

MODEL #	PIR	ACOUSTIC	PHOTOCELL	DEFAULT MODE
ILC-SWX-101-1-D-(MS)-xx*	•			Auto-On to 50%
ILC-SWX-103-1-D-xx	•			Manual On to Last Level
ILC-SWX-104-1-D-xx	•			Manual On to Last Level
ILC-SWX-111-1-D-xx	•		•	Auto-On to 50%
ILC-SWX-121-1-(MS)-D-xx	•	•		Auto-On to 50%
ILC-SWX-123-1-D-xx	•	•		Manual On to Last Level
ILC-SWX-124-1-D-xx	•	•		Manual On to Last Level
ILC-SWX-131-1-D-xx	•	•	•	Auto-On to 50%

* xx = color (WH, IV, LA, GY, RD, BK)

ADDITIONAL UNIT OPTIONS

- HE: High Humidity Environment

SPECIFICATIONS

ELECTRICAL

OPERATING VOLTAGE

12-24 VAC/VDC

CURRENT DRAW

4mA (PIR models)
16mA (Dual Tech. models)
18mA (Dual Tech. w/ Photocell units)

DIMMING COMPATIBILITY

0-10 VDC ballasts or drivers compliant with IEC 60929 Annex E.2

DIMMING LOAD

- 50 mA (sink only)

OUTPUT

Logic High VDC (Occupied Mode)

RECOMMENDED POWER PACK

SWX-900 (for Stand Alone apps.)
SWX-900-AX (for Multi-Way apps.)

ENVIRONMENTAL

OPERATING TEMP

32°F to 122°F (0°C to 50°C) - Standard
-40° F/C (with -HE Option)

RELATIVE HUMIDITY

0-95% Non-Condensing,
Indoor Use Only

PHYSICAL

SIZE

2.74"H x 1.68"W x 1.39"D
(6.96 x 4.27 x 3.53 cm)
Not Including Mounting Strap

WEIGHT

4.5 oz

MOUNTING

Single Gang Switch Box

OVERVIEW

Sensors detect movement in the infrared energy that radiates from occupants as they move within the devices field-of-view. Once occupancy is identified, the sensor signals a connected power/relay pack to switch on the connected lighting. All stand alone units can also be configured to operate in Vacancy Mode (e.g., require lights be manually switched on). Once lights are on and if equipped with passive dual technology (PIR/Acoustic), the unit's microphone is enabled to further enhance detection. An internal timer is set to keep lights on during brief periods of inactivity, and is reset every time occupancy is signaled by either the passive infrared or acoustic detection technologies. Ambient daylight detection can also be enabled in equipped units so that lights are held off in rooms with sufficient light contribution from windows or skylights. A Multi-Switch/Sensor option is also available to achieve more advanced control applications.

✓ CODE COMPLIANCE

This wall switch sensor can be used to meet many requirements of ASHRAE 90.1 (2016), IECC (2015), and Title 24 (2016).

- Occupancy Operation: Auto On/Auto Off
- Vacancy Operation: Manual On/Auto Off
- Partial On Operation:
 - Auto On to 50%
 - Users can raise or lower light level manually
 - Auto Off

ASHRAE®
STANDARD 90.1 - 2016

IECC®
2015 STANDARD



FEATURES

PHYSICAL FEATURES

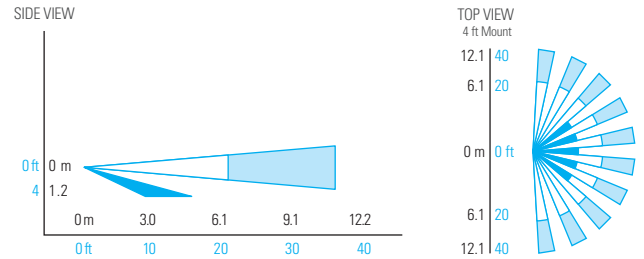
- Enclosure is 25-40% Shallower than Other Sensors (< 1" Depth into Wallbox)
- Unique Bat-Wing Shaped Lens Provides Enhanced Peripheral Detection
- Modern Look and Intuitive Easy-Tap Buttons for On/Off, Raise, & Lower
- Rugged Vandal Resistant Lens
- Settings are Adjustable Without Removing Cover Plate

