**AcuityControls**

*nLight®*

*nWSX*
*nWSX PDT*

## OVERVIEW

The **nWSX**/**nWSX PDT** Series nLight wall switch occupancy sensor provides a simple control solution for a small room. Capable of detecting small motion up to 20 ft (6.10 m), this sensor is perfect for private offices, private restrooms, copy rooms, closets, or any small enclosed space. The **nWSX** uses Passive Infrared (PIR) detection while the **nWSX PDT** utilizes PIR/Microphonics Dual Technology (PDT). These stylish, low-profile sensors can be programmed locally (via the front push-buttons) or remotely (via the nLight SensorView software). The **nWSX**/**nWSX PDT** also includes an integrated photocell (disabled by default).

## FEATURES

- 100% digital PIR detection, vandal resistant lens standard, includes wall plate
- Push-button programmable, adjustable time delays, multiple operating modes
- Multiple **nWSX** sensors or WallPods can be used in 3 way (or greater) configurations w/o traveller wires
- Photocell standard (disabled by default) – prevents lights from initially turning on if there is sufficient daylight
- Green LED status indicator
- Broadcasts occupancy, photocell, and switch information over a local and/or global nLight channel
- Remotely upgradeable firmware

## SPECIFICATIONS

|  |  |
|---|---|
| Size: | 2.74" H x 1.68" W x 1.63" D (6.96 cm x 4.27 cm x 4.14 cm) |
| Weight: | 5 oz |
| Mounting: | Single Gang Switch Box |
| Network Connection: | 2 RJ-45 Ports |
| Bus Power Consumption: | < 3 mA |
| Relay Load: | 800 W @ 120 VAC; 1200 W @ 277 VAC; 1500 W @ 347 VAC; (Fluorescent/Tungston) 360 W @ 120 VAC; 830 W @ 277 VAC; 1040 W @ 347 VAC; (LED) 1A @ 24 VAC/VDC |
| Inrush Current: | 80 Amps (max) |
| Minimum Load: | None |
| Motor Load: | 1/4 HP |
| Frequency: | 50/60 Hz |
| Wires: | 18 AWG (2), Interchangeable Hot & Load |

ROHS Compliant, Title 24 System Component, Complies with NEC 725.55

## Warranty

Five-year limited warranty. Complete warranty terms located at:

www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx

**Note:** Actual performance may differ as a result of end-user environment and application.

Specifications subject to change without notice.

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### ORDERING INFORMATION

| nWSX | | | | Example: nWSX PDT WH LT |
|---|---|---|---|---|
| **Series** | **Voltage** | **Color**[1] | | **Temp/Humidity** |
| nWSX — Passive Infrared<br>nWSX PDT — Dual Technology | [blank] — 120/277 VAC<br>347 — 347 VAC | WH White  GY Gray  BK Black<br>IV Ivory  AL Lt. Almond | | [blank] — Standard<br>LT — Low temp |

1. Wall plates not included for AL, BK, and GY units with 347 option

## CONTROL MODES

A control zone with an **nWSX/nWSX PDT** can operate in several modes:
1. Auto On / Auto Off (i.e. Fully Automatic)
2. Manual On / Automatic Off (i.e. Semi-Automatic)
3. Auto On (initial state) to Override On (with expiration timer)
4. Manual On (initial state) to Fully Automatic
5. Predictive Off Switch (returns zone to auto-on unless person remains in room after an off switch press)
6. Manual On (initial state) to Override On (with expiration timer)

Additionally, an **nWSX/nWSX PDT** can be set to function in a **Multi-Level Operating** Mode (**MLO**) which enables the user to sequence through multiple on/off (or preset dimming level) lighting states using just the unit's single pushbutton. MLO modes are ideal for bi-level applications and eliminate user confusion created when wall stations have multiple buttons. In addition to the **nWSX/nWSX PDT**, a device with a second relay (or a dimming output for some modes) must be present within the local zone. Several different transition sequences are available in order to comply with energy codes or user preference. Depending on the sequence selected and initial lighting state, every subsequent button press steps through states according to below tables (repeating after All Off state).
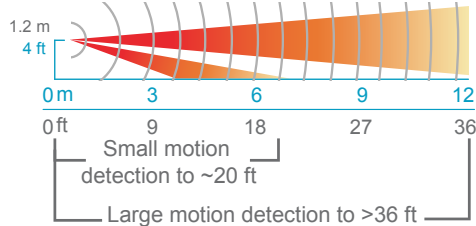
| MLO Mode | | State of load after each pushbutton press | | | |
|---|---|---|---|---|---|
| | | 1st Press | 2nd Press | 3rd Press | 4th Press |
| 2-State (Alternating) | Load A | On | Off | Off | - |
| | Load B | Off | On | Off | - |
| 2-State (Both On, A First) | Load A | On | On | Off | - |
| | Load B | Off | On | Off | - |
| 2-State (Both On, B First) | Load A | Off | On | Off | - |
| | Load B | On | On | Off | - |
| 3-State | Load A | On | Off | On | Off |
| | Load B | Off | On | On | Off |
| A and B On [1] | Load A | On | Off | - | - |
| | Load B | On | Off | - | - |
| A On Only [1] | Load A | On | Off | - | - |
| | Load B | Off | Off | - | - |
| A and B On & Dim High [1] | Load A | High | Off | - | - |
| | Load B | High | Off | - | - |
| Dim Low /High | Load A | Low | High | Off | - |

