Installation Guide

OccuSwitch Wireless Sensor
LRM1771 (Corner sensor), LRM1776 (Wall sensor),
LRM1766 (Corridor sensor)

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

PHILIPS

Sensor box contents

Tools required (for entire install)

Wall Devices & Wall Sensor

Product Description

The OccuSwitch™ Wireless wall mounted sensors are part of the OccuSwitch Wireless system. This system automatically controls the lights based on occupancy and daylight. The system can consist of multiple parts: wall-mounted sensors, ceiling mounted sensors and wall-mounted power handling devices (switch or dimmer). The switch will turn the lights on and off based on the information received from the wireless occupancy sensor and the available daylight. The dimmer will dim lights up and down to the appropriate intensity, based on the available daylight in the space in sensor view. The dimmer can also manually dim the lights.

Key figures

Sensor Coverage Area
Wall-mounted height range: 6.9ft to 8.ft (2.1 to 2.5m)
For a typical height of 7.5 ft (2.3m):
- LRM1771 Corner coverage:
  Minor motion: 35'x 35'(10.7m x 10.7m)
  Major motion: 50' × 50' (15.3m × 15.3m)
- LRM1766 Corridor coverage:
  Major motion: 150' L × 20'W (45.8m × 6.1m)
- LRM1776 Wide angle coverage:
  Minor motion: 35'x35' (10.7m x 10.7m)
  Major motion: 50'x50' (15.3m x 15.3m)
Larger areas will require multiple sensors.

Wireless Range
Wall device to sensor: 50ft (17m)

Network Size
16 Sensors, Switches & Dimmers

Light Range
18.58 - 92.90 fc at work plane

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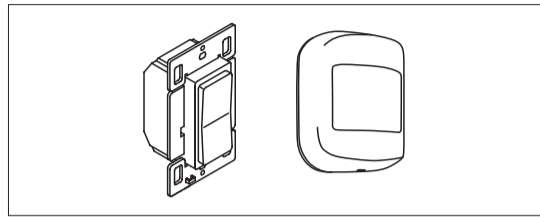
Sensor
- The sensor cannot control loads directly, use compatible switch or dimmer.
- Use only high-quality AA size, 3.6V Lithium-thionyl chloride batteries in sensors. Using improperly rated batteries may damage the sensor or fail to operate properly.
- Dispose of used batteries promptly. Keep batteries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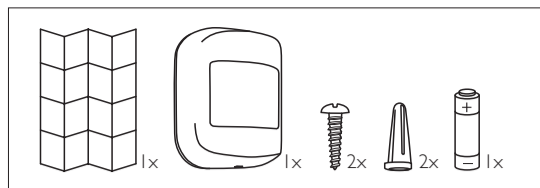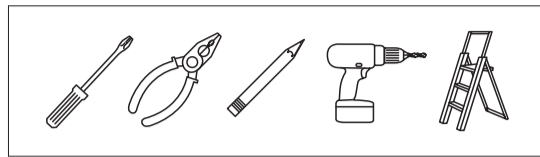
2 Install sensor

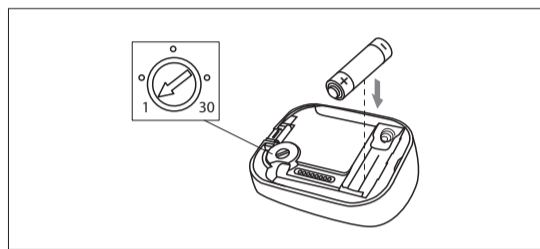1 Set dial on back of sensor to 1 to set time delay to 15 seconds for testing (optional).
2 Install battery - make sure you match polarity.
3 Choose the best location on the wall to mount sensor. The sensor should cover the occupied area. If the area is too large, more sensors can be added and linked to the same switches and dimmers. The devices should be linked after mounting to ensure that they are properly linked. To do this, go to Section 3 Link devices.
4 Attach the sensor to mounting plate.
5 Test the coverage pattern.
6 Before finally mounting the sensor, check the time delay dial is at the required setting (common setting is 10 to 15 minutes).
7 Commission the system, see section 4 Configure, test & finish.

