

# RELAY DIMMING™

## WS Relay Dimming Wall Switch RWS Remote Wall Switch



### INSTALLATION AND OWNER'S GUIDE

#### For Models:

**WS-120V (Wall Switch – Relay Dimming)**  
**WS-277V (Wall Switch – Relay Dimming)**  
**RWS (Remote Wall Switch)**

### READ THESE INSTRUCTIONS BEFORE INSTALLING DEVICE

*This Wall Switch is intended for installation in accordance with the National Electrical Code and local regulations. It is recommended that a qualified electrician perform this installation. Retain these instructions for reference or download the manual from [www.pcslighting.com](http://www.pcslighting.com).*

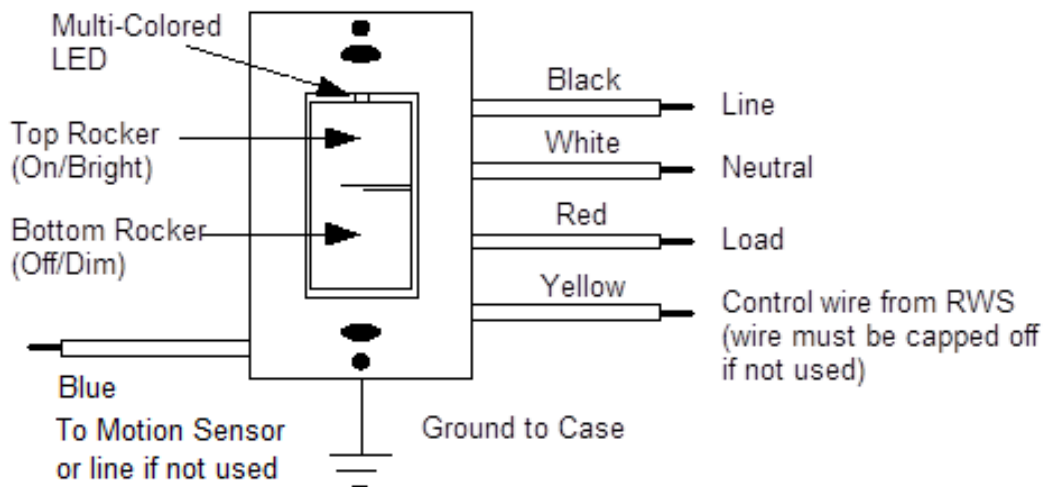
*To reduce the risk of overheating and possible damage to other equipment, this switch is intended for control LED fixtures with Relay Dimming 0-10V receiving modules installed. This product is for indoor use only. Connect only copper or copper clad wire to this device.*

### Important notes prior to installation

1. This wall switch requires a neutral (white) connection wire.
2. Be sure that all power to the load has been disconnected by turning off the circuit breaker. Installing devices with power on may expose you to dangerous voltages and may damage the device.

## **About your WS Wall Switch**

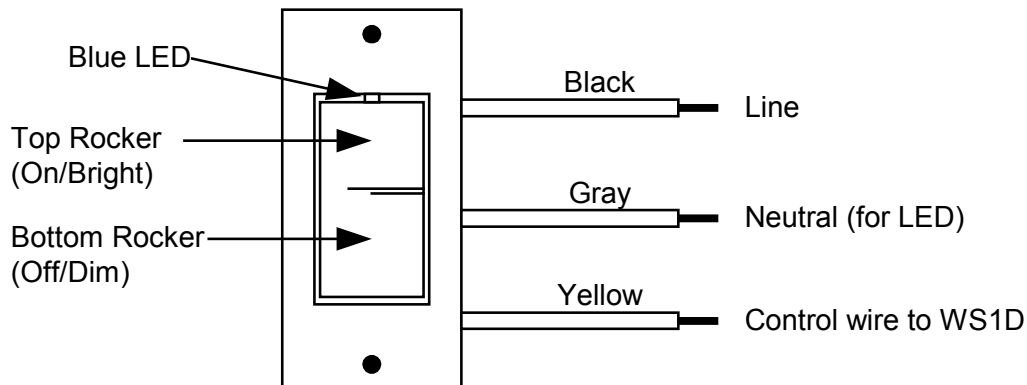
The WS Wall Switch (Figure 1) is a high-quality dimmer switch designed to control LED fixtures with 0-10V drivers connected to RM-0-10V receiving modules.



