Installation Guide
OccuSwitch Wireless Sensor

LRM176000
Occupancy sensor
with Daylight sensor

LRM174300
Occupancy sensor

Installation Steps
1. **Install wall device** (separate instructions)
2. **Install sensor**
3. **Link devices**
4. **Configure, test and finish**

PHILIPS

Sensor box contents

(1x)   (1x)   (2x)   (2x)   (2x)   (1x)

Tools required (for entire install)

Movement detector ("sensor")
Mounting plate
Sensor unit
Link button
Indicator LEDs
Movement detector
Retractable, rotatable shield

Wall switch ("switch")
Mounting frame
Side tabs
Switch
Wires
Link button
"Traffic light" Indicator LEDs
Rocker
Menu button

LEDs and Buttons

Indication		Meaning	Device
Red, Yellow, Green		Device starts up or reset to factory defaults	All
Green	10 sec.	A device asked to show all linked devices	All
	1 min.	Device is in linking mode	Switch Dimmer
Yellow Blink	Irregular	Sensor is showing coverage	Sensor
Yellow Blink	Every 2 Sec.	Device is in the configuration menu	Switch Dimmer
Red Blink	Regular	A linked device is missing (see Troubleshooting)	Switch Dimmer
Red Blink	2 Sec. rate	Device is in the Action menu	All
Steady Yellow	Always ON	Lights are switched manually. Automatic mode returns after vacancy timeout or command to return to auto mode	Switch Dimmer
Red Blink	5 Sec Rate	Sensor Battery Low	Switch Dimmer
Red Blink	2 Sec. Rate	During link test = low battery	Sensor

Product Description
OccuSwitch™ Wireless automatically controls the lights based on occupancy and daylight. The system has two parts: ceiling-mounted sensor and wall mount power handling device (switch or dimmer). The switch will turn the lights On and Off based on the information received from the wireless occupancy sensor. The dimmer will dim lights Up and Down to the appropriate intensity base on the available daylight in the space. The dimmer can also manually dim the lights.

Key figures

Sensor Coverage Area	Coverage is dependent on ceiling height up to 12ft (3.65m).
	For a typical height of 8ft (2.4m):
	Large motion 17.7 x 23.6ft (5.40m x 7.20m) Small motion 11.8 x 17.7ft (3.60m x 5.40m) Larger areas will require multiple sensors.
Wireless Range	Wall device to sensor: 50ft (17m)
Network Size	16 Sensors, Switches & Dimmers.
Light Range	1 to 150 F.C. 10 to 150 LUX
Dimensions -	3.3 x 0.98 in (84 x 25mm) (diameter x height)

SAFETY
Parts of the switch & dimmer carry line power, which is a potential lethal voltage. This product was designed and manufactured to ensure maximum safety during operation and service. Always read these safety instructions before installing, maintaining or servicing the product, and strictly comply with these instructions.

General
- If you are unsure about any part of these installation instructions, consult a qualified electrician.
- The devices are designed for indoor use only.
- To avoid short circuits, do not expose this product to rain or condensing moisture. Short circuit may cause fire or electric shock hazard. Operate the devices between 41°F and 104°F (5° C and 40°C) ambient temperature. .
- Use only a soft damp cloth to clean, never use any abrasive or chemical cleaner.
- Whenever it is suspected that an unsafe condition exists, switch off power at the circuit breaker and replace the device. Safety is likely to be impaired if, for example, the equipment fails to perform the intended functions or if the equipment shows visible damage. Do not paint the devices.

Wall Device (Switch & Dimmer) only
- Disconnect power at circuit breaker or fuse when servicing, installing or removing the fixture of the switch.
- Only use with copper or copper clad wire.
- Wire switch to the line power according to the wiring scheme in this manual.
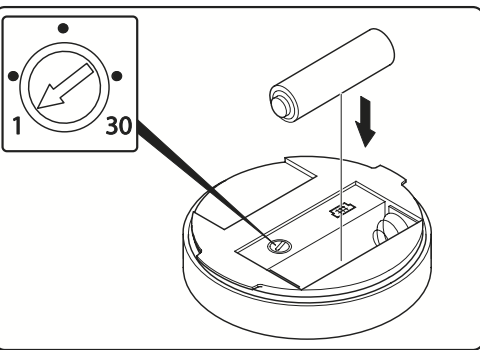
Sensor only
- The sensor cannot control loads directly use compatible switch or dimmer.
- Use only high-quality AA size, 3.6V Lithium-thionyl chloride batteries sensors. Using improperly rated batteries may damage the sensor or fail to operate properly.
- Dispose of used batteries promptly. Keep batteries away from children, do not disassemble and do not dispose of in fire.

