SENSORWORX®

# LOW VOLTAGE 4-BUTTON DIMMER (0-10V)

INSTALLATION & OPERATION INSTRUCTIONS

| CATALOG NUMBERS | DESCRIPTIONS |
|---|---|
| SWX-804-xx | LOW VOLTAGE 4-BUTTON DIMMER (0-10V) & SWITCH |

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

**ADDITIONAL OPTIONS**

- **HE:** High Humidity Environment

## OVERVIEW

The **SENSOR**WORX 4-button low voltage dimmer controls 0-10V signals and functions as a momentary switch with a pulse length of 250 msec. Typically, it is utilized along with any **SENSOR**WORX power pack with the auxiliary switch input option (e.g. model SWX-900-AX, SWX-950-AX). Low voltage wire (typically 18 AWG) is used to connect the unit to the low voltage power, common, and relay status outputs from the power pack. The unit also has a momentary switch output that is used to signal the power pack. For applications requiring Vacancy (e.g., Manual On) operation, the switch signals the power pack to turn on lighting after the unit's ON button is pressed. For applications configured for auto-on operation, the switch allows a user to override lights off regardless of occupancy. To achieve multi-way switching, adding a single button switch (model SWX-801) at each additional switch location is required. To facilitate dimming, the unit has a 0-10V output wire that is connected directly to fixtures low voltage dimming output. By default, the lights will always come on to the last dim level, however the unit can be programmed to turn-on to a preset level in order to accommodate partial-on applications.

## SPECIFICATIONS

### ELECTRICAL

**OPERATING VOLTAGE**
5-24 VDC

**CURRENT DRAW**
< 12mA

**DIMMING LOAD**
50mA, (0-10 VDC ballasts or drivers compliant with IEC 60929 Annex E.2)

**MOMENTARY ON/OFF PULSE LENGTH**
250 msec

### PHYSICAL

**SIZE**
2.74"H x 1.68"W x 1.39"D
(6.96 x 4.27 x 3.53 cm)
Fits Decorator Switch Plate Opening

**DEPTH IN WALL**
0.94" (23.88 mm)

**WEIGHT**
2.5 oz

**MOUNTING**
Single Gang Switch Box

### 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

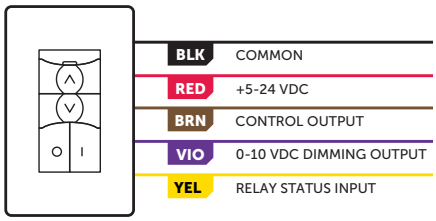
## FEATURES

- **Decorator Style Fits Common Wall Plates (not included)**
- **Less than 1" Depth in Wall**
- **Multi-way Switching Capable (e.g., 3-way, 4-way)**
- **Matches Styling of other SWX Wall Devices**
- **White Status LED Brightness Tracks Dim Level**
- **Blue Locator LED when Lights are Off**
- **Modern Look and Intuitive**
- **Easy-Tap Buttons for On, Off, Raise, & Lower**
- **Configurable Dimming Parameters (High/Low Trims, Turn on Levels, Fade Times, & Curve Types)**
- **Settings are Adjustable Without Removing Cover Plate**