OPERATIONAL FEATURES

- Compatible with 0-10V Dimmable LED and Fluorescent Lighting
- Wall-To-Wall Passive Infrared Small Motion Detection
- Passive Acoustic Detection (Optional) - Prevents False Offs when No Motion is Present
- 100% Passive Detection Methods - No Interference Potential from External Devices
- Configurable Sensor Settings Including Time Delays and Occupancy/Vacancy Operating Modes
- Configurable Dimming Parameters including High/Low Trims, Turn on Levels, and Curve Types
- Blue Locator LED when Lights are Off
- Multi-Way/Multi-Sensor Option

COVERAGE

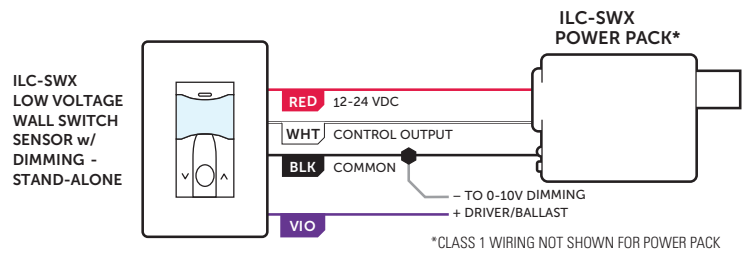
- 30" to 48' (0.76 - 1.22 m) recommended mounting height
- Wall to wall (~180 degree) coverage
- Small motion (e.g., hand movement) detection up to 20 ft (6.10 m), ~625 ft²
- Large motion (e.g., walking) detection greater than 36 ft (10.97 m), ~ 2025 ft²
- Overlapping acoustic detection of occupants over entire coverage area
- Advanced signal processing filters out nuisance noises while not effecting overall sensitivity
- As an added safety convenience, the acoustic detection is left active for 10 seconds after sensor turns the lights off to allow for voice reactivation



WIRING

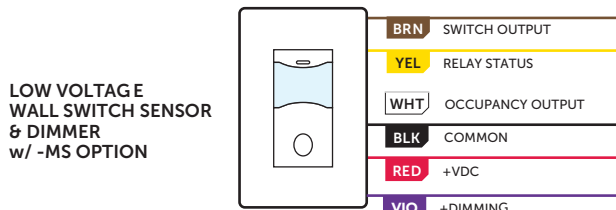
STAND-ALONE SENSOR WIRING

It is not recommended to connect a second low voltage sensor to the stand-alone model low voltage wall switch sensor as the second sensor will override the switches on/off button when occupied. For multi-sensor applications, models with the **-MS** option should be utilized.



