L'i legrand®

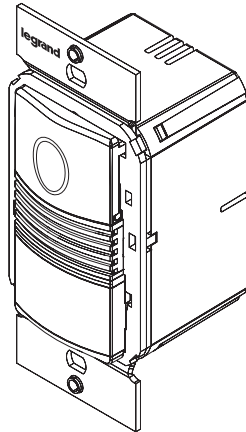Installation Instructions • Instructions d'Installation • Instrucciones de Instalación

Catalog Number • Numéro de Catalogue • Número de Catálogo: PW-103N

Country of Origin: Made in China • Pays d'origine: Fabriqué en Chine • País de origen: Hecho en China

SPECIFICATIONS

Voltages	120/277VAC, 50/60Hz
Load Limits:	
@120VAC	0-800W tungsten or ballast, 1/6 HP
@277VAC	0-1200W ballast

Load Type Compatibility:
Incandescent, fluorescent, magnetic or electronic ballast
Horsepower Rating .... 1/6 HP @120VAC

Time Delay Adjustment .... 5 to 30 minutes
Walk-Through Mode...........3 minutes if no activity after 30 sec.
Test Mode................. 5 sec. for 10 min. with DIP switch setting

PIR Adjustment... High or Low (DIP switch)

Light Level Adjustment .... 8fc to 180+fc

Alerts ....Selectable Audible & Visual

US Patents: 5640113, 6617560, 6888323, 7122976, 7436132, 8067906

DESCRIPTION AND OPERATION

The PW-103N Passive Infrared Multi-Way Wall Switch occupancy sensors use advanced passive infrared (PIR) technology. The PW-103N has one relay and one **ON/OFF** button along with a field selectable nightlight feature. The nightlight color options are amber, blue, or white. The nightlight feature can be disabled, if not desired. See Nightlight section.

Up to four PW-103N sensors can be connected to the same circuit. Pressing the **ON/OFF** button on any PW in the circuit toggles the load **ON** or **OFF**.

The sensors can also turn the load **ON** and **OFF** automatically with occupancy. The first sensor to detect occupancy turns **ON** all the lights that are connected to the circuit. After the room is unoccupied, the last sensor that detected occupancy turns **OFF** all the lights after the time delay has expired. The occupant can turn **OFF** the load at any time by pressing the **ON/OFF** button on any sensor that is connected to the circuit.

A Walk-Through Mode can turn lights **OFF** after only 3 minutes, if no activity is detected after 30 seconds following an occupancy detection.

PW-103N sensors contain a light level sensor. If adequate daylight is present, the sensor holds the load **OFF** until light levels drop, even if the area is occupied. Users can overrule this function by pressing the **ON/OFF** button. See Light Level Adjustment.

Time Delays

The PW sensor holds the load **ON** until no motion is detected for the selected time delay. Select the time delay using DIP Switch settings.

NOTE: Shaded cells below indicate default operation and switch setting.

Test Mode (DIP# 1, 2, & 3 **OFF**)	A Test Mode with a short time delay of 5 seconds is set when DIP Switches 1, 2, & 3 are **OFF**. It cancels automatically after ten minutes, or when you set a fixed time delay. When the Test Mode times out, the sensor will assume a 20 minute time delay. To restart Test Mode, change the time delay setting to any fixed amount and then return it to the Test setting.
Fixed Time Delay (DIP 1 **ON**, 2 & 3 **OFF**)	Time delays are 5, 10, 15, **20** (default), 25, or 30 minutes. See table in Installation section for DIP Settings.
Service Mode (DIP# 1, 2, & 3 **ON**)	Service bypasses occupancy & light level functions. Control the load manually using **ON/OFF** button. Red LED is always lit when the PW is in Service mode.

Walk-Through

The Walk-Through mode shortens the time delay to reduce the amount of time the load is **ON** after a brief moment of occupancy, such as returning to an office to pick up a forgotten item, then immediately exiting.

Walk-Through Mode (DIP# 4 **ON**)	The PW sensor turns the load **OFF** three minutes after the area is initially occupied, if no motion is detected after the first 30 seconds. If motion continues beyond the first 30 seconds, the set time delay applies.
No Walk-Through (DIP# 4 **OFF**)	Walk-Through mode disabled.

PIR Sensitivity Adjustment

The PW sensor constantly monitors the controlled environment and automatically adjusts the PIR to avoid common ambient conditions that can cause false detections, while providing maximum coverage.

High (DIP #5 **OFF**)	Default setting. Suitable for most applications.
Low, 50% (DIP #5 **ON**)	Reduces sensitivity by approximately 50%. Useful in cases where the PIR is detecting movement outside of the desired area (also consider masking the lens) and where heat sources cause unnecessary activation.

Alerts

The PW can provide audible and/or visible alerts as a warning before the load turns **OFF**.