# WIRING

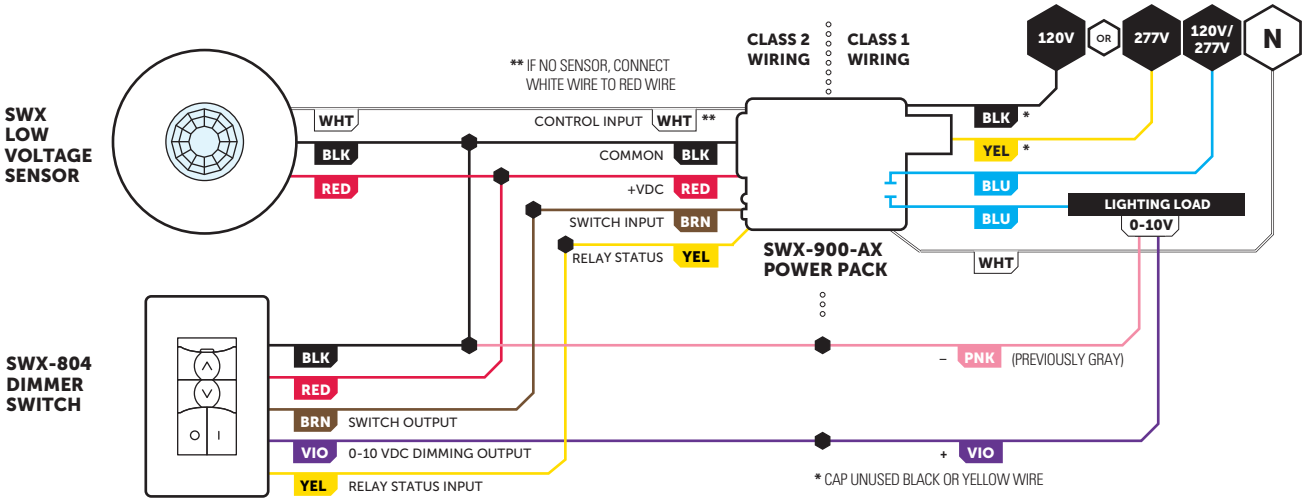
### STANDARD WIRING

The SWX-804 dimmer is intended to be used with **SENSOR**WORX model SWX-900-AX series or SWX-950-AX series power packs. Usage with 3rd party power packs, panels, or load controllers may result in limited or altered functionality. See notes below.




### MANUAL ON (VACANCY) OR PARTIAL-ON w/ FULL DIMMING CONTROL

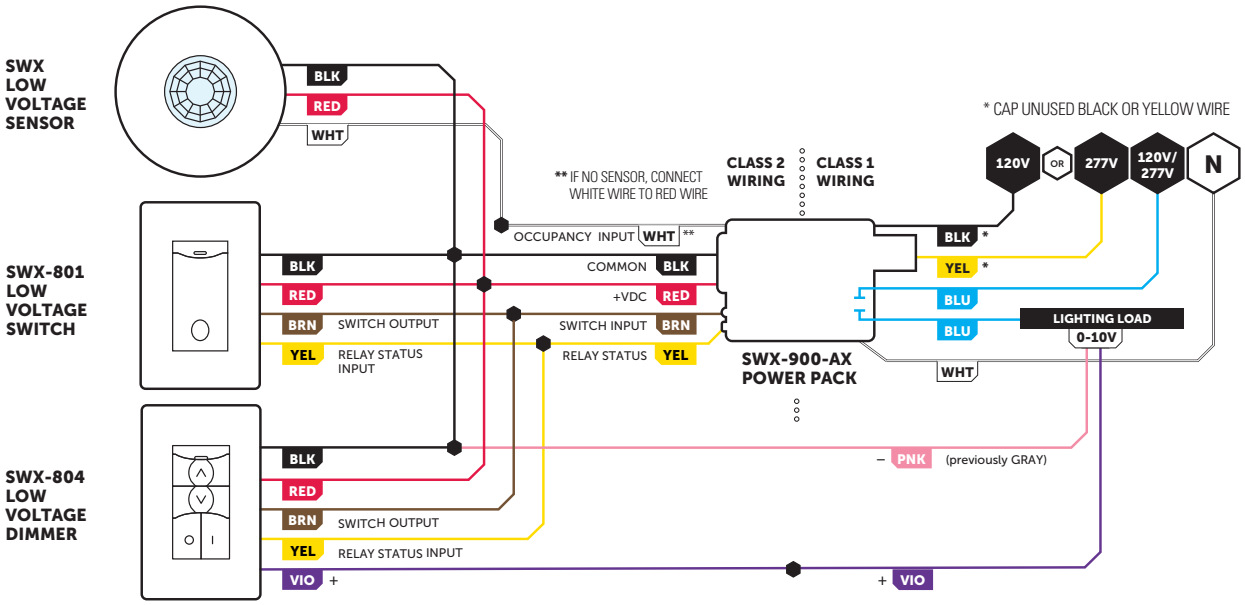
- Lights turn on to last selected level (default) or to preset level (e.g., partial on).
- If no sensor is present, tie power pack low voltage red to low voltage white wire.
- Default operation of the SWX-900-AX is Automatic On (Occupancy) operation. For proper vacancy or partial-on operation, the SWX-900-AX's OPERATIONAL MODE setting needs to be configured for MANUAL ON (VACANCY).
- **PLEASE NOTE:** A SWX-804 can be wired to a 3rd party (i.e. non-**SENSOR**WORX) power pack, panel, or load controller only if the yellow wire is connected to a low voltage relay status (i.e. pilot light) output. If the yellow wire is not connected at all (or is tied +VDC), pressing one of the On/Off buttons will toggle lights while the other will have no function.