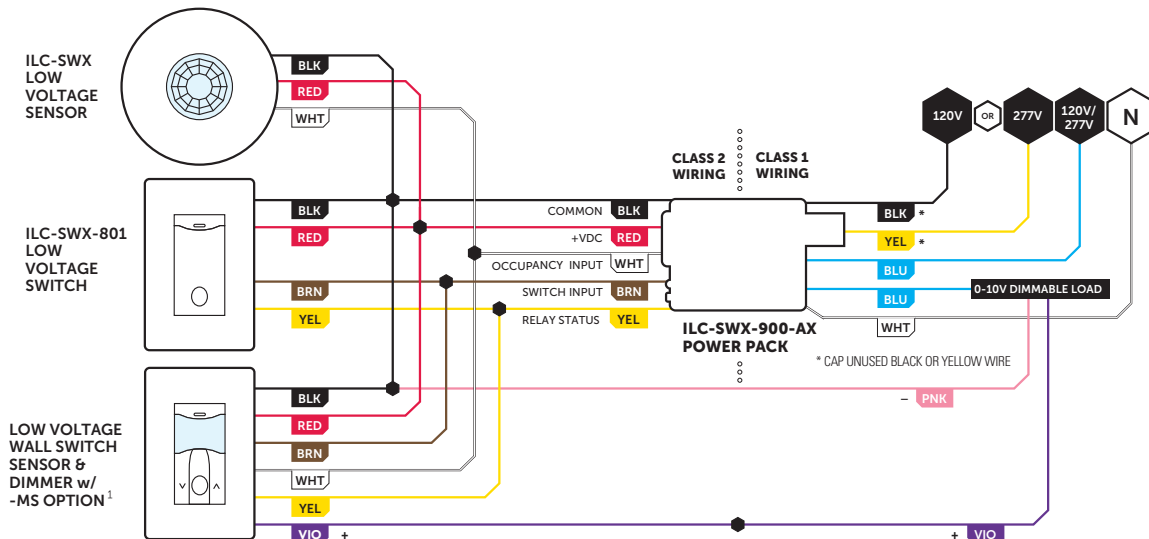
BASIC -MS VERSION WIRING

(MODELS: ILC-SWX-101-1-D-MS / ILC-SWX-121-1-D-MS)



MULTI-SWITCH AND MULTI-SENSOR APPLICATIONS

- Multi-Switch (i.e. 3-way) applications include a single low voltage wall switch sensor/dimmer (**-MS** option required) and one or more low voltage switches (ILC-SWX-801)
- It is recommended that all low voltage switches be within the line-of-sight of the sensor
- Multi-Sensor applications include a single low voltage wall switch sensor/dimmer (**-MS** option required) and one or more low voltage sensors (e.g. ILC-SWX-201-1)
- ILC-SWX-900-AX model power packs should always be used with sensors with multi-switch/multi-sensor (**-MS**) option



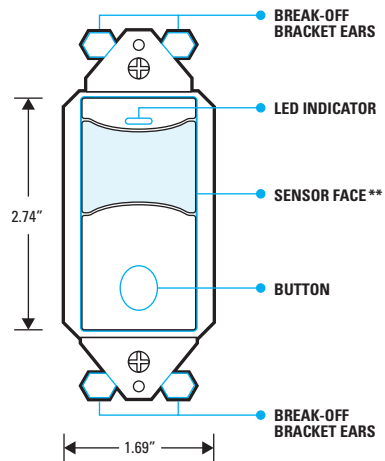
1. SEE ABOVE MODEL NUMBER DETAIL TABLE FOR COMPATIBLE UNITS

INSTALLATION

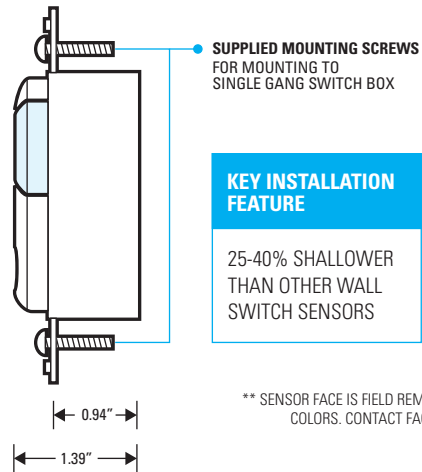
MOUNTING

- Designed to mount in 1-gang wall box with 3.28" hole spacing
- Units also can share multiple gang wall boxes with other devices

FRONT



SIDE



** SENSOR FACE IS FIELD REMOVABLE IN ORDER TO CHANGE COLORS. CONTACT FACTORY FOR ADDITIONAL FACES

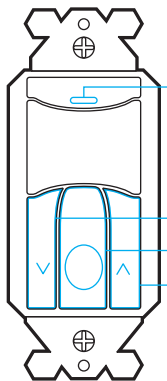
CONFIGURATION SETTINGS

CONFIGURATION PROGRAMMING

- 1 From the lists of Configuration Functions below, note the Button Position and number (#) of the Function to be changed. For example, HIGH TRIM setting is the Right Button, #3.
- 2 Enter programming mode by pressing and holding the CENTER button until the blue LED begins rapid flashing, then release.
- 3 Press and release the applicable button the number of times for the chosen function. For example, press the RIGHT button 3 times for the HIGH TRIM setting.
- 4 The LED will flash back white the number of times equal to the current setting number as it appears in each function's detailed table of values. For example, the default HIGH TRIM is setting #2 (10V). Following a short pause, this blink back sequence will repeat.
- 5 Interrupt blink back by pressing the applicable button the number of times corresponding to the new setting #. For example, RIGHT button 3 times (for 9V).
- 6 The LED will flash back the new setting number as confirmation.
- 7 To Save and Exit programming mode, press and hold the function's applicable button again until the LED changes to White, then release. The LED will then blink white twice as confirmation of success. Note: To Exit without saving during any step, wait until unit double flashes blue.