Visible Alert (DIP #6 **ON**)	When only one minute is left in the time delay, the load connected to the relay turns **OFF** for one second. This provides a one minute warning before the load(s) are turned **OFF** by the sensor.
No Visible Alerts (DIP #6 **OFF**)	No visible warnings provided.
Audible Alerts (DIP #7 **ON**)	Unit will beep at one minute, at 30 seconds and at 10 seconds before turning **OFF** load. When Walk-Through is active, the unit beeps three times at 10 seconds before the load goes **OFF**. *If Visible Alert is also **ON**, the one-minute time-out warning beep is replaced by the visible alert.
No Audible Alerts (DIP #7 **OFF**)	No audible warnings provided.

Turning ON the Load

The relays can operate as either **Auto ON** or **Manual ON**. In either mode, the load can be turned **ON** or **OFF** using the **ON/OFF** button.

Auto ON (DIP #8 **OFF**)	Load turns **ON** and **OFF** automatically based on occupancy. With the **ON Mode** DIP Switch in the **OFF** position, the load turns **ON** and **OFF** automatically based on occupancy. If the load is turned **OFF** manually, Presentation Mode operation applies (see other side of this sheet). This prevents the load from turning **ON** automatically after it was deliberately turned **OFF**. Pressing the button to turn lights **ON** returns the sensor to **Auto ON** mode.
Manual ON	With the **ON Mode** DIP Switch in the **ON** position, the occupant must press the **ON/OFF** button to turn **ON** the load. The sensor keeps the load **ON** until no motion is detected for the selected time delay. There is a 30 second re-retrigger delay. If occupancy is detected during the delay, the sensor turns the load back **ON**. After the re-trigger delay elapses the **ON/OFF** button must be pressed to turn **ON** the load.

Nightlight Options

The PW-103N is equipped with a field selectable nightlight. A separate automatic light level sensor governs operation of the nightlight. You can set the nightlight for one of three colors: amber (default), white or blue. You can also select from two brightness levels, high or low.

To set the nightlight color and brightness, use the following procedure.

Nightlight Enabled	The nightlight will turn **ON** automatically when the ambient light level becomes too low.
Nightlight Disabled (DIP #9 **OFF**)	The nightlight will not turn **ON**.

1. Set DIP Switch #9 to **ON** so that the nightlight is enabled. The nightlight will stay **ON** for 30 seconds.
2. Press and release the **ON/OFF** button to change the color.
   Each time the button is pushed the 30 seconds resets so that you have time to observe the color. When you reach the color you like, stop pressing the button. When the 30 seconds expires, a beep sounds indicating that the color choice has been locked into place. You now have another 30 seconds to set the brightness to either **High** or **Low**. Every time the button is pushed, the 30 seconds resets itself.
3. Press and release the **ON/OFF** button to change the brightness from high to low or from low to high.
4. When you reach the brightness you like, stop pressing the button. When 30 seconds expire a beep sounds indicating that the brightness choice has been locked into place.
   If any changes need to be made to the nightlight options, toggle DIP Switch #9 to restart the process.

PRESENTATION MODE

Presentation Mode is a feature of the Auto ON mode. When the relay is manually turned **OFF** the PW holds the lights **OFF** until no motion has been detected for the duration of the Time Delay. With subsequent occupancy, the PW turns the load **ON**.

COVER PLATES

Wattstopper PW series wall switches fit behind industry standard decorator-style switch cover plates. Cover plates are not included. Units come in the following colors, which are indicated by the final suffix of the catalog number (shown here in parentheses): White (-W), Light Almond (-LA), Ivory (-I), Grey (-G), Black (-B).
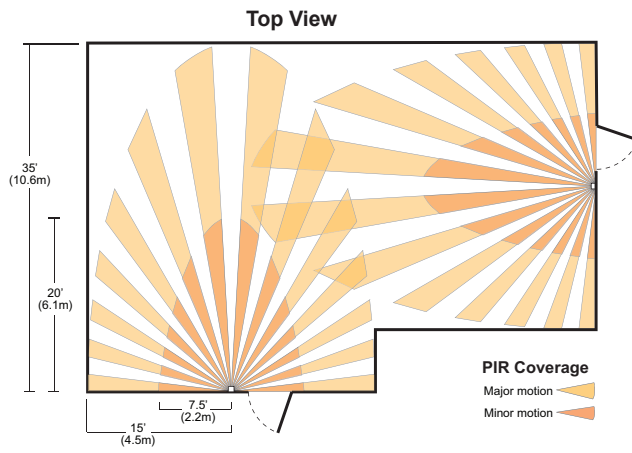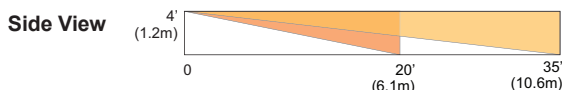
COVERAGE PATTERNS

Coverage testing has been performed according to the NEMA WD 7 guideline. For best performance, use in spaces not larger than 15' x 12'.