WARNING: The product is intended to control lighting loads only. Do NOT use to control equipment that could create hazardous situations, like entrapment. For examples, do NOT install this product to control motorized gates, garage doors, industrial doors, microwave ovens, heating devices, etc.

WARNING: It is the installer's responsibility to ensure that the equipment being controlled is visible from every control location and that only suitable equipment is connected to these controls. Failure to do so could result in serious injury or death.

CAUTION: The battery used with the sensor device may present a risk of fire or chemical burn if mistreated. Do not recharge, disassemble, heat above 100°C, or incinerate. Replace battery with Lithium-thionyl chloride (AA 3.6V) only. Use of another battery may present a risk of fire or explosion.
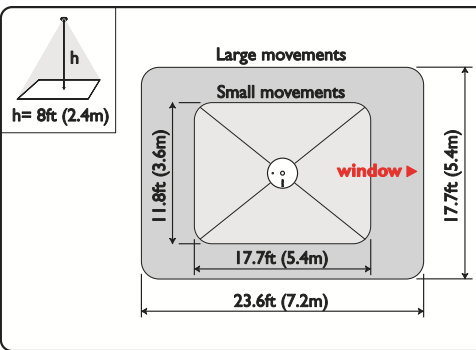
2   INSTALL SENSOR

1   30

h = 8ft (2.4m)

Large movements
Small movements
11.8ft (3.6m)
17.7ft (5.4m)
17.7ft (5.4m)
23.6ft (7.2m)
window ▶

1 Set dial on back of sensor to 1 Minute time delay for testing (optional).
2 Install battery - make sure you match polarity
3 Link Sensors to Switches / Dimmers before mounting to simplify installation.
GO TO Sep 3 **LINK DEVICES** NOW
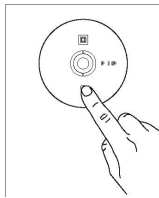
4 Choose the best location on the ceiling to mount sensor. The sensor needs to cover the occupied area. If the area is too large, more sensors can be added and linked to the same switches and dimmers.

Sensor mounting Plate
The sensor mounting plate can be attached to the ceiling tile using the supplied hardware. For other ceiling materials use appropriate hardware to secure permanently. After the mounting plate is installed the sensor by inserting into the mounting plate and turning clock wise to secure it.
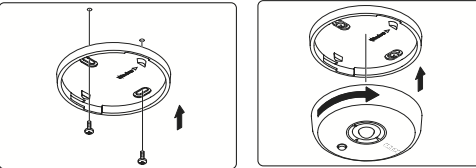
5 Before mounting sensor check time delay dial (common setting is 10 to 15 minutes).
6 Attach sensor to mounting plate.
7 Test coverage pattern
8 Add enhance features and daylight configuration , see back of this sheet

Multi-Sensor Placement
The Multi sensor with its photocell needs to see a representative area of the space not just the desk. If it is closer to the window, it dims more aggressively. If it is on the other side of the light fixture it will dim less. It is more important how far the sensor is from the window then if it is over the desk.

h = max. 4 m
min. 0.75 x h
h
l.5 x h
lux
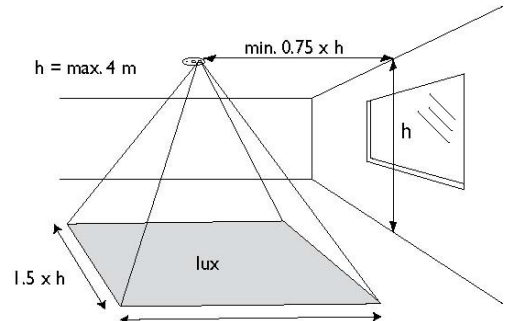
Sensor placement guidelines
The sensor should be mounted in such a way that:
- Small movements are detected for the space
- Large movements are detected for the entire room, and in particular for the area near the doorway. Motion from adjacent areas, e.g. the hallway, is not detected.
- The center of a room is usually not a good location. Moving the sensor towards the wall where the door is located, but not seeing out the doorway, may still cover the entire room, while blocking unwanted detection of motion from the hallway. If needed, pull out the sensor shield (indicated on the ring with a dot), and rotate it to the required direction.
- The sensor should not be placed close to heat sources (especially incandescent lamps) or HVAC exhausts.

3   LINK DEVICES

Note: After wall device is installed and power is returned, test all wall devices by pressing the rocker switch ON/OFF. All switches/dimmers should control connected loads. If they do not control the lights check wiring.