NOTE IF THE LED DOUBLE FLASHES TWICE BLUE AT ANY POINT, REPEAT THE ABOVE PROCEDURE.

CONFIGURATION FUNCTIONS



The diagram shows a vertical rectangular device with a central display area. Above the display is a small blue LED indicator. Below the display are three buttons: a Left button, a Center button, and a Right button. Lines connect the LED indicator to the 'LED INDICATOR' label and the 'LEFT BUTTON' section. Lines connect the three buttons to their respective sections: 'LEFT BUTTON', 'CENTER BUTTON', and 'RIGHT BUTTON'.

LEFT BUTTON

DIMMING

FUNCTION NAME	BUTTON POSITION	FUNCTION #
Turn Off Scheme	Left	2
Low Trim	Left	3
Fade Off Time	Left	4

CENTER BUTTON

FUNCTION NAME	BUTTON POSITION	FUNCTION #
Time Delay	Center	2
Operating Mode	Center	3
Photocell Setpoint	Center	4
Auto-on Sensitivity	Center	5
Microphone	Center	6
LED	Center	7
Factory Reset	Center	8

RIGHT BUTTON

DIMMING

FUNCTION NAME	BUTTON POSITION	FUNCTION #
Turn On Dimming Level	Right	2
High Trim	Right	3
Fade On Time	Right	4
Dimming Curve Type	Right	5

CONFIGURATION SETTINGS CONT.

DETAILED FUNCTION TABLES FOR NON-DIMMING FEATURES

FUNCTION #2 TIME DELAY

CENTER BUTTON

SETTING #	DESCRIPTION	FUNCTION #
1	Test Mode	Temporary 5 sec time delay, reverts after 10 min
2	30 Sec	
3	5 Min	
4	10 Min	Default for all models
5	15 Min	
6	20 Min	
7	30 Min	

FUNCTION #3 OPERATIONAL MODES*

CENTER BUTTON

In stand alone models, users can choose from several pre-programmed operational modes that best fit their preferences and applicable energy codes.

* In multi-sensor/switch (-MS) models, all operational modes (including Vacancy and Occupancy) are configured at the connected ILC-SWX-900-AX power pack.

SETTING #	DESCRIPTION	NOTES
2	Vacancy Mode (Manual On / Automatic Off) This mode provides increased energy savings but requires the user to initially turn on the lights by pressing the button. Lights can also be switched off manually.	Default for models ILC-SWX-1x3-1-D and ILC-SWX-1x4-1-D.
3	Occupancy Mode (Automatic On / Automatic Off) Automatic On and Automatic Off operation. If lights are switched off manually, the Automatic On functionality is temporarily disabled to allow the occupant a few seconds to leave the room before returning to Automatic On operation. However, if the person remains in the space, the unit will stay in a manual on state until the switch is pressed again.	Default for ILC-SWX-1x1-1-D models. Not available for ILC-SWX-1x4-1-D models.
4	Automatic On w/ Exit Time Mode (Automatic On/ Automatic Off) If lights are switched off manually, the Automatic On functionality is disabled for a fixed 30 seconds to allow a person time to leave the room.	
5	Override Off Mode Automatic On and Automatic Off operation until lights are switched off manually, at which point Automatic On functionality is disabled until the button is pressed again.	Not available for ILC-SWX-1x4-1-D models.
6	Disabled Switch Mode Automatic On and Automatic Off operation only. Switch functionality to manually turn on/off lights is disabled.	
7	Presentation Mode If lights are switched off manually, the Automatic On functionality is disabled until the space becomes unoccupied and the sensor's time delay expires.	

FUNCTION #5 AUTO ON SENSITIVITY

CENTER BUTTON

This setting indicates the sensor's PIR sensitivity when the lights are off. Typically, this setting should be FULL, but if reflective surfaces (like windows) are causing false-ons the REDUCED setting should be used. Note that the unit returns to full sensitivity after initial detection.