PIR Sensor

The sensor has a two-tiered, multi-cell viewing Fresnel lens with 180 degree field of view. The red LED on the sensor flashes when the PIR detects motion.

Masking the lens

Opaque adhesive tape is supplied so that sections of the PIR sensor's view can be masked. This allows you to eliminate coverage in unwanted areas. Since masking removes bands of coverage, remember to take this into account when troubleshooting coverage problems.

Top View

Side View

4' (1.2m)	
0	20' (6.1m)	35' (10.6m)

35' (10.6m)
20' (6.1m)
7.5' (2.2m)
15' (4.5m)

PIR Coverage
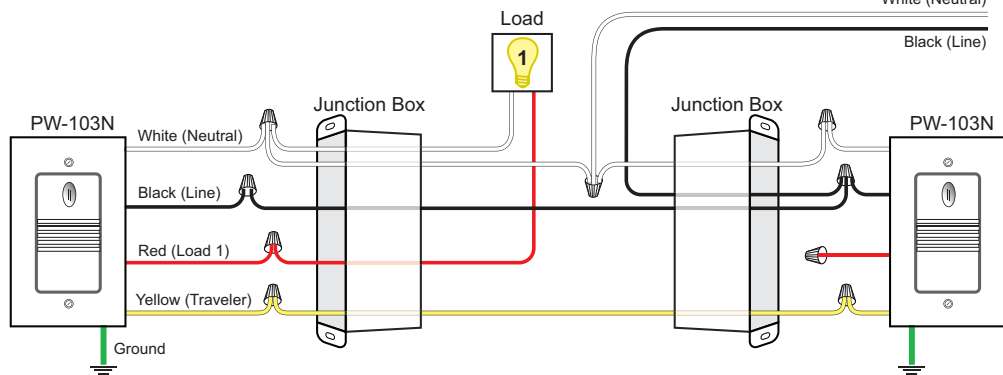Major motion
Minor motion

INSTALLATION

1. Make sure that the power has been turned **OFF** at the circuit breaker.
2. Connect wires to the PW flying leads as shown in the wiring diagram that ground wire (green) must be fastened to ground for the sensor to work
3. Attach the sensor to the wall box by inserting screws into the two wide holes on the top and bottom of the attached metal bracket. Match them up with the holes in the wall box and tighten.
4. Turn the circuit breaker **ON**. Wait one minute, then push the **Auto ON/OFF** switch and the lights will turn **ON**. There is a delay due to initial power-up of the sensor that only occurs during installation.
5. Test and adjust the sensor if necessary.
6. Attach the cover plate.

Important: Wire the remote unit to the same branch circuit as the main unit controlling the load. If relay 2 of the main unit cannot be controlled from the remote unit, check wiring to be sure both units are on the same branch circuit.

⚠ **WARNING: TURN THE POWER OFF AT THE CIRCUIT BREAKER BEFORE WIRING.** ⚠

#12 – #14 AWG

Strip Gauge
1/2"
12.7mm

Cu Wire Only

120/277V 50/60Hz

White (Neutral)
Black (Line)

Load
1

Junction Box   Junction Box

PW-103N   PW-103N

White (Neutral)
Black (Line)
Red (Load 1)
Yellow (Traveler)
Ground

DIP SWITCH SETTINGS

Time Delay	1	2	3
Test	↓	↓	↓
5 minutes	↓	↓	↑
10 minutes	↓	↑	↓
15 minutes	↓	↑	↑
20 minutes	↑	↓	↓	◄
25 minutes	↑	↓	↑
30 minutes	↑	↑	↓
⊘ Service	↑	↑	↑

Walk-Through	4
Enabled	↑
Disabled	↓ ◄

⊘ Service bypasses occupancy & light level functions. Control the load manually using ON/OFF button.

Time Delay
Visible Alerts
On Mode
Nightlight
ON
1 2 3 4 5 6 7 8 9
Walk-Through
PIR Sensitivity
Audible Alerts
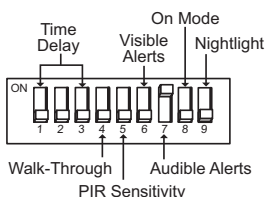
PIR Sensitivity	5
Low, 50%	↑
High	↓ ◄