3 Link devices

Note: After the wall device is installed and power has 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 the 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 create 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.

4 *Optional step: Test the connection of a sensor after linking by briefly pressing the LINK button on sensor. The switches and dimmers that are connected to the sensor will switch their lights off and on.*

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, industrialdoors, 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.

Sensor mounting Plate

The sensor mounting plate can be attached to the wall using the supplied hardware. Ensure that the plate is mounted with the arrow pointing in the correct direction (see diagram above). There are additional 'knock outs' which can be used to mount the sensor in a corner, or at an angle. After the mounting plate is installed, attach the sensor by inserting into the mounting plate and clicking into place.
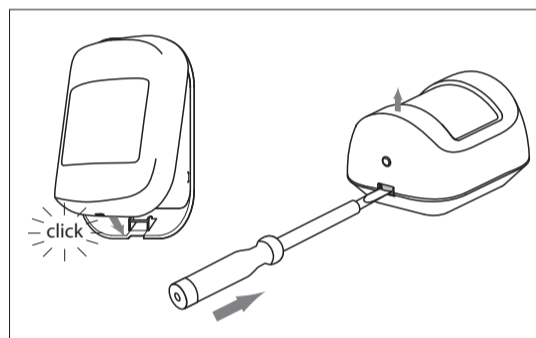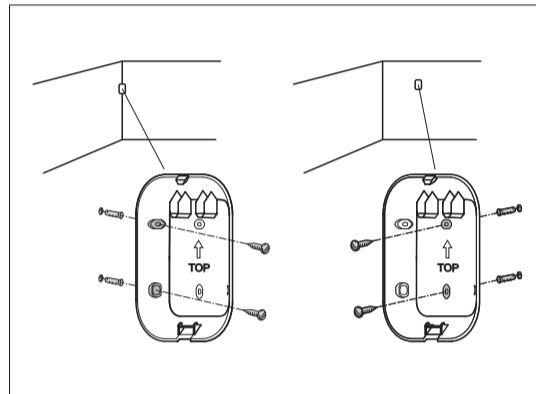
Troubleshooting

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 / 17m.)
- When linking, if Red LED on the sensor starts to blink, you pressed and held the LINK button too long. The sensor has 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 out of Wireless Range (see Key figures).

Note: If the yellow LED is turned ON after linking, the switch/ dimmer is in manual override. To return to automatic operation hold down the ON rocker until the yellow LED goes out (15 sec.). Otherwise, when the room is vacant and the sensor times out, it will return to automatic mode and the yellow LED will go off.

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.
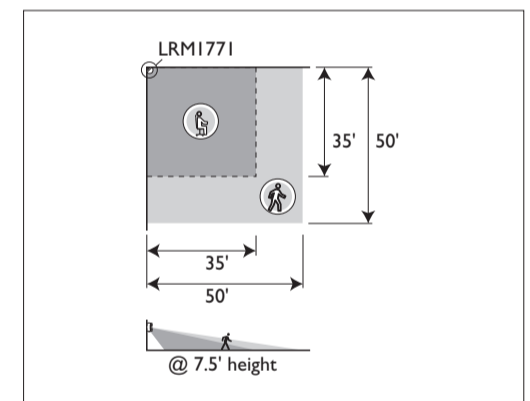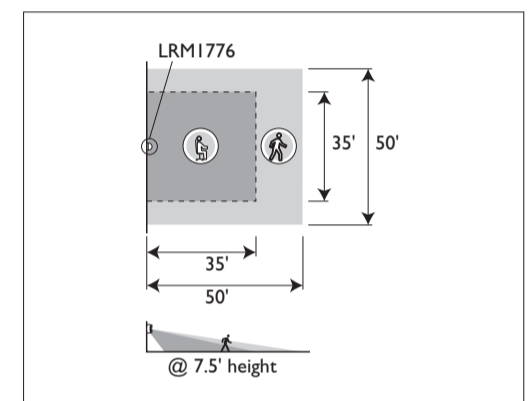
Sensor placement guidelines