SETTING #	DESCRIPTION	NOTES
2	Full initial PIR sensitivity	Default for all models
3	Reduced PIR sensitivity for initial turn-ons in order to eliminate false on's caused by reflective surfaces like windows. Full sensitivity after initial turn-on.	

FUNCTION #6 INITIAL ACOUSTIC SENSITIVITY

CENTER BUTTON

Dual technology (i.e. PIR + acoustic) sensors prevent non-occupant sounds from resetting the time delay by dynamically reducing the microphone's sensitivity at specific frequencies. In some environments, decreasing the sensitivity across all frequencies so that lights go off sooner, may be preferred. A unit's microphone can also be disabled (effectively changing sensor to a PIR only version).

SETTING #	DESCRIPTION	NOTES
2	Normal	Default for all models
3	Reduced	
4	Disabled	

FUNCTION #7 LED FUNCTION

CENTER BUTTON

By default, the sensor's LED will be solid blue when the unit's relay is in the open/ off state. This serves as a switch locator. Once the lights are on, the LED will blink white whenever the sensor detects PIR motion. A unit with dual technology will also blink the LED white when it acoustically detects occupancy. The blue and/or white LED functionality can also be disabled.

SETTING #	DESCRIPTION	NOTES
2	White LED for occupancy, blue locator LED enabled	Default for all models
3	White LED for occupancy, blue locator LED disabled	
4	All LED functionality disabled.	
5	White LED for PIR, blue LED for acoustic detection. Blue locator LED enabled.	
6	White LED for PIR, blue LED for acoustic detection. Blue locator LED disabled.	

FUNCTION #8 RESTORE FACTORY DEFAULTS

CENTER BUTTON

SETTING #	DESCRIPTION
3	Restore Factory Defaults

CONFIGURATION SETTINGS CONT.

FUNCTION #4 AMBIENT LIGHT OVERRIDE (PHOTOCELL)

* Not available on multi-sensor/switch (-MS) models

CENTER BUTTON

Sensor will prevent lights from automatically turning on when measured light level exceeds selected setpoint (e.g., ambient light threshold). LED blinks blue every 10 seconds when lights are being overridden. If ambient light level falls below threshold for more than 45 seconds, lights will switch on. During transition time, the LED will blink blue at an increasingly faster rate. Once on, lights will stay on until occupancy time delay expires, regardless of ambient light level.

SETTING #	DESCRIPTION
2	Disabled [Default]
3	Run Auto-Setpoint*
4	2 fc
5	5 fc
6	15 fc
7	30 fc
8	50 fc
9	75 fc
10	99 fc

Manual Setpoint Options

*Instead of blinking back setting #, the value of the setpoint will be blinked back in two alternating digits:

- Blue LED = 10's digit (1-9 blinks or rapid blink or 0)
- White LED = 1's digit (1-9 blinks or rapid blink or 0)

AUTO-SETPOINT SELECTION DETAILS

- A** Once setting 3 "run auto-setpoint" has been selected, exit programming mode by pressing button until LED changes from blue to white. The sensor's LED will rapidly flash white twice confirming programming change.
- B** LED will then blink back blue at an increasing rate for 15 sec. In order to provide user time to exit area in front of sensor.
- C** Lights will then cycle in order for sensor to calculate the controlled (artificial) light level. This is done by subtracting the light level with the lights off (relay open) from the light level with the lights on (relay closed).
- D** Setpoint selection
- If controlled level is less than 2 fc, setpoint will be set to measured level when relay is open (minimum 2 fc)
 - If controlled level is greater than 75 fc, setpoint will be set to 99 fc
 - If controlled level is between 2 and 35 fc, setpoint will be set to that level plus a reflectivity ratio factor.
 - If controlled level is between 35 and 70 fc, setpoint will be set to 75 fc
- E** To check auto selected setpoint, press and hold button again until LED flashes rapidly. Release and press button 4 times. Setpoint will be blinked back in two alternating digits:
- Blue LED = 10's digit (1-9 blinks or rapid blink or 0)
 - White LED = 1's digit (1-9 blinks or rapid blink or 0)