**Figure 1: WS Wall Switch**

## **About your RWS Remote Wall Switch**

The RWS Remote Wall Switch (Figure 2) is a low cost (optional) companion device to the WS Wall Switch. The RWS has a Decora-style rocker switch that controls the WS in the same exact way that its local rocker switch does.



**Figure 2: RWS Remote Wall Switch**

# Installation Instructions

The Wall Switch is wired directly to the lighting circuit and can optionally be controlled by one or more RWS Remote Wall Switches producing three, four, or five-way circuits. Multi-way circuits make it possible for a group of switches to control the same set of lights. This section illustrates the connections for the switch, remote switches if used, and the receiving module.

## Notes:

1. Refer to figures below to determine the wire colors of the hook-up.
2. The WS Wall Switch requires a neutral (white) connection.
3. Remote Wall Switch (optional) requires a connection to AC Line. This wire may be connected to either phase of the 120/240V supply or any phase or a 3-phase supply.
4. The gray wire on the Remote Wall Switch can be connected to either earth ground or neutral. The gray wire serves only to light the LED in the remote. This LED does not indicate anything except that power is applied and to serve as a night-light.
5. If an occupancy sensor is not used, connect the Blue wire must be to line

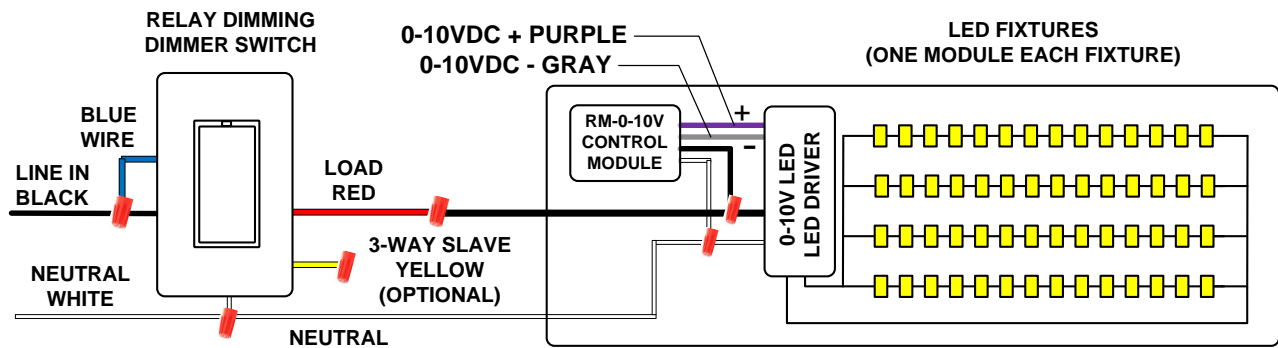


Figure 3: Basic Wiring Diagram

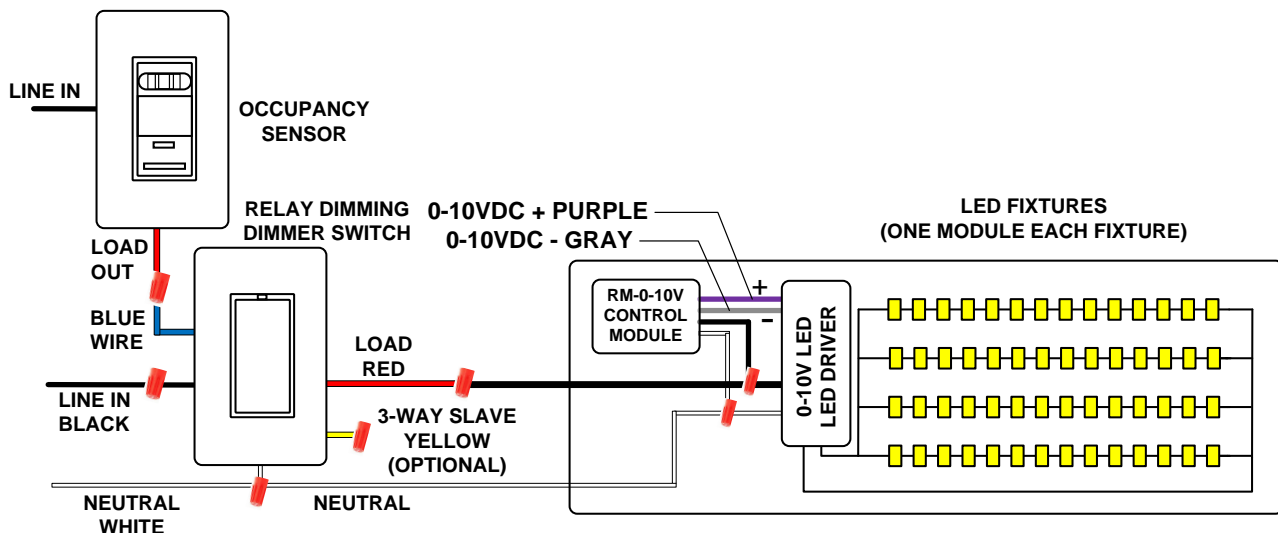
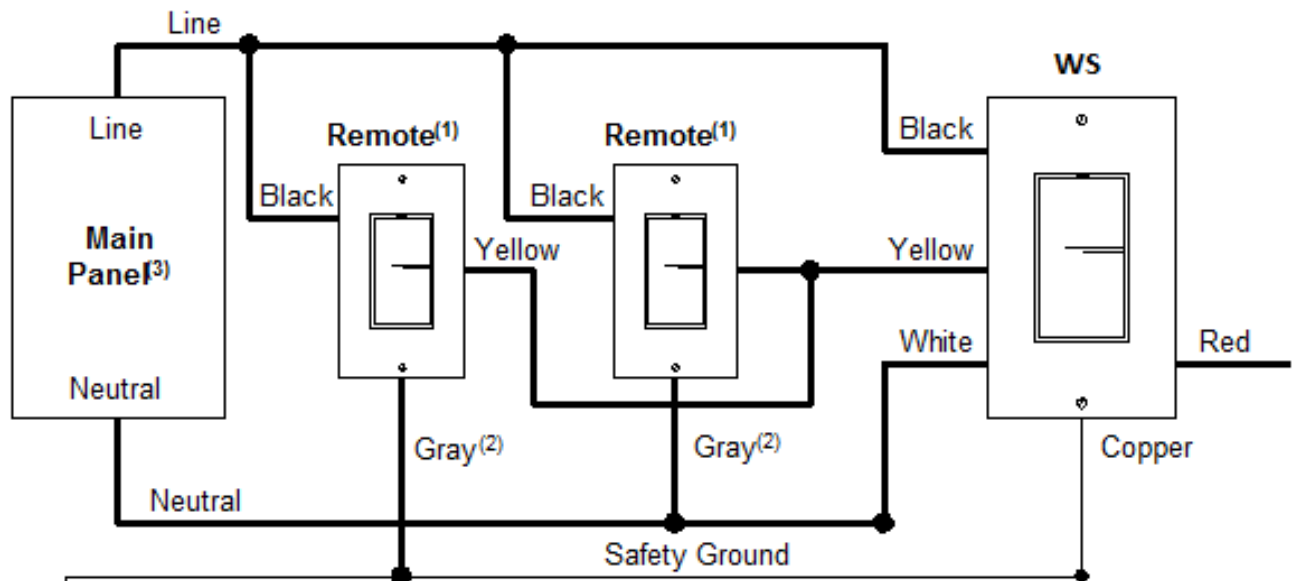
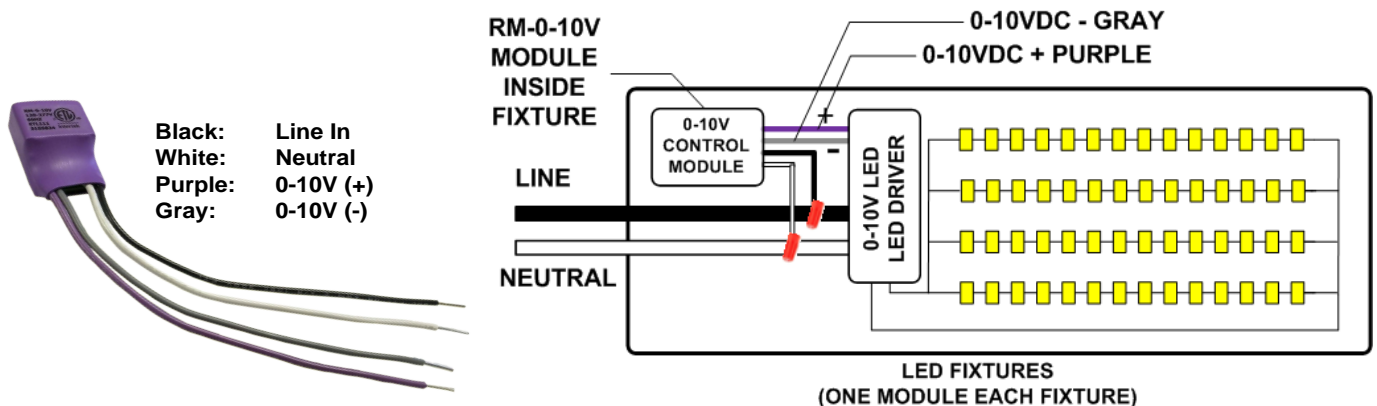