The sensor should be mounted in such a way that:
- Small movements are detected for the required 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, should not be detected.
- If Daylight Override is used, the lens of the sensor must not receive direct light from either the sun or from artificial lighting.
- The sensor should not be placed close to heat sources (especially incandescent lamps) or HVAC exhausts.

LRM1766
20'
150'
@ 7.5' height

LRM1776
35' 50'
35'
50'
@ 7.5' height

LRM1771
35' 50'
35'
50'
@ 7.5' height

Configuration and set-up

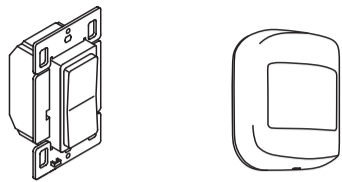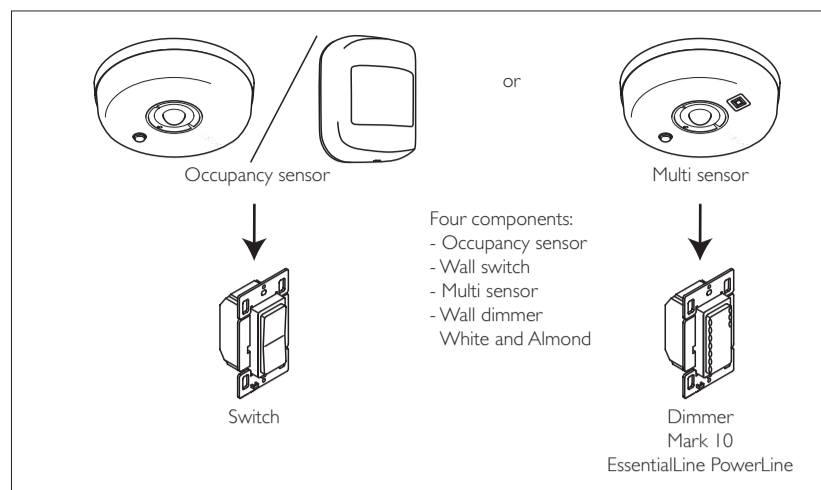After successfully installing and linking the sensors and wall devices you can change settings to customize the system to the needs of the user.

Wall Devices & Wall Sensor operation

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

LED response Signals
- Spike - (/) Very short blink
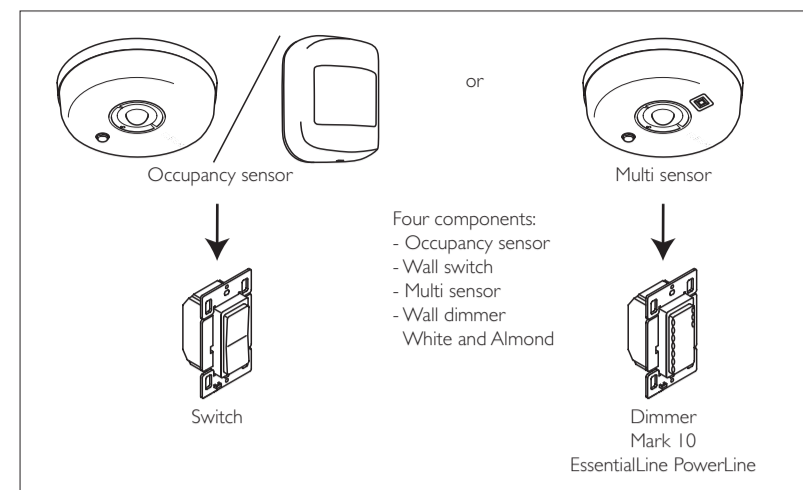- Blink - LED switching On and Off