# WIRING CONT.

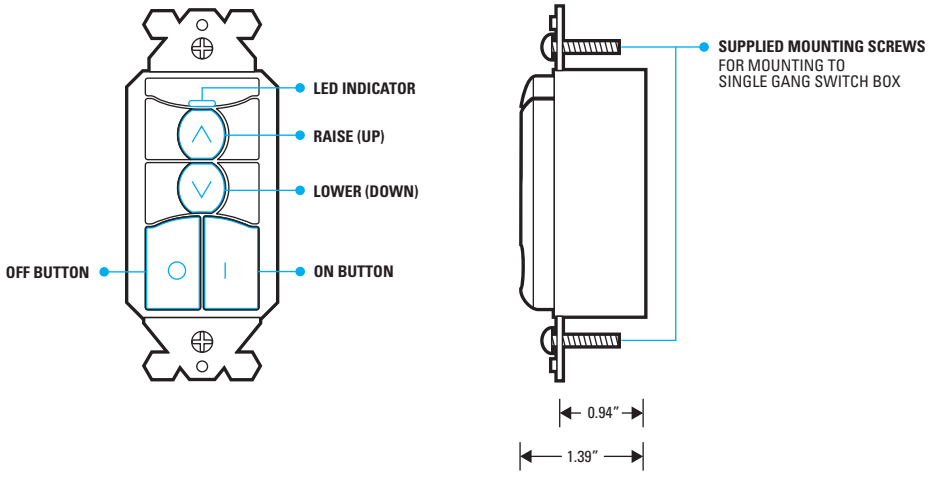
**3-WAY, MANUAL ON (VACANCY) OR PARTIAL-ON w/ FULL DIMMING CONTROL**

- Lights turn on to last selected level (default) or to preset level (e.g., partial on).
- If no sensor is present, tie power pack low voltage red to low voltage white wire.
- Default operation of the SWX-900-AX is Automatic On (Occupancy) operation. For proper vacancy or partial-on operation, the SWX-900-AX's OPERATIONAL MODE setting needs to be configured for MANUAL ON (VACANCY).
- Only one SWX-803 dimmer can be included in 3-way configuration, otherwise dimmer with lowest current dim setting will always be reflected in lights (i.e. low-man wins).
- If wiring a SWX-804 to a 3rd party (i.e. non-**SENSOR**WORX) power pack, panel, or load controller without a relay status output, tying the yellow wire to the red wire (+VDC) is required for operation. Additionally, the TURN OFF SCHEME is required to be set to Setting 5 (see configuration settings table).




# INSTALLATION

- Designed to mount in 1-gang wall box with 3.28" hole spacing.
- Units can also share multiple gang wall boxes with other devices.
- Unit face is field removable in order to change colors. Contact factory for additional faces.



# CONFIGURATION

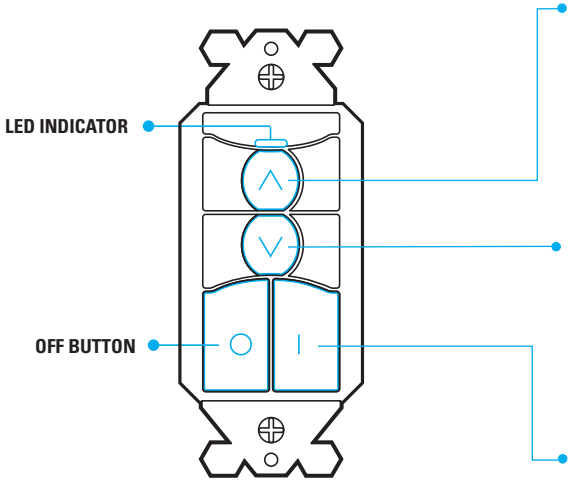
Dimmers have several configurable functions depending on the specific model. All functions' setting values can be accessed and changed through a push-button sequence and observing the LED feedback.

