On" for 100 continuous hours. During this period the LED will continuously blink slowly. If power is removed, the timer will resume 100 hour countdown from previous position. After 100 hours has elapsed, sensor will revert to normal operation.

Press Once: Disengage* Press Twice: Engage

*Factory Setting

WALL SWITCH DECORATOR PROGRAMMING INSTRUCTIONS

2107

1. Push button down until LED flashes rapidly. Release Button.
2. Enter FN #: i.e., Press twice for FN #2 Time Delay.
3. LED will flash indicating the current FN's setting: i.e., 5 flashes for 10 minutes Time Delay. This will repeat up to 10 times.
4. Press button the number of times for desired setting: i.e., Press twice for 2.5 minutes Time Delay. LED will flash indicating the NEW settings, up to 10 times.
5. Push button down until LED flashes rapidly. Release Button.
6. Re-enter FN #: i.e., Press twice for FN # 2 Time Delay.
7. LED will flash twice indicating acceptance of NEW settings.

Pole Selection (Two Pole Version Option Only)
The Time Delay and Photocell FN's are programmed separately for each pole. Use left or right button to adjust each pole's settings.

FN #2: Time Delay (*Default)
Push Button the number of increments desired.

1 – 30 Sec	4 – 7.5 Min	7 – 15.0 Min
2 – 2.5 Min	5 – 10.0 Min*	8 – 17.5 Min
3 – 5.0 Min	6 – 12.5 Min	9 – 20.0 Min

FN#3 On Mode
1 - Automatic On (Default)
3 - Reduced Turn-on

FN#4 Switch Mode
1 - Switch Enable (Permanent Off Mode)
2 - Switch Disable
3 - Predictive Off (Default)

FN#5 Photocell Inhibit (-P Option Only)

1 – Disabled*	6 – 20 fc	11 – 70 fc
2 – 2 fc	7 – 30 fc	12 – 80 fc
3 – 5 fc	8 – 40 fc	13 – 90 fc
4 – 10 fc	9 – 50 fc	14 – 100 fc
5 – 15 fc	10 – 60 fc	15 – 200 fc

*Default Setting

FN#6 100 Hour Burn-in Timer
1 - Disable 100 Hour Timer (Default)
2 - Enable 100 Hour Timer
3*- Enable 100 Hour Timer & Auto Set-Point
4*- Enable Auto Set-Point
5*- Blink Set-Point**

* Only available with -P option

** *The LED will blink the 10's digit, then pause, then blink the 1's digit. For a "0" the LED will blink rapidly.*

To disable Microphone instructions

1. Push button down until LED flashes rapidly.
2. Release Button
3. Press Button 12 times.
4. Short pause (2 seconds), then press button twice to disable mic.
5. Press Button down until LED Flashed Rapidly.
6. Release Button
7. Press Button 12 times
8. The LED will flash twice indicating acceptance of NEW Setting

To set Microphone to 50% instructions

1. Push button down until LED flashes rapidly.
2. Release Button
3. Press Button 12 times.
4. Short pause (2 seconds), then press button 3 times.
5. Press Button down until LED Flashed Rapidly.
6. Release Button
7. Press Button 12 times
8. The LED will flash twice indicating acceptance of NEW Setting

Microphone explanation

1. Push button down until LED flashes rapidly. Release Button
2. Press Button 12 times for microphone adjustment.
3. The LED will flash indicating the current Setting: i.e., 1 flash for enabled and 2 flashes for disabled 3 for 50% microphone. While the code is flashing press the button the number of times for the desired setting: i.e., 1 for enabled and 2 for disabled 3 for 50%.
4. Press Button down until LED Flashed Rapidly. Release Button
5. Press Button 12 times to EXIT Microphone setting
6. LED will flash twice indicating acceptance of NEW Setting

sensorswitch®

An AcuityBrands Company

WARRANTY STATEMENT

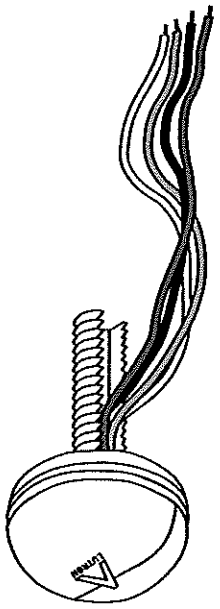
WARRANTY

Sensor Switch warrants its products to be free of defects in manufacture and workmanship for a period of 60 months. Sensor Switch, upon prompt written notice of such defect will, at its option, provide a Return Material Authorization (RMA) and repair or replace returned product. LIMITATIONS AND EXCLUSIONS: This Warranty is in full lieu of all other representation and expressed and implied warranties (including the implied warranties of merchantability and fitness for use) and under no circumstances shall Sensor Switch be liable for any incidental or consequential property damages or losses.

900 NORTHROP ROAD
WALLINGFORD, CT 06492
1.800.PASSIVE
FX 203.269.9621
www.sensorswitch.com

Fixture Mountable Daylight Sensor with Infrared Receiver

This daylight sensor is designed specifically to work with Lutron's ballasts, control modules, and sensor interfaces to implement daylight harvesting. It allows the control system to automatically dim the lights when the available daylight is high and brighten the lights when the available daylight is low in order to maintain a specific light level in the space. An integrated IR receiver resides within the sensor to allow access to the system for advanced programming and personal control.



Features

- Photopic response matches human eye.
- Mounts easily on any ceiling tile or fixture with 10 mm (3/8 in) diameter hole.
- Threaded mounting stud (may be shortened for applications with limited fixture height).
- Calibrated for daylight sensitivity through the Lighting Control System to which it is attached.
- Receives IR signals and transfers them to a digital ballast, control module, or sensor interface.
- The Infrared Receiver receives IR programming signals from up to 2.5 m (8.2 ft) away.
- Constructed of flame retardant material.
- Meets IEC 801-2. Tested to withstand 15 kV electrostatic discharge without damage.
- LED indicates programming mode.
- Sensor wire insulation is rated to 600 V, suitable for fixture installation.

Specifications

Standards

- Designed for low-voltage PELV operation only. Voltages do not exceed 35 V⎓.
- Designed to give a linear response to changes in viewed light level
- For use with Lutron products only

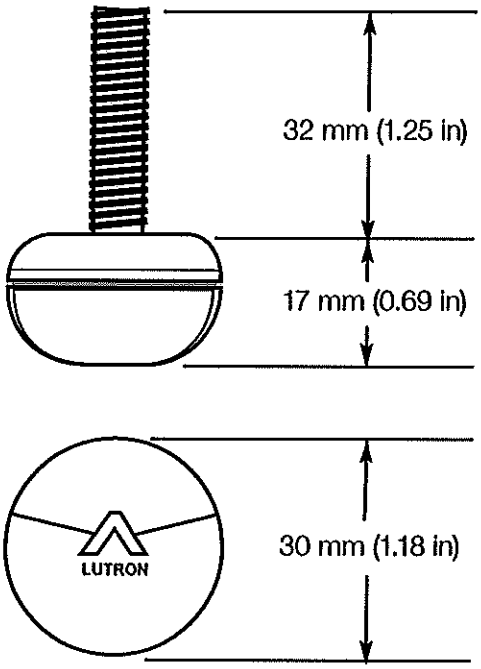
Power

- Operating Voltage: Low-voltage PELV, 20 V⎓
- Analog Signal: 0-2 mA
- IR Output: 0-20 V⎓

Environment

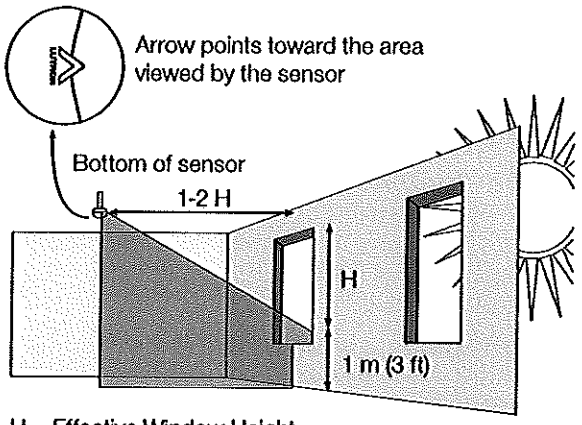
- Temperature: 0-45 °C (32-113 °F)
- Relative humidity: less than 90% non-condensing

Dimensions

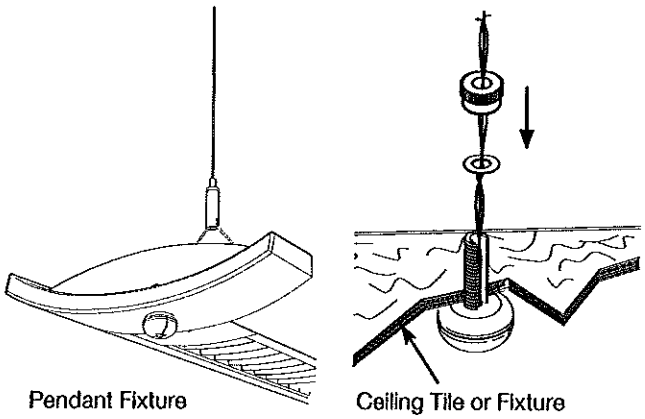


- Sensor lead length = 100 mm (4 in) minimum beyond threaded stud.
- Total wire length from sensor to device must not exceed 30 m (100 ft).
- Threaded Stud Diameter = 9.5 mm (3/8 in) maximum.
- Use 3/8 - 16 nut (provided) for mounting.