DETAILED DIMMING FUNCTION TABLES

FUNCTION #2 TURN OFF SCHEME

LEFT BUTTON

SETTING #	VALUES	NOTES
2	Unit's signals connected relay to open immediately, switching power off to load	Default for all models
3	Unit fades dimming output down to low trim level then signals connected relay to open.	
4	Unit fades dimming output down to 0 volts (i.e. below a connected driver's electronic off level). Relay remains closed	
5	Unit fades dimming output down to low trim level. Relay remains closed	

FUNCTION #2 TURN ON DIMMING LEVEL

RIGHT BUTTON

SETTING #	VALUES	NOTES
2	Fade on to 100% of High Trim	
3	Fade on to 50% of High Trim	Default for ILC-SWX-101-1-D, ILC-SWX-111-1-D, ILC-SWX-121-1-D, ILC-SWX-131-1-D models
4	Fade on to last user level	Default for ILC-SWX-103-1-D, ILC-SWX-123-1-D
5	Fade on to current (custom) level	Saves unit's current dim level

FUNCTION #3 LOW TRIM

LEFT BUTTON

SETTING #	VALUES	NOTES
2	Saves current level as low trim	
3	0%	
4	10% (Default)	
5	20%	
6	30%	
7	40%	
8	50%	Exact output voltage level depends on Dimming Curve selected (e.g. Linear, Log). Light output at each level depends on driver/ballast and luminaire.

FUNCTION #3 HIGH TRIM

RIGHT BUTTON

SETTING #	VALUES	NOTES
2	Saves current level as high trim	
3	100% (default)	
4	90%	
5	80%	
6	70%	
7	60%	
8	50%	Exact output voltage level depends on Dimming Curve selected (e.g. Linear, Log). Light output at each level depends on driver/ballast and luminaire.

CONFIGURATION SETTINGS CONT.

FUNCTION #4 FADE OFF TIME

LEFT BUTTON

SETTING #	VALUES	NOTES
2	0.75 Sec	
3	1.5 Sec	Default for all models
4	3 Sec	
5	5 Sec	
6	15 Sec	

FUNCTION #4 FADE ON TIME

RIGHT BUTTON

SETTING #	VALUES	NOTES
2	0.75 Sec	
3	1.5 Sec	Default for all models
4	3 Sec	
5	5 Sec	
6	15 Sec	

FUNCTION #5 MANUAL DIMMING RESPONSE CURVE

RIGHT BUTTON

SETTING #	VALUES	NOTES
2	Linear	Default for all models
3	Log	
4	Square Log	

OPERATIONAL NOTES

TEST MODE

A test mode with a 5 second time delay is provided in order to efficiently perform walk testing. The sensor will blink white on any detected PIR event and blue on any detected acoustic event, although its time delay will only be reset by a PIR event. While in test mode, the blue locator LED also will not be lit when the lights are off (i.e. relay open).

TO PUT A SENSOR IN TEST MODE FOR 10 MINUTES:

- Press and hold the push button until blue LED begins to rapid flash, then release
- Press sensor's pushbutton 2 times, then wait two seconds
- Press button 1 time to select Test Mode
- To exit and save, press and hold the push button again until blue LED changes to white, then release. Unit will blink white twice indicating save was successful. If LED blinks twice blue, an error condition has occurred.
- After 10 minutes, the sensor's time delay will revert to previous saved time delay

VACANCY MODE

- If sensor is configured for vacancy (manual on) operation, the ambient light override setting will be overwritten to "DISABLED" and any attempted modifications to the setting will trigger an error condition (indicated by double blue LED flash after exit/save). The ambient light override feature (i.e. photocell) can only be enabled when the sensor is in an automatic on operating mode.
- There is a 15 second "grace" period after the sensor times out when the sensor will switch lights back on automatically. After 15 seconds the sensor will revert to vacancy (manual on) operation.

MICROPHONE GRACE TIMER

- As an added safety and convenience feature, a sensor with acoustic detection will keep its microphone enabled for an additional 15 seconds after lights are automatically turned off to enable voice reactivation. The LED will not be lit during this period, but once the 15 second grace timer has expired, the LED will come on solid blue (if locator functionality is enabled).