## CONFIGURATION PROGRAMMING

1. From the lists of Configuration Functions below, note the Button ID and number (#) of the Function to be changed. For example, HIGH TRIM setting is the Up Button, #3.
2. Enter programming mode by pressing and holding the ON button until the blue LED begins rapid flashing, then release.
3. Press and release the particular button (UP, DOWN, or ON) that is applicable the number of times for the chosen function. For example, press the UP 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 (see page 5). For example, the default HIGH TRIM is setting #2 (100%). 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, UP button 4 times (for 90%).
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 FUNCTION OVERVIEW




### UP (RAISE) BUTTON FUNCTIONS

| FUNCTION NAME | BUTTON ID | FUNCTION # |
|---|---|---|
| Turn On Level | Up | 2 |
| High Trim | Up | 3 |
| Fade On Time | Up | 4 |
| Dimming Curve | Up | 5 |

### DOWN (LOWER) BUTTON FUNCTIONS

| FUNCTION NAME | BUTTON ID | FUNCTION # |
|---|---|---|
| Turn Off Scheme | Down | 2 |
| Low Trim | Down | 3 |
| Fade Off Time | Down | 4 |

### ON BUTTON FUNCTIONS

| FUNCTION NAME | BUTTON ID | FUNCTION # |
|---|---|---|
| LED Control | On | 7 |
| Factory Reset | On | 8 |

# CONFIGURATION SETTINGS

## ON BUTTON FUNCTION #7 - LED BEHAVIOR

When the lights are on, by default the units indicator LED is white with a brightness that is relative to the current dim level. When lights are offf, by default the LED functions as a location aid and is blue with a mid-range brightness.

| SETTING # | WHITE DIM LEVEL INDICATION LED (only when lights are on) | BLUE LOCATION AID LED (only when lights are off) |
|---|---|---|
| 2 | Enabled | Off |
| 3 (default) | Enabled | Mid-bright |
| 4 | Enabled | Full-bright |
| 5 | Disabled | Off |
| 6 | Disabled | Mid-bright |
| 7 | Disabled | Full-bright |

## ON BUTTON FUNCTION #8 - RESTORE FACTORY DEFAULTS

| SETTING # | DESCRIPTION |
|---|---|
| 3 | Restore Factory Defaults |

# CONFIGURATION SETTINGS CONT.

## DOWN BUTTON FUNCTION #2 - TURN OFF SCHEME

| SETTING # | VALUES | NOTES |
|---|---|---|
| 2 | Unit fades dimming output to low trim and signals connected power pack to open. | Default |
| 3 | Unit fades dimming output down to 0 volts (i.e. below a connected driver's electronic off level). Connected power pack is not signaled. | |
| 4 | Unit fades dimming output down to low trim level (High/Low functionality). Connected power pack is not signaled. | |
| 5 | Unit signals connected power pack to open while leaving dimming output unchanged. | |

## UP BUTTON FUNCTION #2 - TURN ON DIM LEVEL

| SETTING # | VALUES | NOTES |
|---|---|---|
| 2 | Fade on to High Trim | |
| 3 | Fade on to 50% of High Trim - Low Trim Range | |
| 4 | Fade on to last user level | Default |
| 5 | Fade on to current (custom) level | Saves unit's current dim level |

## DOWN BUTTON FUNCTION #3 - LOW TRIM

| SETTING # | VALUES | NOTES |
|---|---|---|
| 2 | Saves current level as low trim | |
| 3 | 0% (~0V) | Light output at each level depends on driver/ballast and luminaire. Voltage levels are different if Square Log Dimming Curve is selected. |
| 4 | 10% (~1V) Default | |
| 5 | 20% (~2V) | |
| 6 | 30% (~3V) | |
| 7 | 40% (~4V) | |
| 8 | 50% (~5V) | |

## UP BUTTON FUNCTION #3 - HIGH TRIM

| SETTING # | VALUES | NOTES |
|---|---|---|
| 2 | Saves current level as high trim | |
| 3 | 100% (~10V) Default | Light output at each level depends on driver/ballast and luminaire. Voltage levels are different if Square Log Dimming Curve is selected. |
| 4 | 90% (~9V) | |
| 5 | 80% (~8V) | |
| 6 | 70% (~7V) | |
| 7 | 60% (~6V) | |
| 8 | 50% (~5V) | |

## DOWN BUTTON FUNCTION #4 - FADE OFF TIME

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

## UP BUTTON FUNCTION #4 - FADE ON TIME

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

## UP BUTTON FUNCTION #5 - MANUAL DIMMING RESPONSE CURVE

| SETTING # | VALUES | NOTES |
|---|---|---|
| 2 | Linear | Default |
| 3 | Unused | |
| 4 | Square Log | |