Mounting and Wiring

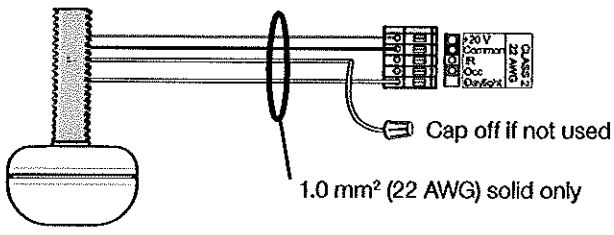


H = Effective Window Height



Pendant Fixture

Ceiling Tile or Fixture



Daylight Sensor with IR Receiver

Installation

Determine the proper location of the Daylight Sensor using the adjacent diagram.

- The arrow on the Daylight Sensor points toward the area viewed by the sensor
- The effective window height (H) starts 1 m (3 ft) up from the floor or at the window sill, whichever is higher, and ends at the top of the window.
- Place the daylight sensor so its viewing area is centered upon the nearest window at a distance of between 1-2 H from the window
- Ensure that the view of the Daylight Sensor is not obstructed
- Do not position the Daylight Sensor in the well of a skylight or above indirect lighting fixtures

Mounting the Daylight Sensor

- Drill a 10 mm (3/8 in) diameter hole in the ceiling tile or pendant fixture
- Thread the wires through the hole
- Install the Daylight Sensor into the hole
- Secure the Daylight Sensor with the mounting hardware provided (hand tighten only).

  Note - If the stem of the Daylight Sensor must be shortened due to its location (for instance, in a pendant fixture) this should be done prior to wiring.

Wiring to a Sensor Input

- Connect the sensor wires as described:

Wire	Terminal
Red	20 V⎓
Black	Common
Yellow	Daylight
White	IR Signal (cap off if not used)

- Make sure that the supply breaker to the control system is OFF
- Use only 1.0 mm² (22 AWG) solid wire
- If IR output is not required, the white wire should be terminated
- A sensor can only be wired to a single control module or sensor interface
- Each input on a control module or sensor interface can have only one daylight sensor connected to it

Dual Technology Ceiling Mount Sensor

The LOS-CDT Series ceiling-mount dual-technology sensors can integrate into Lutron systems or function as stand-alone controls using a Lutron power pack. The technology eliminates manual sensitivity and timer adjustments during installation and over the life of the product.

Features

- Intelligent, continually adapting sensor
- Ultrasonic (US) combined with passive infrared (PIR) sensing provide high sensitivity, high noise immunity, and excellent false tripping immunity
- Suited for complex environments that are difficult to control with single-technology sensors
- Snap-locks to ceiling-mounted cover plate
- Non-Volatile Memory: settings saved in protected memory are not lost during power outages
- 500 to 2000 sq.ft. (46 to 186 m²) coverage when mounted on an 8 - 12 ft. (2.4 to 3.7 m) ceiling; 180° and 360° field of view
- Affords choice of turning lights off or dimming to a preset level in the unoccupied state when integrated with a Lutron system.

Models Available

Cat. No.	Color	Coverage	Field of View
LOS-CDT-500-WH	White	500 sq.ft. (46 m²)	180°
LOS-CDT-500R-WH	White	500 sq.ft. (46 m²)	180°
LOS-CDT-1000-WH	White	1000 sq.ft. (93 m²)	180°
LOS-CDT-1000R-WH	White	1000 sq.ft. (93 m²)	180°
LOS-CDT-2000-WH	White	2000 sq.ft. (186 m²)	360°
LOS-CDT-2000R-WH	White	2000 sq.ft. (186 m²)	360°

Self-Adaptive Feature

The LOS-CDT Series ceiling-mount occupant sensors combine both (US) motion detection for maximum sensitivity and passive infrared (PIR) motion detection for false triggering immunity. The self-adapting internal microprocessor analyzes the composite sum of both signals to eliminate time-consuming adjustments and callbacks found in non-intelligent sensors.

Specifications

Timer Adjustment

- Automatic mode: Continually adapting sensor automatically adjusts settings to the space
- Manual mode: 8 to 30 minutes
- Test mode: 8 seconds

LED Lamp

- Red: infrared motion detected
- Green: ultrasonic motion detected

Housing

- Rugged, high-impact, injection-molded plastic
- Color-coded leads 6 in. (15 cm)

Power

- Operating voltage: 20 - 24 V⎓, PELV (Class 2: USA) low-voltage
- Operating current: 33 mA nominal
- Control output: 20 - 24 V⎓ active high logic control signal with short-circuit protection, open collector when unoccupied

Operating Environment

- Temperature: 32 to 104 °F (0 to 40 °C)
- Relative humidity: less than 95%, non-condensing
- For indoor use only

Adaptive Functions

- Installation: 60 minutes
- Learning: 4 weeks for response to error conditions, air current adaptation, and timer optimization
- Post-learning occupancy periods
  - —24-hour circadian occupancy periods learned
  - —Weekly occupancy periods learned
- Adjustments in post-learning period
  - —Generally occupied periods (threshold = high-sensitivity mode)
  - —Generally unoccupied periods (threshold = miser mode)

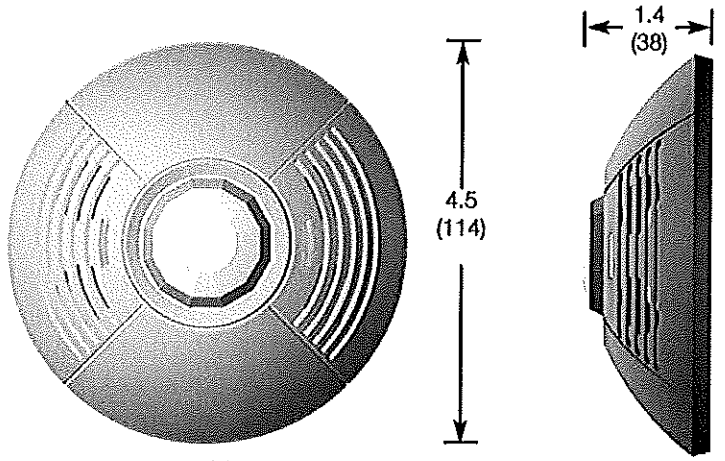
Contact Rating (R Models only)

- SPDT 500 mA rated at 24 V⎓ isolated relay

Photo Cell (R Models only)

- Prevents light from turning on when there is sufficient natural light
- Sensitivity: 0 - 1,000 LUX adjustable

Dimensions



Front View

Side View

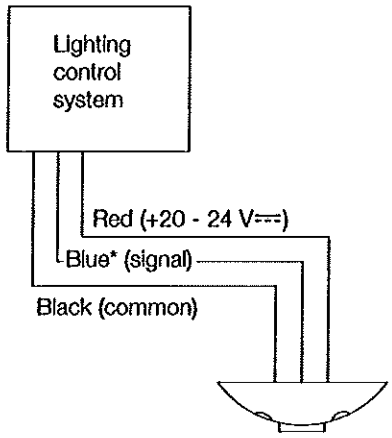
Measurements are in inches (mm)

Job Name:	Model Numbers:	
VA Hospital Research Office Building	LOS-CDT	
Job Number: 177567		

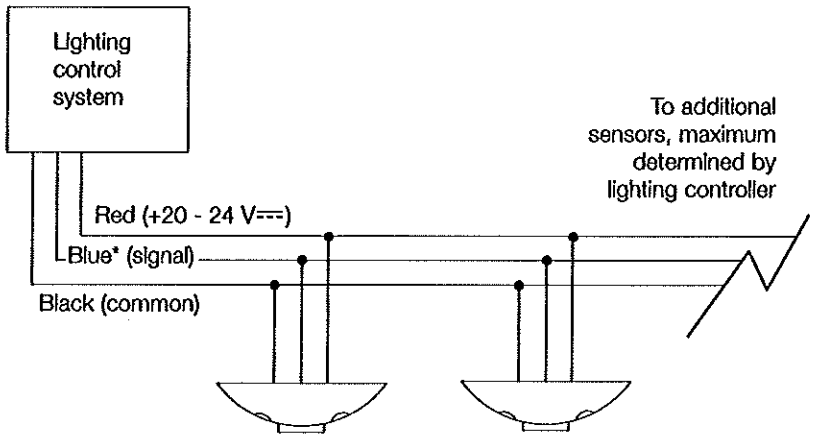
Wiring

Note: Power pack may be required when interfaced to lighting control system; see below.