One to One SET-UP

Occupancy sensor   or   Multi sensor

Four components:
- Occupancy sensor
- Wall switch
- Multi sensor
- Wall dimmer
  White and Almond

Switch

Dimmer
Mark 10
EssentialLine PowerLine

Set-up hint
Use a small screw drive or similar device to push the Menu buttons.
Short button press : < 1.5 seconds
Long button press: > 1.5 seconds

Manual Mode
Manual mode is entered when the rocker switch is pressed and the YELLOW LED comes on. After sensors are linked, the system will return to auto mode upon vacancy or after holding down the ON rocker until the YELLOW LED goes out.

Combined Device SET-UP

Occupancy sensor   or   Multi sensor

Four components:
- Occupancy sensor
- Wall switch
- Multi sensor
- Wall dimmer
  White and Almond

Switch

Dimmer
Mark 10
EssentialLine PowerLine

Set-up options
For best result set each desirable option in the order listed below.

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 the sensor does not pick up motion from adjacent areas, e.g. the hallway. This can be done at any time - see ACTION (RED) Menu for steps.

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

Config #1
Manual ON / AUTO OFF (Title 24 mode)
This is a popular settng for maximum energy savings. It forces the occupant to manually activate the lights when they enter the space and automatically turn OFF the light when they leave. This saves energy by keeping 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. This independent group links to all sensors in the space.
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 (GREEN) , OFF bottom, to exclude (RED).
3 Long CONFIG button press on any one of the wall devices will save the settings for that group
4 Repeat from step 1 on different wall devices to form more independent groups.

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.

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

Action #4
Daylight Hold-Back (Sensor and Switch)
Can be configured on multiple sensors, the measured level is the level at which the light will not turn ON automatically (Hold-Back level)
Calibration process
1 Have sensor detect minimum required light level by turning Off the lights when there is adequate daylight or doing calibration at night.
2 At sensor select Daylight Hold-Back menu item, (YELLOW LED starts blinking).
3 Clear the area under light sensor (walk away).
4 Automatic Configuration will start within 10 seconds when started on the sensor and up to one minute when started from the switch.
Note: This process can be repeated anytime after the first time from the wall device for all daylight sensors.

Action #5
Channel Changing
In some building environments the radio signal used for OccuSwitch Wireless may encounter interference from another radio devices. Channel changing activates the automatic radio analysis function to reset the channel. Use this function if you are having communication issues.

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 (.../...)	Exit	Long Press CONFIG to exit	N/A
1	Yellow Blinks (...1...)	Manual ON/ Auto OFF (Title 24)	Long CONFIG = Manual ON	Automatic
			Long ACTION = Auto ON	
2	Yellow Blinks (...1..1...)	Multi-Way Configuration	Long CONFIG to create multiway 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	Automatic
			Long ACTION = Return to 100%	

Dimmer Response Curve - Config #3

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%

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	W/C/C 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	N/A	X	X	N/A	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			Long LINK/ACTION to Start	Automatic

Maintenance
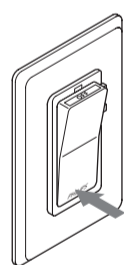
Routine lamp replacement
To safely do a routine lamp replacement, on all switches, firmly press the OFF-side until the rocker clicks into the position where a yellow band with "OFF" becomes visible. The load is now temporarily separated from the line voltage by an air gap switch, so you can safely replace 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 Remove the sensor from the mounting plate by using a small screwdriver to release the catch (as shown in earlier illustration)
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 by clicking it into place as shown previously.
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 adjusts 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 25 seconds after lights turning off, the system assumes that turning off was undesired and turns 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.

Technical support
For technical support on this product contact:
Philips Lighting Electronics N.A.
10275 W. Higgins Road
Rosemont IL 60018

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