Visible Alert	6
Enabled	↑
Disabled	↓ ◄

Audible Alert	7
Enabled	↑ ◄
Disabled	↓

On Mode	8
Manual On	↑ ◄
Auto On	↓

Nightlight	9
Enabled	↑
Disabled	↓ ◄

↑=ON ↓=OFF ◄=Factory Setting

ON/OFF Button

DELAY
WALK
PIR 50%
VIS. ALERT
AUD. ALERT
RLY 1 MAN
RLY 2 MAN
1 2 3 4 5 6 7

DIP Switches

Tabs

Button Hinges

Detection LED

PIR Lens
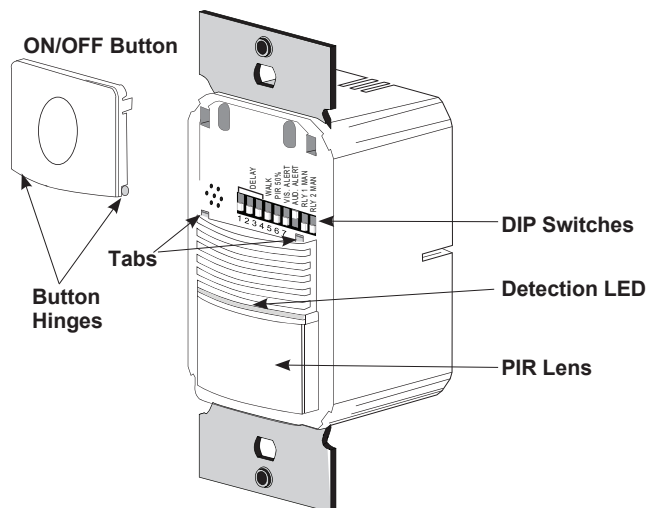
ADJUSTMENTS

Sensor Adjustment

Remove the wall plate. Remove the button cap by firmly squeezing together the top sides of the button assembly. Gently pull it away from the unit. When the adjustments are completed, replace the button cap by inserting its hinges into the tabs on the main unit and then squeeze the top of the button while pressing it into the unit. Reinstall the cover plate.

Sensor Light Level Adjustment

The light level can be set with loads **ON** or **OFF**. The light level feature operates as a **Hold OFF** function, meaning that once the light level in a room reaches a set point the lights will not turn **ON** until the light level drops below the set point. In order to achieve the maximum energy savings the light level feature offers, pick a time during the day when there is enough ambient light in the room to perform the necessary tasks without the aid of artificial light. In order to set this as the threshold level of brightness so that the artificial lights remain **OFF**, perform the following steps:

1. Make sure the room is lit appropriately.
2. Put the sensor into TEST mode using the Time Delay DIP Switches.
3. Press and hold the **ON/OFF** button for 3 seconds, until you hear a beep.
4. Step away from the sensor. After 25 seconds a beep sounds, indicating that the threshold level is set. This threshold is retained, even if power is lost, until it is re-set or disabled.

To disable light level control, press and hold the **ON/OFF** button for **7 seconds**, until a double beep tone sounds.

Reset to Default

Use the DIP Switch Settings tables on the previous page to return features to factory settings. To reset the PW press and hold the **ON/OFF** button for **10 seconds**, until a triple beep sounds. This resets the sensor and disables light level control (the brightest ambient light will not hold the light **OFF**).

TROUBLESHOOTING

Lights do not turn ON with motion (LED does flash).

1. Press and release the **ON/OFF** button to make sure that the correct lights come **ON**. If the lights do NOT turn ON, check wire connections. If the lights turn ON, verify that the correct On Mode is selected in DIP Switch 8.
2. Check to see if light level control is enabled: cover the sensor lens with your hand. If the lights come **ON**, adjust the light level setting.
3. If lights still do not turn **ON**, call 800.879.8585 for Technical Support.

Lights do not turn ON with motion (LED does not flash).

1. Press and release the **ON/OFF** button to make sure that the correct lights come **ON**. If the lights turn **ON**, verify that Sensitivity is on High.
2. Check the wire connections. Verify that connections are tightly secured.
3. If lights still do not turn **ON**, call 800.879.8585 for technical support.

Lights do not turn OFF.

1. There can be up to a 30 minute time delay after the last motion is detected. To verify proper operation, set DIP Switch 1 to **ON**, then reset switches 1, 2, and 3 to **OFF** to start Test Mode. Move out of view of the sensor. The lights should turn **OFF** in approximately 5 seconds.
2. Verify that the sensor is mounted at least six feet (2 meters) away from any heating/ventilating/air conditioning device that may cause false detection. Verify that there is no significant heat source (such as a high wattage light bulb) mounted near the sensor.
3. If the lights still do not turn **OFF**, call 800.879.8585 for technical support.

Sensing motion outside desired areas.

1. Select PIR Sensitivity – Low (DIP switch 5 = **ON**) if necessary.
2. Mask the PIR sensor's lens to eliminate unwanted coverage area.

Red LED is lit all the time and the sensor features don't work.

1. Check DIP switches 1,2,3. If they are all **ON** the unit is in Service Mode. Set the DIP Switches to a valid Time Delay setting.
2. If re-setting the Time Delay switches does not clear the LED, call Technical Support.

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