Single Sensor to System



2 or More Sensors to System



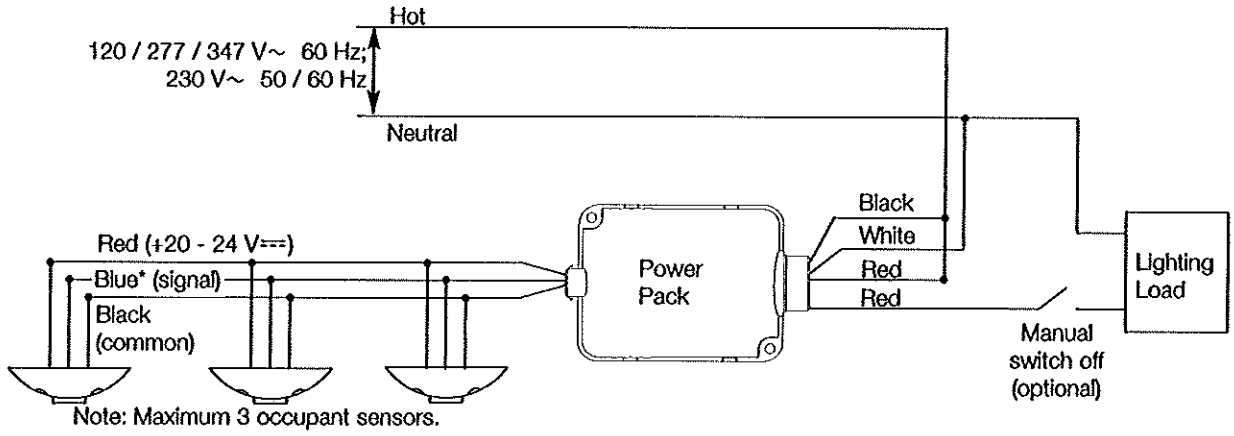
*Note: Use gray wire for -R model.

Power Supply Options

Lutron Lighting Control System	Power Pack Required?
Digital microWATT™	No
EcoSystem®	No
GRAFIK 5000 / 6000 / 7000™	No, when used with seeTouch® wallstations with occupant sensor connections.
GRAFIK Eye® 3000 / 4000	Yes
HomeWorks®	Yes
LCP128™	No, when used with *seeTouch* wallstations with occupant sensor connections.
microWATT®	No
RadioRA®	Yes
RadioTouch®	No
Softswitch128®	No, when used with *seeTouch* wallstations with occupant sensor connections.

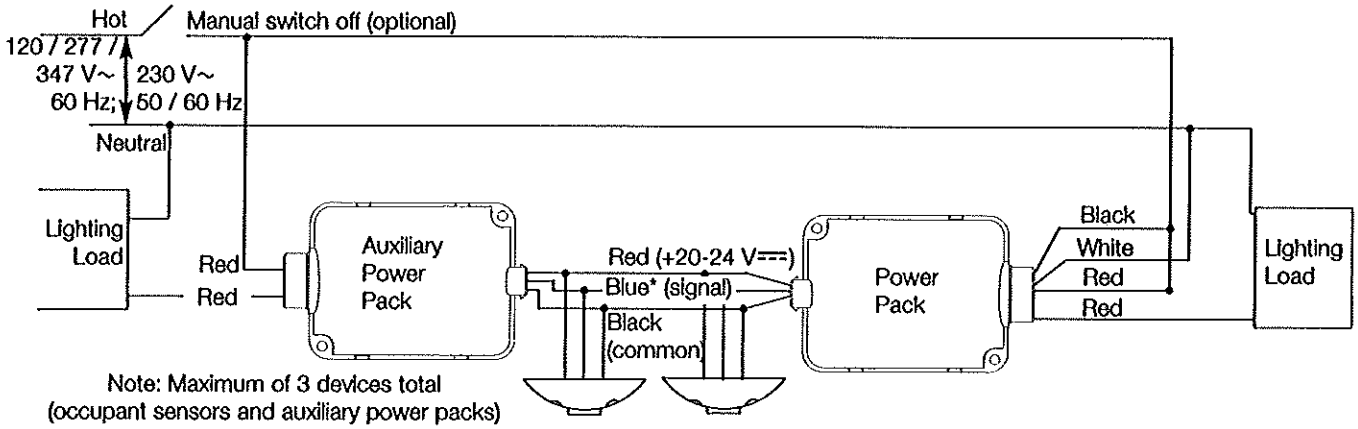
Wiring: Stand-Alone Control

1 to 3 Sensors with Power Pack



Note: Maximum 3 occupant sensors.

Switching Multiple Loads with Auxiliary Power Packs



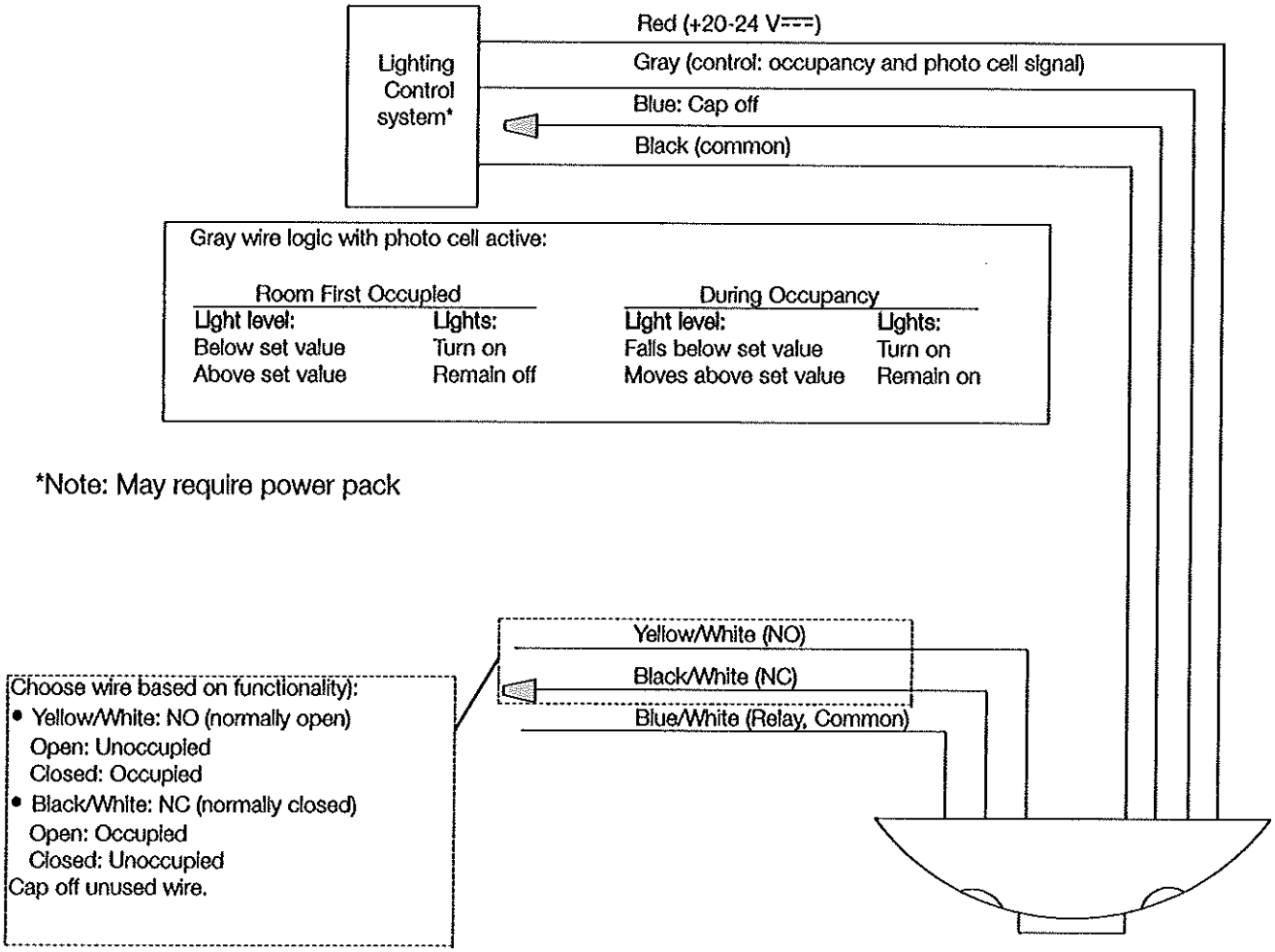
Note: Maximum of 3 devices total (occupant sensors and auxiliary power packs) can be connected to a power pack.

*Note: Use gray wire for -R model.