Create a Network: To create a wireless network by combination of up to 16 switches, dimmers and sensors take the following steps.
HINT: to prevent cross-linking rooms only one person should do the links.

ACTION	RESULTS
Test On/Off and set to Off	Lights turn off.
1. Briefly press the LINK button (Top of switch/dimmer) for linking mode.	**Green LED** on the switch/dimmer starts **blinking**.
2. Briefly press the LINK button on the **sensor** to add it to the network.	Lights turn On and sensor's **green LED turns on**.
3. Briefly press the LINK button on additional devices to add to network.	**Green LED** on each device **turns On** to confirm link.
4. Briefly press the LINK button on first **switch/dimmer** again to exit.	**Green LED** on the switch/dimmer stops blinking.

Return to Step 2 to mount sensor.

Troubleshooting
See LEDs and buttons description.
When linking, if **Red LED** on the sensor **turns On**, then linking failed. Try again and move the sensor closer to the switch, (within 50ft.)
When linking, if **Red LED** on the sensor starts to **blink**, you pressed and held the **LINK** button too long. The sensor entered the ACTION menu. Press and hold the link button to exit.
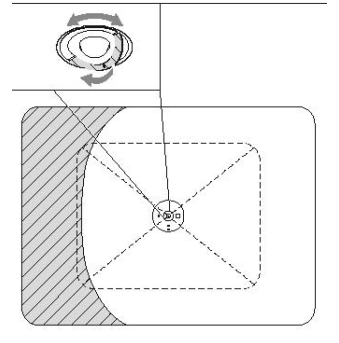Warning: If the **green LED** starts blinking on another switch/dimmer, that switch/dimmer is now also in linking mode, starting its own network. Press the LINK button on that switch/dimmer and try the whole procedure again. If the problem persists, the distance between the new switch/dimmer and the existing switch may be too large (see **Key figures**).
Note: If the **yellow LED** is turned ON after linking, the switch/dimmer is in manual override. After the sensor timer has expired, it will return to automatic mode and the LED will go off. Or, hold down the ON rocker until the yellow LED goes out, returning to auto mode.

RESET to factory default settings - If the links or set-up are not correct they can be cleared in each device by holding down the LINK/ACTION Button for about 10 seconds. Release when LED's briefly blink all together. After releasing they step from RED - YELLOW - GREEN.

Coverage pattern shield
Coverage pattern shield - If needed pull out the sensor shield and rotate to avoid unwanted motion detection.
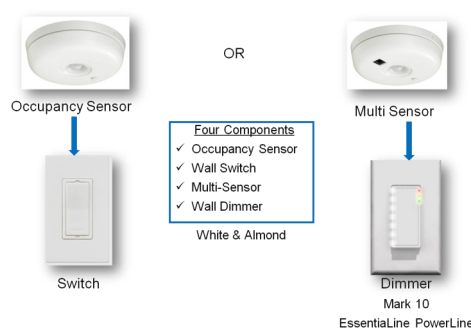
Configuration and set-up

After successfully installing and linking the sensors and wall devices you can change settings to customize the system to the needs of the user.

LINK/ACTION
ON
LINK/ACTION
LINK/ACTION
OFF
CONFIG
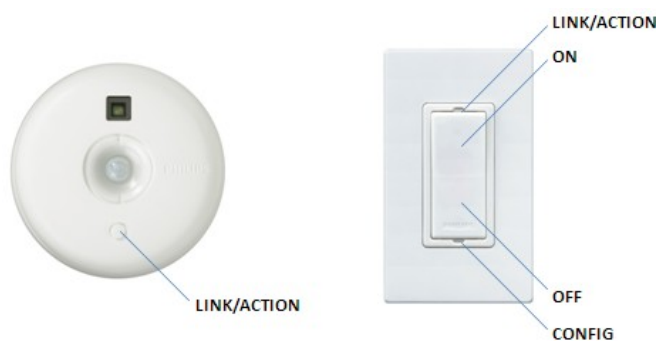
To dim up, press and hold the **ON** button
To dim down , press and hold the **OFF** button
Menu operations use CONFIG and **LINK/ACTION** buttons as described in the Configuration (YELLOW) and Action/RED menus below.