Figure 4: Wiring Diagram with Occupancy Sensor



**Notes:**

- (1) Remote = Optional one or more Remote Wall Switches (PCS model RWS).
- (2) Gray wire on RWS may be connected to neutral or ground (neutral recommended).
- (3) Main Panel = source of electricity providing the Line and Neutral.



**Note:** The RM-0-10V does not contain an address or other identifying information that the transmitter must know to communicate with it. This means that any RM-0-10V can be installed in any fixture and does not need to be programmed before or after installation.

If the transmitter powers more than one LED fixture install a RM-0-10V in each fixture.

**Note:** When using the wall switch you may hear the relay in the wall switch clicking very quickly. This “clicking” produces the communication to the RM-0-10V and is as expected.

## Installation Procedure

1. Remove the faceplate from the existing wall switch.
2. Unscrew and pull the existing wall switch out of the wall box.
3. Disconnect the wires from the existing wall switch. Identify the "Line", "Neutral", "Load" and "Traveler" wires.
4. Install the WS Wall Switch connecting wiring configuration shown in Fig 3 or Fig 4.
5. Note the BLUE wire must be connected to LINE if there is no occupancy sensor used. The BLUE wire provides the power into the relay. The power then exits to the load through the RED wire.
6. Optionally install any RWS Remote Wall Switch per wiring configuration shown in Figure 5.
7. After all connections have been made, be certain that all wire connectors are firmly attached and there is no exposed copper.
8. Gently place the wires and Wall Switch into the wall box, with light emitting diode (LED) at the top of device, and screw in place.
9. After testing the Wall Switch for proper local operation (per Table 1), install the faceplate cover(s) to the outside of the Wall Switch(s).

## **Using Your WS Wall Switch**

The WS Wall Switch is packed full of different options and configurations that can be programmed into it using a UPB Setup Tool. This section describes the operation of the Wall Switch in its factory default configuration. Please refer to the section entitled “Configuring the WS Wall Switch” for a description of the many other configuration options available.