Wiring

Relay Model Option

LOS-CDT-xxxxR only



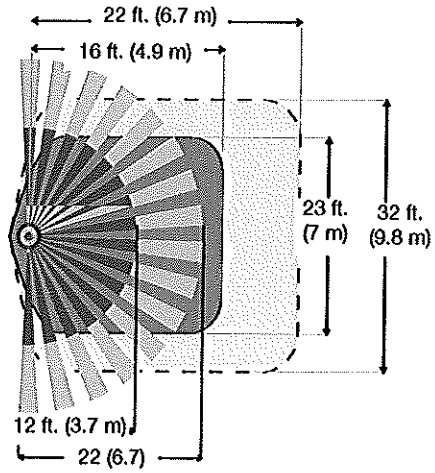
*Note: May require power pack

Installation

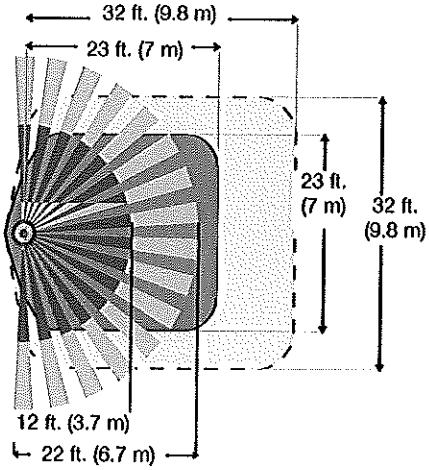
Sensor Placement

- The occupant sensor must have an unobstructed view of the room. Do not mount behind or near tall cabinets, shelves, indirect hanging fixtures, etc.
- Keep the occupant sensor away from air flow from ventilation outlets, windows, fans, etc.
- If installing a 180° occupant sensor (500 and 1000 models), place the sensor on the same wall as the doorway so that traffic in a hallway will not affect the sensor; otherwise, place in center of room.
- Closely follow the diagrams shown concerning major and minor motion coverage. The sensor can detect major motion (such as a person taking a half-step) at a greater distance than it can detect minor motion (such as writing or typing at a desk).
- Decrease total coverage area by 15% for "soft" rooms (for example, heavy draperies or heavy carpeting).

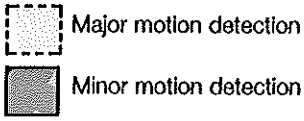
Range Diagrams

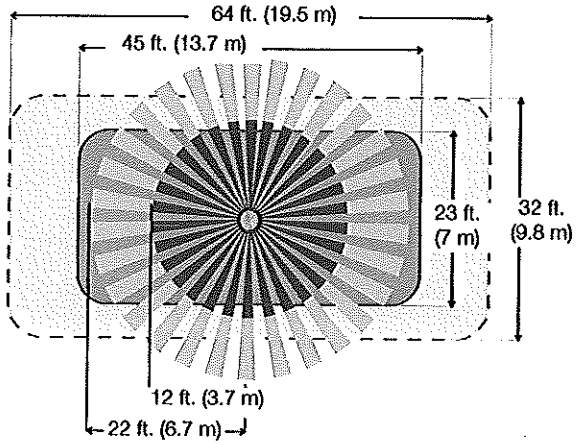


LOS-CDT-500



LOS-CDT-1000





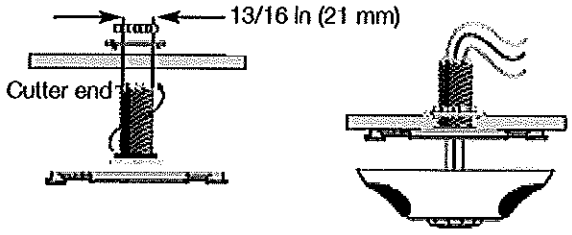
LOS-CDT-2000

Installation

Mounting

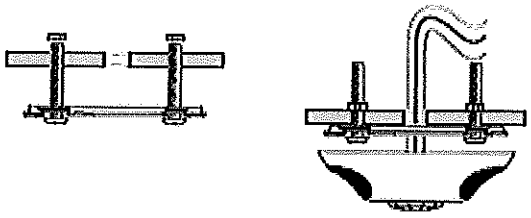
Normal Mounting

Twist and lock threaded mounting post onto cover plate. Drill through ceiling tile with assembly, using cutter end of the threaded mounting post. Secure with washer and nut.



Mounting to Non-Standard Ceiling or Fixture

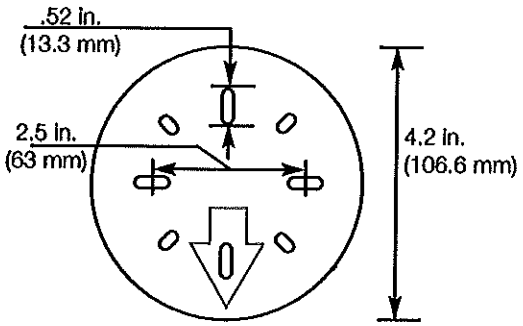
Mount twist-lock cover plate using mounting screws, nuts, and washers (included). Drill/punch wire routing hole through ceiling tile at center of cover plate.



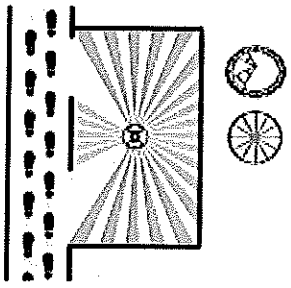
Wire Lengths

# Sensors	1	2	3	1	2	1
# Aux. PP	0	0	0	1	1	2
22 AWG	750 ft.	375 ft.	250 ft.	375 ft.	250 ft.	250 ft.
0.5 mm²	365 m	180 m	120 m	90 m	120 m	120 m
20 AWG	1200 ft.	600 ft.	400 ft.	600 ft.	400 ft.	400 ft.
0.75 mm²	730 m	365 m	240 m	365 m	240 m	365 m
18 AWG	2400 ft.	1200 ft.	800 ft.	1200 ft.	800 ft.	800 ft.

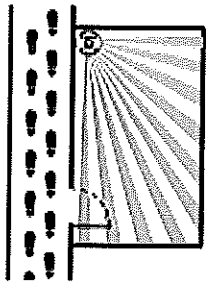
Mounting Plate Dimensions



Using the Infrared Mask



Center Ceiling Mount
(Mask blocks sensor seeing out doorway into hall)



Corner Ceiling Mount
(No mask needed)

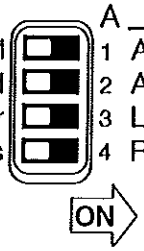
Typical Mask Patterns

Conference Room Mask | 180° Mask | Full Mask

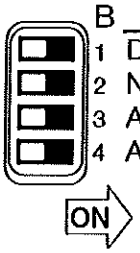
Rectangular Areas | Over the Door | Specific Areas You Wish to Mask

Sensor Adjustments

Override Settings



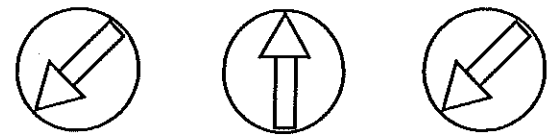
A		Off (Default)	On
Auto/Manual	1	Automatic (Normal)	Manual on/off (Override)
Threshold	2	Auto Threshold Adjustment	High Sensitivity (Low turn-on threshold)
LED Motion Indicator	3	Lights indicate motion	Disable LED Indicator
Reset Learned Settings	4	Retain Settings (Normal)	Erase all learned settings, restart Learning (Toggle On)



B		Off	On
Strong Airflow Compensation	1	Disable Compensation (Normal)	Enable Compensation
Over Doorway Installation	2	No (Normal)	Yes (Use increased turn-on threshold)
Timer Adjust	3	Adjust Timer Automatically	Use Manual Setting (No adjustment)
Auto Sensitivity	4	Adjust Sensitivity Automatically	Adjust Sensitivity Manually

Timer Test Mode

1. Remove the retainer cover.
2. Rotate the black timer adjustment knob to about midway (12 o'clock).
3. Return setting to minimum setting (full CCW).

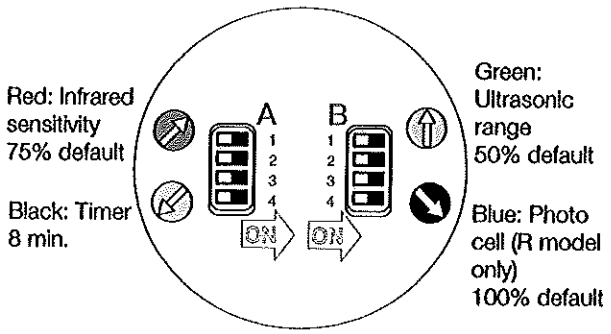


Factory Settings | 12 o'clock | Full CCW

Note: The timer will remain in the 8-second test mode for 1 hour, then automatically reset to 8 minutes.

4. To manually take the timer out of the 8-second test mode, turn the timer adjustment approximately 1/16" clockwise to make the setting slightly above minimum (just above the 8-minute setting).