LED response Signals
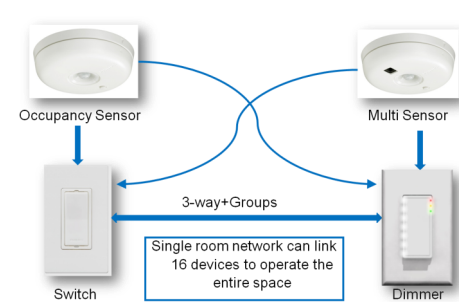**Spike** - Very short blinks
Blink - LED switching On and Off

One to One SET-UP

Occupancy Sensor   OR   Multi Sensor

Four Components
✓ Occupancy Sensor
✓ Wall Switch
✓ Multi-Sensor
✓ Wall Dimmer
White & Almond

Switch

Dimmer
Mark 10
EssentiaLine PowerLine

SET-UP hint
Use a small screw drive or similar device to push the Menu buttons.
Short button press : < 1 second
Long button press: > 2 seconds

Manual Mode -
Manual mode is entered when the rock switch is pressed and the Yellow LED comes On. After sensors are linked, the system will return to auto mode when the room if vacant and the delay timer expire. To return to Auto Mode Hold down the On rocker until the Yellow LED goes out.

Combined Device SET-UP

Occupancy Sensor   Multi Sensor

3-way+Groups

Single room network can link 16 devices to operate the entire space

Switch   Dimmer

SET-UP OPTIONS
For best result set each desirable option in the order listed below.

(Config #1)
Manual ON / AUTO OFF (Title 24 mode) - This is a popular setting for maximum energy savings. It force the occupant to manual activate the lights when they enter the space and automatically turn OFF the light when they leave. This save energy by keep the lights OFF until they are actually needed.

(Config #2)
Multi-Way Configuration - Several switches and dimmers can be put in a group that control each others load when operated manually.
You can create several independent control groups linked to the ceiling sensors.
1. Use CONFIG menu item 2 - All wall devices will start to blink: GREEN is included, RED is excluded.
2. Tap the ON button to include, OFF bottom, to exclude.
3. Long CONFIG button press will save the settings.
4. Repeat from step 1 on different wall devices to form more groups.

(Config #4)
Set High End Level - If you want to limit the maximum output from a dimmer set the desired high end level and run through Configuration Menu (Yellow) #4.

(Action #3)
Daylight Calibration (FIRST TIME) - Only one sensor can be linked to one Switch (Hold-back) or one Dimmer (continuous dimming) for Daylight Regulation. The first time the daylight Action Menu is activate the system unlocks and links the senor to the wall device for Daylight regulation. This can be done from the floor before mounting the sensor.
Next time - After the first activation and calibration the daylight menu can be run from the wall device to recalibrate the daylight settings.
Calibration process - When the sensor and the wall device enter calibration mode the
Tip: It is important that the daylight is constant and is not too bright (no need to calibrate in the dark).
1. Use dimmer to dim to the required light level using light meter on the work surface.
2. Go into action menu on the sensor to select **Calibration daylight regulation set-point** menu item. (Yellow LED starts Blinking)
3. Clear the area under the light sensor (walk away).
4. Automatic Configuration will start in about a minute. All dimmers in the system go to 100%, then switch off. The green LED on the device turns on. Sensor confirms new setpoint using green LED. The system enters automatic light regulation mode.
Note: This process can be repeated anytime after the first time from the wall device without touching the

(Action #4)
Daylight Hold-Back - Similar to Daylight calibration but results is to set the level at which the light will not turn ON automatically (Hold-Back level)

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4   CONFIGURE, TEST & FINISH

Configure
When all sensors and wall devices are linked, you can change the operation settings. This is done at any wall device; the settings are automatically sent to the other devices in the rooms network. You can select the following options in the **Configuration** and **Action** menus.

Test sensor coverage
Once all devices are installed, linked and configured, you can test the installation to ensure that:
The sensor detects motion in the workspace. Test to make sure sensor does not pick up motion from adjacent areas, e.g. the hallway. This can be done at anytime, see ACTION Menu for steps.

Finish
OccuSwitch Sensors and Wall Devices do not need any regular maintenance. You may find as people change space and future is re-arranged that you need to recalibrate the daylight functions. This can easily be done at floor level from the wall device.