### **Local Rocker Switch Operation**

The WS Wall Switch has a Decora-style rocker switch that can be used to control the lighting load. The factory default operation is described below in Table 1.

Rocker Event	Top Rocker	Bottom Rocker
Single-Tap	When the fixture is off, turns on the fixture and brightens to the last level the fixture was at. If the fixture is already ON, brightens to the fixture maximum level	Turns the fixture off
Double-Tap	Controls the light to 40%	Controls the light to 10%
Hold	Starts fading (brightening) the light towards 100%	Starts fading (dimming) the light towards 0%
Release	Stops brightening the light	Stops dimming the light

**Table 1: Rocker Switch Operation**

### **Modifying Switch Options**

There are several options that can be configured in the WS Wall Switch after you enter configuration mode.

Entering configuration mode:

- Turn the fixture on to any level
- Tap the top rocker quickly 10 times to enter configuration mode
- The status LED will blink red rapidly to confirm in configuration mode

Exiting Configuration mode

- 1-tap the top rocker
- The status LED will stop blinking red

#### Setting the top rocker double-tap level

- After entering configuration mode (10 taps), use the top or bottom rocker to adjust the light level. Be careful to press and hold the rocker to adjust the level and not tap the rocker.
- Double-tap (2 taps) the top rocker to save that level
- Exit configuration mode

#### Setting the bottom rocker double-tap level

- After entering configuration mode (10 taps), use the top or bottom rocker to adjust the light level. Be careful to press and hold the rocker to adjust the level and not tap the rocker.
- Double-tap (2 taps) the bottom rocker to save that level
- Exit configuration mode

#### Enabling the 2-Hour auto shut-off mode

- After entering configuration mode (10 taps), 4-tap the top rocker to enable the 2 hour auto-shutoff mode. The load will now turn off after 2 hours.
- Exit configuration mode

#### Disabling the 2-Hour auto shut-off mode

- After entering configuration mode (10 taps), 4-tap the bottom rocker to disable the auto-shutoff mode
- Exit configuration mode

#### Resetting the switch back to factory defaults

- After entering configuration mode (10 taps), again 10-tap either rocker to set all options back to factory defaults

## **Using Your RWS Remote Wall Switch**

The WS Wall Switch can (optionally) be connected to one or more RWS Remote Wall Switches producing three, four, or five-way lighting circuits. Each Remote Wall Switch has a Decora-style rocker switch that can be used to control the lighting load of the WS in the same way as previously described in Table 1.

### **Limited Warranty**

Seller warrants this product, if used in accordance with all applicable instructions, to be free from original defects in materials and workmanship for a period of five years from the date of purchase. Refer to the warranty information on the PulseWorx website ([www.PulseWorx.com](http://www.PulseWorx.com)) for exact detail

## **WS-120 SPECIFICATIONS**

Product	WS-120
Maximum Load	15A
Connections	14 GA, 105 C insulation
LED Indicator	Yes
Dimensions	4.3 X 1.7 X 1.9 in
Weight	0.3 lb.
Mounting	Standard J box
Input Power	120VAC $\pm 10\%$
Input Frequency	60 $\pm .3$ Hz
Operating Temp	-40 °F to 140 °F

## **WS-277 SPECIFICATIONS**

Product	WS-277
Maximum Load	15A
Connections	14 GA, 105 C insulation
LED Indicator	Yes
Dimensions	4.3 X 1.7 X 1.9 in
Weight	0.3 lb.
Mounting	Standard J box
Input Power	277VAC $\pm 10\%$
Input Frequency	60 $\pm .3$ Hz
Operating Temp	-40 °F to 140 °F

## **RM-0-10V SPECIFICATIONS**

Product	RM-0-10V
Dimensions	1.0 X 0.7 X 0.5 in
Connections	18 GA wires, 105 C insulation
Input Power	120 or 277 VAC
Input Frequency	60 $\pm .3$ Hz
Output Voltage	0.9V – 10V DC Isolated
Operating Temp	-40 °F to 140 °F