Factory Settings



Installation

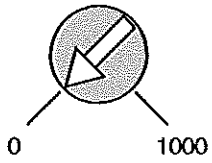
Adjusting the "Lights Not On" Level

LOS-CDT-xxxxR only

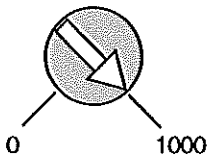
1. Place timer in Test Mode (see page 7).
2. Set photo cell to max.
   Turn the blue knob full clockwise (lights on no matter how bright the natural light is), then about 30 degrees counterclockwise.
3. Check for Lights-Out.
   Move from underneath the sensor, and remain still until the lights turn off. Move around normally to turn the light on.
4. Adjust to desired level.
   If lights remain off, adjust the blue knob another 30 degrees counterclockwise and repeat step 3 until the lights turn on.
   Note: Set blue knob to 100% to disable photo cell functionality and leave secondary dry contact closure output functionality intact.

Control Settings (Blue Knob)

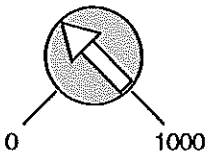
LOS-CDT-xxxxR only



Minimum (low):
Lights will never come on, even though room is occupied.

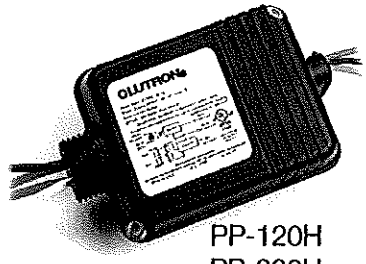


Maximum (high):
Photo cell has no effect on operation (factory setting).

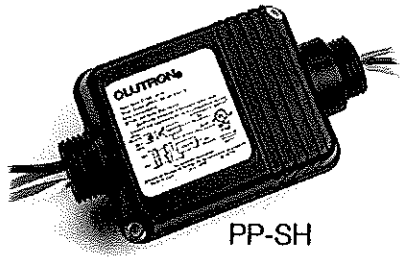


Normal:
200 to 600 LUX is normal range.

PP Series Power Packs



PP-120H
PP-230H
PP-277H
PP-347H



PP-SH

Power switch packs provide both the 24 V⎓ power supply to operate Lutron sensors as well as the 20 A line voltage relay to control the load in one compact housing. The unit can be placed outside or inside the junction box with a simple twist-on nut. The auxiliary relay model can be used with line voltage power packs to switch additional loads.

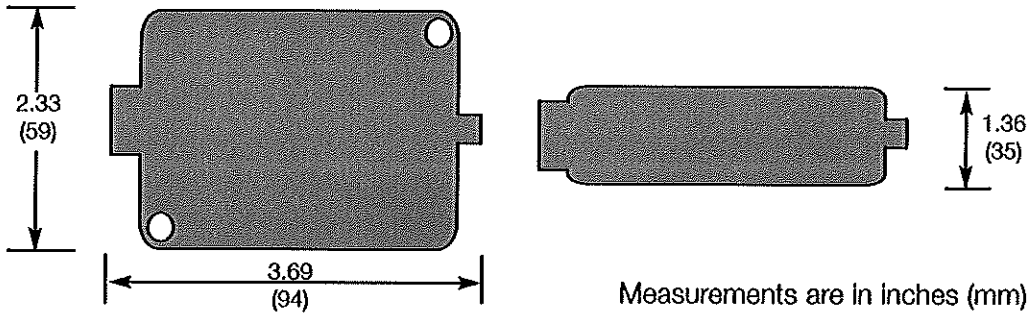
Features

- High-impact UL94 5 VA flammability-rated plastic case construction.
- Relay: Class B (130°C) insulating material; silver alloy contacts.
- 120 V, 277 V, or 347 V∿ transformer: 60 Hz; 230 V transformer: 50 Hz.
- 24 V⎓ nominal output; 100 mA nominal, full wave rectified and filtered.
- 7" wire leads, 18 AWG input; 7" leads, 16 AWG contacts.
- Relay contact rating:
  --20 A: 120/230/277 V ballast
  --15 A: 347 V ballast
  --15 A: 120 V incandescent
- Complies with requirements for use in a compartment handling conditioned air (plenum).
- Supports up to 3 devices, including occupant sensors and PP-SH units.
- Operating environment: 32°F to 104°F (0°C to 40°C); less than 90% relative humidity, non-condensing.
- For indoor use only.

Model Numbers

Catalog Number	Power Input	Control Input	Power Output
PP-120H	120 V∿, 60 Hz	24 V⎓, 5 mA	24 V⎓, 100 mA
PP-230H	230 V∿, 50 & 60 Hz	24 V⎓, 5 mA	24 V⎓, 100 mA
PP-277H	277 V∿, 60 Hz	24 V⎓, 5 mA	24 V⎓, 100 mA
PP-347H	347 V∿, 60 Hz	24 V⎓, 5 mA	24 V⎓, 100 mA
PP-SH	N/A	24 V⎓, 5 mA	N/A

Dimensions

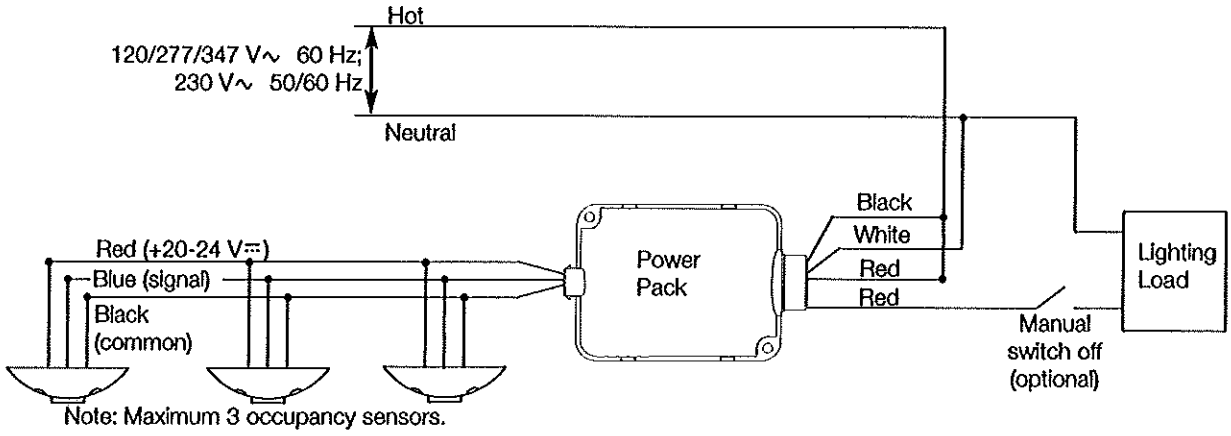


Measurements are in inches (mm)

Job Name:	Model Numbers:	
VA Hospital Research Office Building	PP-277H	
Job Number: 177567		

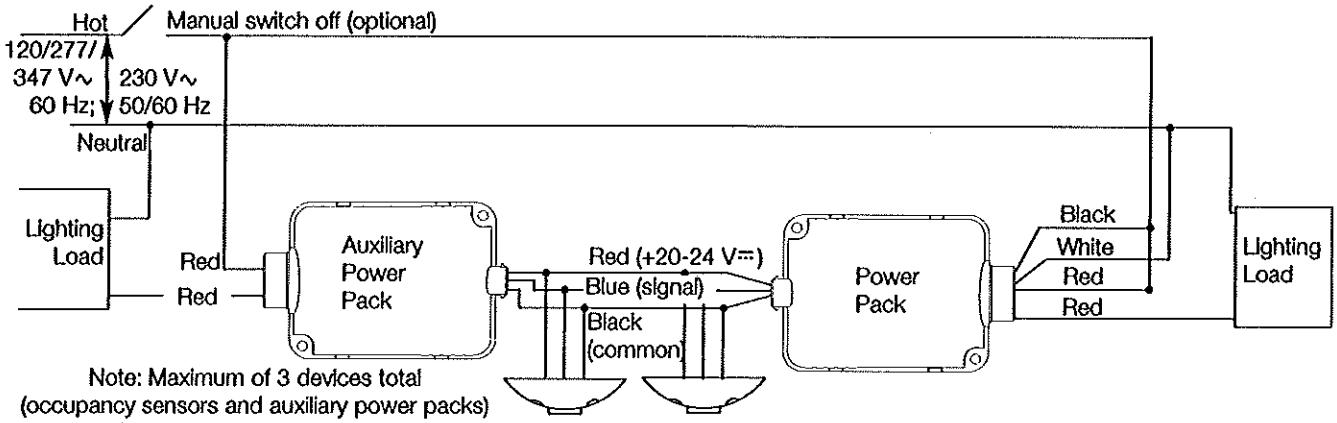
Wiring

1 to 3 Sensors with Power Pack



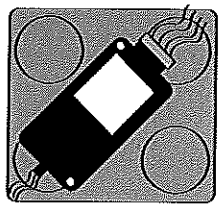
Note: Maximum 3 occupancy sensors.