CONFIGURATION (Yellow) Menu for both Wall Devices - Press CONFIG button (Long to enter) (Short for next item)

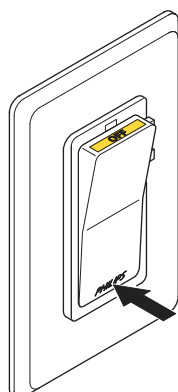| Item	Indicator	Description	Action	Store Setting
Start	Yellow Spike (.../...)	Exist	Long Press CONFIG to exit	N/A
1	Yellow Blinks (...1...)	Manual ON/ Auto OFF (Title 24)	Long CONFIG = Manual ON Long ACTION = Auto ON	Automatic
2	Yellow Blinks (...1..1...)	Multi-Way Configuration	Long CONFIG to create multi-way group	Long CONFIG
3	Yellow Blinks (...1..1..1...)	Dimmer Response Curve (Dimmer Only)	Long CONFIG to change response curve	Long CONFIG
4	Yellow Blinks (...1..1..1..1...)	Set High End Level (Task Tuning) (Dimmer Only)	Long CONFIG = Sets maximum dim level Long ACTION = Return to 100%	Automatic

Dimmer Response Curve		
1	Blink - Top LED	-50%
2	Blink - 2nd LED	-20%
3	Blink - 3rd LED	-10%
4	Blink - 4th LED (default)	Straight Line
5	Blink - 5th LED	+10%
6	Blink - 6th LED	+20%
7	Blink - Bottom LED	+50%

(Config #3)
Dimmer Response Curve - If the Daylight dimming response is too aggressive the Dimmer can be set to respond less to daylight. If the response is too low the dimmer can be set to react more to additional daylight.

ACTION (Red) Menu for Sensors and Wall Devices- Press LINK/ACTION button (Long to enter) (Short for next item)

Item	Indicator	Description	Wall Switch	Wall Dimmer	Multi-Sensor	Occ. Sensor	Action	Results
Start	Red Spike (.../...)	Exit	X	X	X	X	Long LINK/ACTION to exit	
1	Red Blinks (...1...)	Show Linked Device	X	X	X	X	Long LINK/ACTION to start	Automatic
2	Red Blinks (...1..1...)	Test Sensor Coverage	X	X	X	X	Long LINK/ACTION to Start Short LINK/ACTION on sensor to Finish	
3	Red Blinks (...1..1..1...)	Calibrate Daylight dimming set-point (< 1 min. process)	N/A	X	X	X	Long LINK/ACTION to Start	Automatic
4	Red Blinks (...1..1..1..1...)	Daylight Hold Back	X	N/A	X	X	Long LINK/ACTION to Start	Automatic
5	Red Blinks (...1..1..1..1..1...)	Channel Change	X	X	X	X	Long LINK/ACTION to Start	Automatic

(Action #5)
Channel Changing - In some building environments the radio signal used for OccuSwitch Wireless may encounter interference from another radio device. Channel changing activate the system automatic radio analysis function toe reset the channel. Use this function if you are having communications issues.

Maintenance

Routine lamp replacement
To safely do a routine lamp replacement, on all switches, firmly press the OFF-side until the rocker clicks into the position where a yellow band with "OFF" becomes visible.
The load is now temporarily separated from the line voltage by an air gap switch, so you can safely replace the lamp.
   WARNING: If the air gap function is not used, the power may be switched ON unintentionally by the sensor while replacing the lamp. This could result in serious injury or death.
   WARNING: For any procedure other than lamp replacement, power must be disconnected at the main electric panel. Use approved LOCK-OUT/TAG-OUT procedures to insure that the circuit is not activated accidently. Working with power ON is unsafe and can result in serious injury or death.

Replacing the sensor battery
CAUTION: You must have read the SAFETY section before replacing the battery.
To replace the battery of the sensor:
1. Rotate the sensor counterclockwise to remove from mounting plate.
2. In a safe and dry place, remove the old battery and insert the new battery.
   CAUTION: Use only high-quality AA size 3.6 V DC lithium-thionyl chloride batteries with the sensor. Using improperly rated batteries may damage the sensor.
3. Place the sensor back on the mounting plate and rotate clockwise to fix it.
4. Dispose of used battery properly. DO NOT throw in trash. Keep away from children. Do not disassemble and do not dispose of in fire.

Troubleshooting System
The lights turn off too quickly: *The system has a smart timer that adjust the off delay time automatically. To change, set sensor's minimum timeout dial to a higher value.*
The system is set to Manual ON, but lights turn on automatically: *When entering the area within 5 minutes after lights turning off, the system assumes that turning off was undesired and turn ON the lights.*
The system shows that a linked device is missing: *When a device is missing, use the ACTION #1 menu to show all linked devices. If a sensor does not show as linked, its battery may need to be replaced. If this does not resolve the error, reset all devices and link them again.*
The lights immediately turn ON after being turned off *The sensor may be placed too close to a (heat generating) light source. Move the sensor to a better location.*
Reset the device to factory defaults
To reset the device to its factory default configuration: Press and hold the link button on the device for more than 10 seconds. Release the button when the red, yellow and green LEDs light briefly.