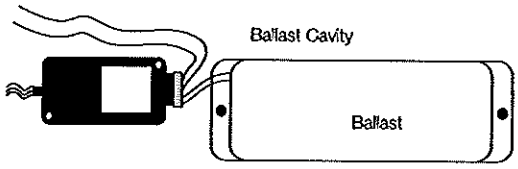
Switching Multiple Loads with Auxiliary Power Packs

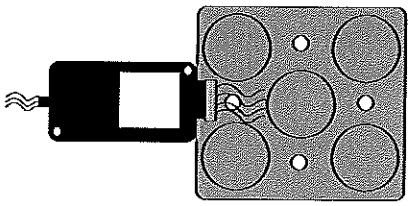


Note: Maximum of 3 devices total (occupancy sensors and auxiliary power packs) can be connected to a power pack.

Mounting







Fits inside junction box or standard fluorescent fixture ballast cavity

Mount with 6/32 x 1.25" pan head screws

Mounts to standard 4" x 4" junction box through knockout with 1/2" 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.

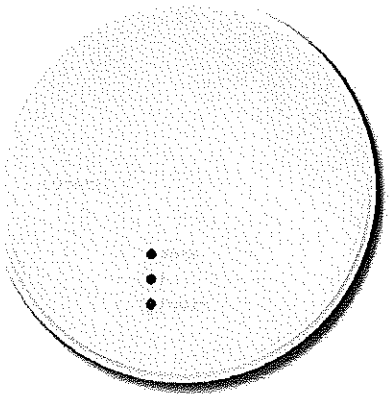
Installation

- Wire according to appropriate Wiring Diagram.
- Warning: Risk of electrical shock from energized equipment.
  Always turn power OFF and lock out during unit installation.
  Always install units in accordance with applicable national and local electrical codes.

369-242g 1 06.09.11

QS Sensor Module

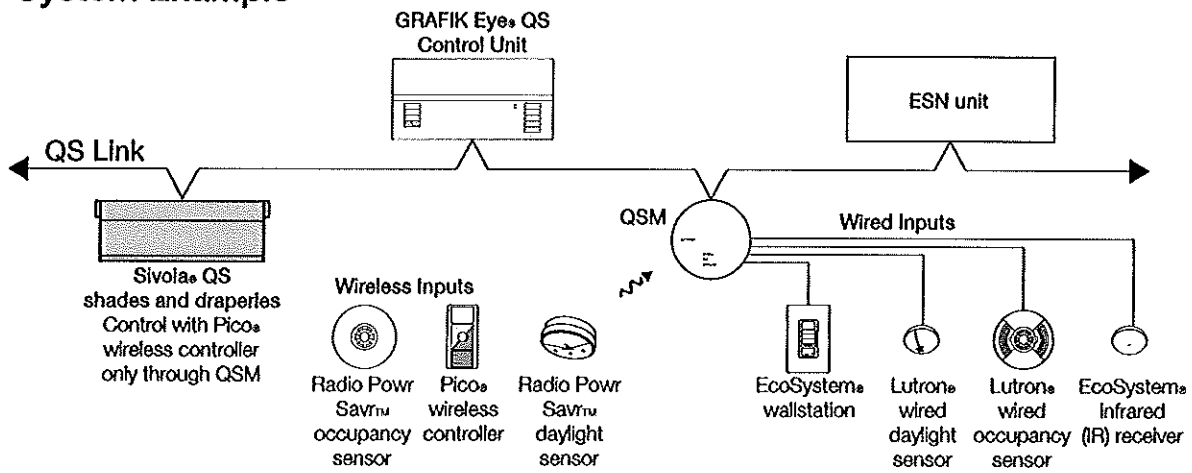
The QS Sensor Module (QSM) is a ceiling-mounted device that integrates Lutron® wireless and wired sensors and controls through the QS communication link to Energi Savr Node™ (ESN) units, GRAFIK Eye® QS, Quantum®, and Sivoia® QS shades and draperies.



Features

- Uses Clear Connect™ RF Technology for communication with Radio Powr Savr™ occupancy sensors, Radio Powr Savr™ daylight sensors, and Pico® wireless controllers.
- QSM connects to four Lutron® wired sensors or controls—occupancy sensors, daylight sensors, EcoSystem® infrared (IR) receivers, or EcoSystem® wallstations. Does not apply to wireless only models.
- Powered by the QS link—no line voltage connections are required.
- Contact Lutron® for compatibility details with the Quantum® system.
- Compatible with the entire ESN product family:
  - Allows Lutron® wired occupancy sensors, daylight sensors, EcoSystem® wall stations, EcoSystem® IR receivers, Pico® wireless controllers, Radio Powr Savr™ wireless occupancy sensors and daylight sensors to control ESN units.
- Compatible with GRAFIK Eye® QS control units.
  - GRAFIK Eye® QS control unit models starting with QSGR.
  - Allows Lutron® wired or Radio Powr Savr™ wireless occupancy sensors and daylight sensors linked to a QSM to control the GRAFIK Eye® QS control unit.
  - Contact Lutron® for compatibility with Pico® wireless controllers, EcoSystem® wallstations, and EcoSystem® infrared (IR) receivers.
- Compatible with Sivoia® QS shades and draperies.
  - Allows Pico® wireless controllers to control Sivoia® QS shades and draperies (QSM models with wireless inputs only).

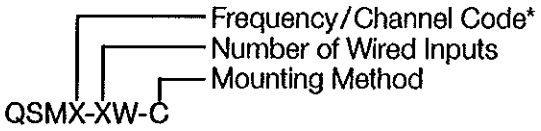
System Example



LUTRON® SPECIFICATION SUBMITTAL Page 1

Job Name:	Model Numbers:	
VA Hospital Research Office Building	QSM2-4W-C	
Job Number: 177567		

Models



Frequency/Channel Code*

2—431.5 - 436.6 MHz	U.S.A., Canada and Mexico
3—868.1 - 869.8 MHz	European Union and United Arab Emirates
4—868.1 - 868.5 MHz	Singapore and China
5—865.5 - 866.5 MHz	India
7—433.0 - 434.7 MHz	Hong Kong
X—No RF	

*Contact Lutron® for frequency/channel code compatibility with your particular geographic region if it is not indicated above.

Number of Wired Inputs
4—4
X—None

Mounting Method
C-Ceiling Mount
J-Junction Box Ceiling Mount

Availability/Compatibility

Refer to the chart below to determine QSM model availability and compatibility with different sensor models.

	Lutron® Radio Powr Savr™		
Models Available	Occupancy/Vacancy Sensors	Daylight Sensors	Lutron® Pico® Wireless Controllers
QSM2-4W-C QSM2-XW-C QSM2-4W-J QSM2-XW-J	LRF2-OCRB-P, LRF2-OHLB-P, LRF2-OKLB-P, LRF2-OWLB-P, LRF2-VHLB-P, LRF2-VKLB-P, LRF2-VWLB-P, LRF2-OCR2B-WH, LRF2-VCR2B-WH	LRF2-DCRB	MRF2-3BRL, MRF2-3B, MRF2-2BRL, MRF2-2B, QSR4P-3R
QSM3-4W-C QSM3-XW-C	LRF3-OCRB-P	LRF3-DCRB	QSRKP-2, QSRKP-2R, QSRKP-3R
QSM4-4W-C QSM4-XW-C	LRF4-OCRB-P	LRF4-DCRB	QSRMP-2, QSRMP-2R, QSRMP-3R
QSM5-XW-C	LRF5-OCRB-P	LRF5-DCRB	QSRNP-2, QSRNP-2R, QSRNP-3, QSRNP-3R
QSM7-4W-C QSM7-XW-C	LRF7-OCR2B-P	LRF7-DCRB	QSRQP-2, QSRQP-2R QSRQP-3, QSRQP-3R
QSMX-4W-C	N/A	N/A	N/A

Specifications

QS Sensor Module (QSM)

Power

- 24 V⎓
- Current draw:
  max 400 mA (models with wired input)
  max 100 mA (models without wired input)
- Power Draw Units: (PDU)
  Refer to the section titled "QS Link limits" as well as the QS Link Power Draw Units specification submittal (Lutron® P/N 369405) for information concerning PDUs on the QS Link. Use only Lutron® approved power sources.
- 10-year power failure memory: restores settings and programming after power interruption.

Regulatory

- Lutron® Quality Systems registered to ISO 9001.2008.

QSM2 –

- cUL US Listed (USA and Canada).
- FCC Compliant. Complies with the limits for a Class B digital device, persuant to Part 15 of the FCC Rules (USA).
- IC Certified. (Canada).
- SCT Certified (Mexico).

QSM3 –

- CE Marked (European Union).
- TRA Type Approved (United Arab Emirates).

QSM5 –

- WPC Type Approved (India).

QSM7 –

- FCC Compliant. Complies with the limits for a Class B digital device, persuant to Part 15 of the FCC Rules (USA).

Environment

- Ambient Temperature Operating Range: 32 °F to 104 °F (0 °C to 40 °C).
- Relative humidity: less than 90% non-condensing.
- For indoor use only.

Terminals

- Input wiring: 22 AWG to 12 AWG (0.5 mm² to 4.0 mm²)
- QS link wiring: 22 AWG to 12 AWG (0.5 mm² to 4.0 mm²)

Mounting

- QSM units should be mounted in the middle of non-metal ceiling tile or drywall, visible from inside the space.
- Installation near metal other than a Junction Box may reduce RF range.

Wireless Communication (models with wireless inputs only)

- RF Range: 60 ft (18 m) line of sight, or 30 ft (9 m) through typical construction materials.
- To ensure optimal wireless range, install the QSM in the ceiling in a visible position from inside the space.
- Lutron® Radio Powr Savr™ Occupancy sensor (up to 10)
- Lutron® Radio Powr Savr™ daylight sensor (up to 10)
- Lutron® Pico® wireless controllers (up to 10)

Wired Inputs

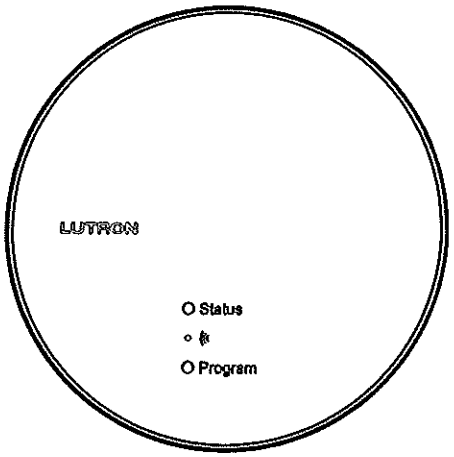
- There are 4 universal wired inputs. Each input can accept one of the following:
  - Lutron® EcoSystem® wallstations
  - Lutron® occupancy sensors (LOS- series)
  - Lutron® daylight sensors (EC-DIR- series)
  - Lutron® EcoSystem® infrared (IR) receivers (EC-IR, EC-DIR- series)
- Maximum wiring distance = 150 ft (46 m)

QS Link Limits

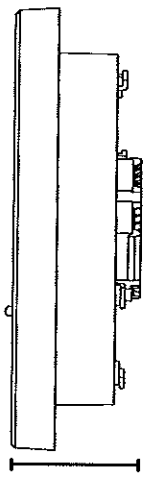
- The QS link can have up to 100 devices.
- Each QSM counts as 1 device towards the 100 device limit.
- Each QSM draws 3 Power Draw Units (PDUs) on the QS link.
- Wired sensors add to the PDU draw of a QSM. Refer to the QS Link Power Draw Units specification submittal (Lutron® P/N 369405) for information concerning PDUs.
- QS link maximum wire run length is 2000 ft (610 m).

Mechanical Dimensions (All Models)

Front View

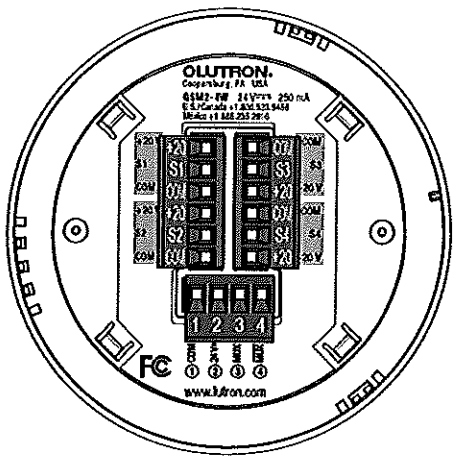


Side View

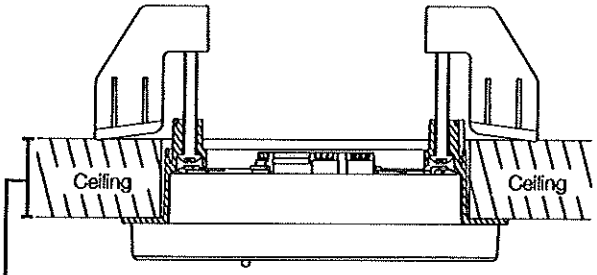


Back View

(QSM2-4W-C shown)

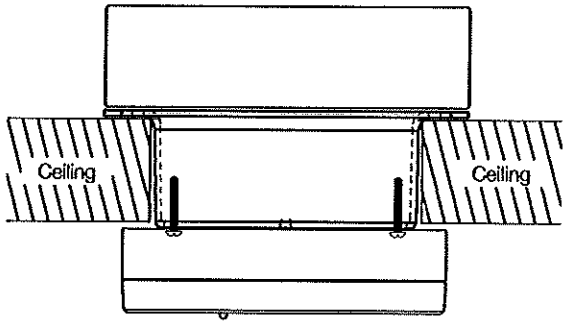


Mounted (-C Models)

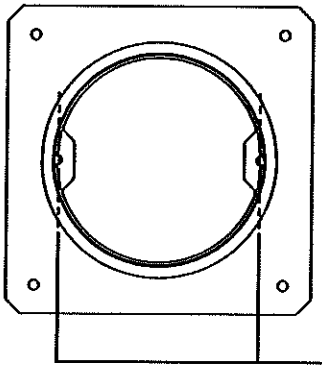


Ceiling thickness range for -C models
Min 0.30 in (7.62 mm)
to
Max 1.20 in (30.48 mm)

Mounted (-J Models)

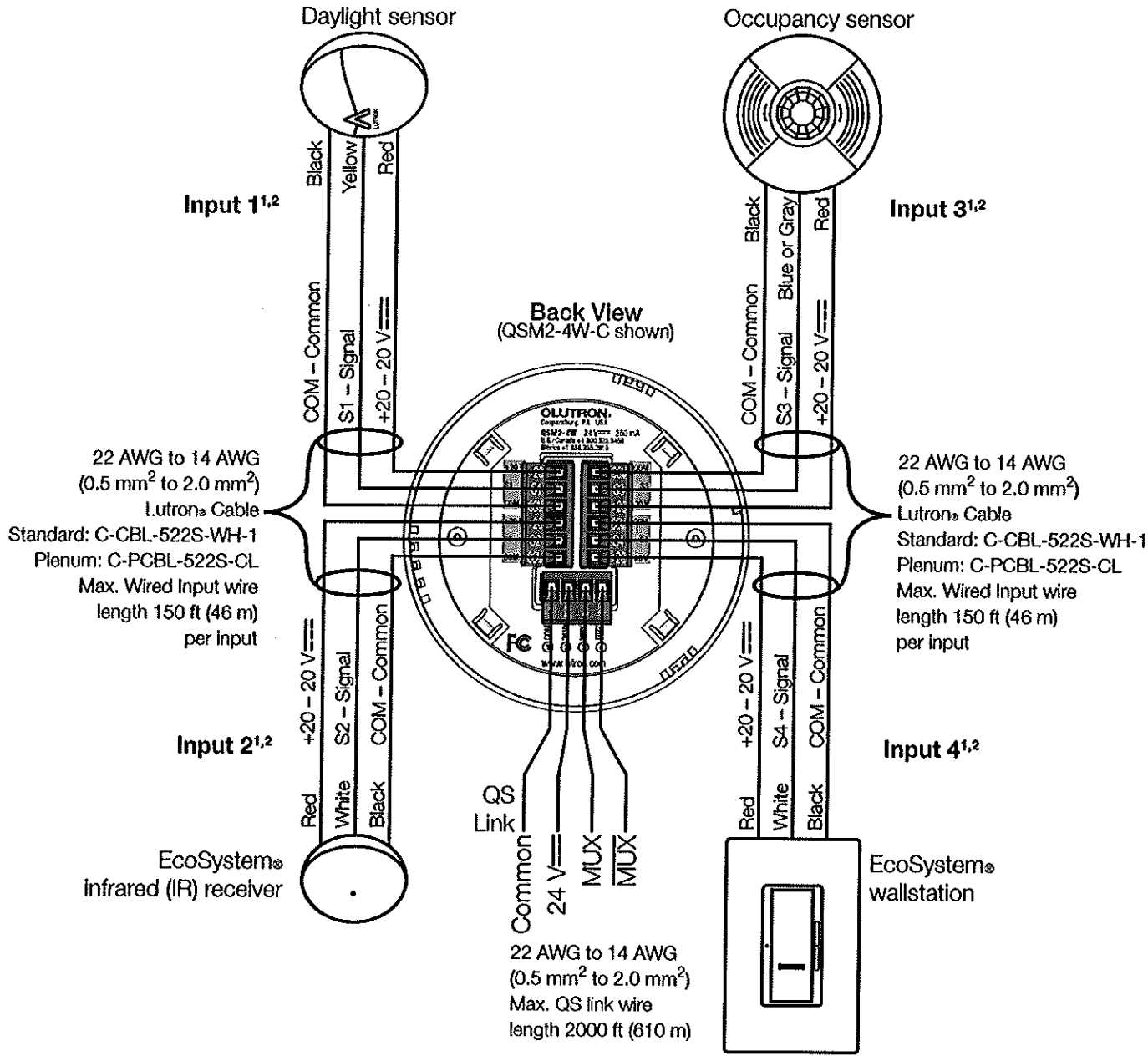


Use appropriate Mud Ring for ceiling tile thickness



Use Mud Ring with hole spacing shown below. (Mud Ring not included with any QSM models)

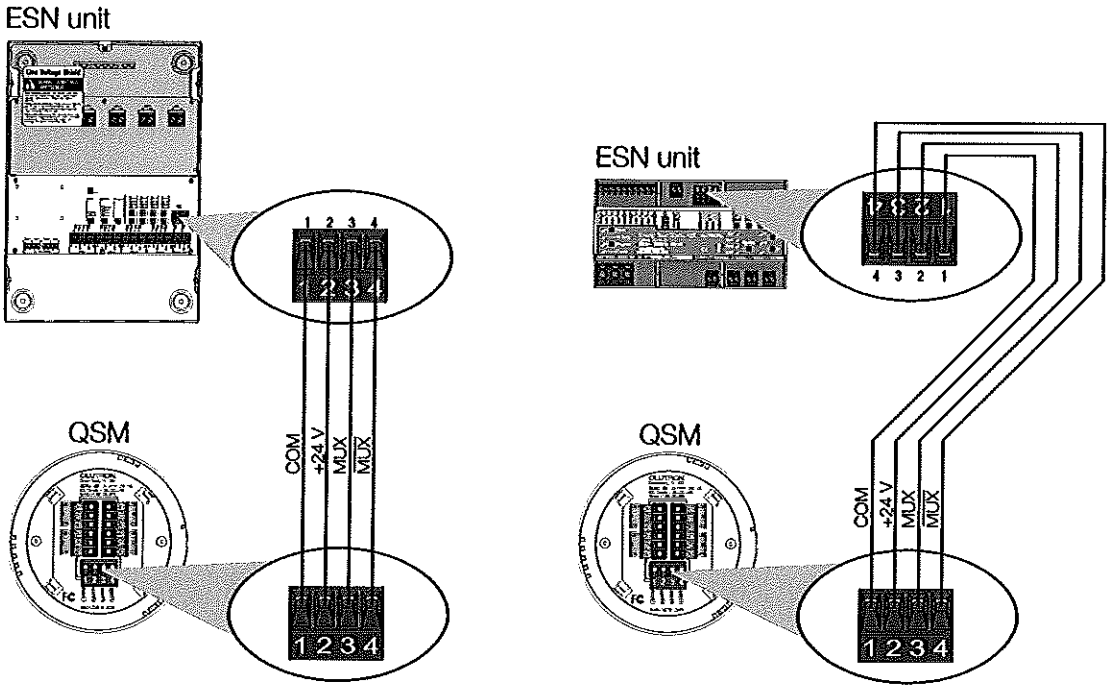
Wiring: QS Link and Wired Inputs[1]



1 Only on QSM models with wired inputs.
2 **Note:** For reference only. Each input is universal and can accept any of the inputs shown above.

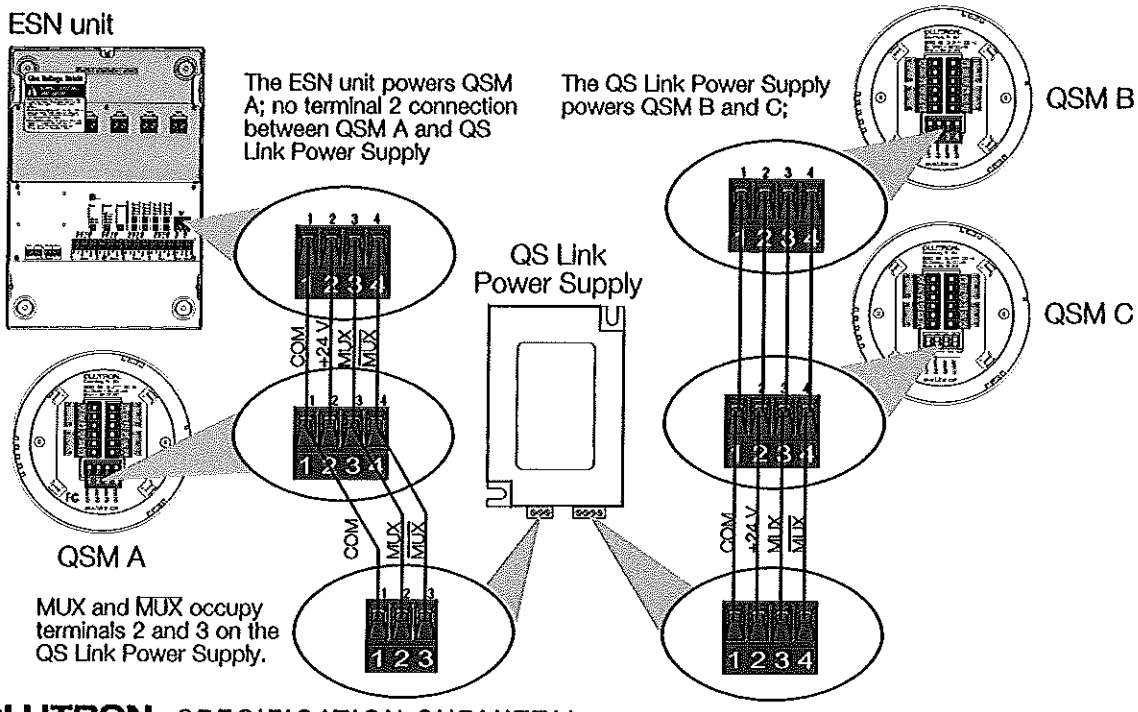
Wiring: Device Power

Single QS Sensor Module (QSM) powered by an Energi Savr Node™ (ESN) unit



Multiple QSMs powered by an ESN unit and a QS Link Power Supply

Note: A QS Link Power Supply may be necessary if Power Draw Units (PDUs) required by QSMs exceed avaiable PDUs from the device supplying power.



Job Name:	Model Numbers:	
VA Hospital Research Office Building	QSM2-4W-C	
Job Number: 177567		

Lutron Standard Limited Warranty

Applies to all Lutron Products that are not purchased with Lutron Services Co., Inc. start-up.

Limited Warranty

Lutron warrants each new unit to be free from defects in materials and workmanship and to perform under normal use and service.

Lutron will, at its option, repair or replace any unit that is defective in materials or manufacture within one year after purchase. For Lutron ballasts, Lutron will repair or replace any unit that is defective in materials or manufacture within three years after purchase.

THIS WARRANTY IS IN LIEU OF ALL OTHER EXPRESS WARRANTIES, AND THE IMPLIED WARRANTY OF MERCHANTABILITY IS LIMITED TO ONE YEAR FROM PURCHASE. THIS WARRANTY APPLIES ONLY TO LUTRON HARDWARE AND DOES NOT INCLUDE LUTRON SOFTWARE, LUTRON PROVIDED SYSTEM SERVERS, LAPTOPS, PDAS, OR COMPUTERS PURCHASED WITH LUTRON CONTROL SYSTEMS. THIS WARRANTY DOES NOT COVER THE COST OF INSTALLATION, REMOVAL, OR REINSTALLATION, OR DAMAGE RESULTING FROM MISUSE, ABUSE, OR IMPROPER OR INCORRECT REPAIR, OR DAMAGE FROM IMPROPER WIRING OR INSTALLATION. THIS WARRANTY DOES NOT COVER INCIDENTAL, OR SPECIAL DAMAGES. THE PURCHASER ASSUMES AND WILL HOLD HARMLESS LUTRON IN RESPECT OF ALL SUCH LOSS. LUTRON'S LIABILITY ON ANY CLAIM FOR DAMAGES ARISING OUT OF OR IN CONNECTION WITH THE MANUFACTURE, SALE, INSTALLATION, DELIVERY, OR USE OF THE UNIT SHALL NEVER EXCEED THE PURCHASE PRICE OF THE UNIT.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

For warranty service on returnable products (including Lutron ballasts), take the unit to the place of purchase or mail to:

Lutron
7200 Suter Rd.
Coopersburg, PA 18036-1299
(send postage pre-paid for proper handling)

For warranty service on non-returnable products, contact Lutron Technical Support Center at **1-800-523-9466**

Note - Although every attempt is made to ensure that catalog information is accurate and up-to-date, please check with Lutron before specifying or purchasing this equipment to confirm availability, exact specifications, and suitability for your application.

Job Name:	Model Numbers:	
VA HOSP RESEARCH		
Job Number: C177567.1.3		