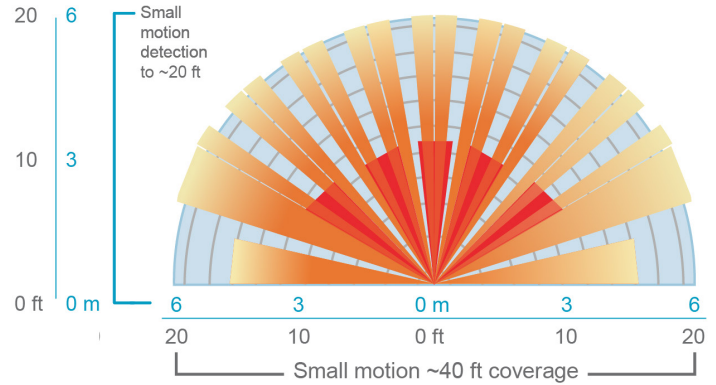**Note:** Modes for use only when Auto-On state of Load A & B is different than first MLO state.

## COVERAGE PATTERN

- Small Motion (e.g. hand movements) detection up to 20 ft (6.10 m)
- Large motion (e.g. walking) detection greater than 36 ft (10.97 m)
- Wall to Wall Coverage
- Passive Dual Technology (Microphonics™) provides overlapping detection of human activity over the complete PIR coverage area. Advanced filtering is utilized to prevent non-occupant noises from keeping the lights on.

**TOP VIEW**



Small motion detection to ~20 ft

Small motion ~40 ft coverage

**SIDE VIEW**



Small motion detection to ~20 ft

Large motion detection to >36 ft
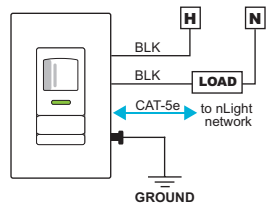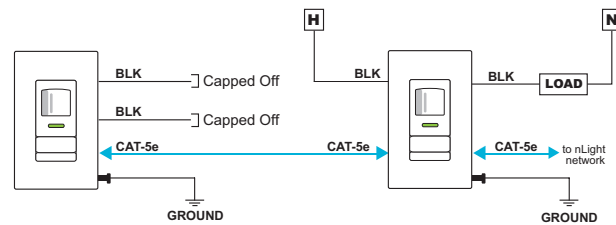
## TYPICAL WIRING DIAGRAMS

Sensor power is provided via the CAT-5e connection to an nLight power pack/supply, nLight-enabled digital luminaire, or nLight Bridge.
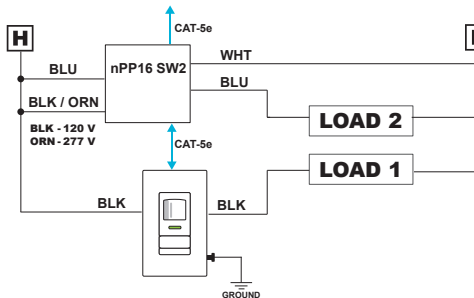
**SINGLE LOAD SWITCHING**



**3-WAY SWITCHING W/ WALL SWITCH SENSORS ONLY**



**BI-LEVEL CONTROL USING nWSX IN MULTI-LEVEL (MLO) MODE**



**NOTES:**
- For bi-level operation the **nWSX/nWSX PDT** must be programmed to Multi-Level Operating Mode (MLO) via pushbutton or nLight SensorView software
- Loads 1 & 2 may be replaced with a step ballast
- Any nLight relay pack (such as an nPP16) may be used, however, it must be programmed to follow switch tracking channel 2

CAUTION: Extremely high inrush current (often found in LED drivers/fixtures) can damage this device; do not switch loads that exceed 80 Amps of inrush current. For applications exceeding this specification it is recommended that an nWSX (PDT) LV low voltage sensor and an nPP16 power/relay pack be used.

## INSTALLATION

- Mount sensor using holes that align with standard single gang switch box
- Connect unit's black 18 AWG wires to line voltage feed and load
- Access RJ-45 ports by sliding plastic guard up
- Insert CAT-5e cable(s) into port(s), T568B pin/pair convention recommended
- Slide guard back onto metal strap
- Using CAT-5e cables, interconnect unit with other nLight devices in zone (ports are interchangeable)
- Once power is received via the CAT-5e connection, all devices in the zone will automatically begin functioning together according to respective device defaults

**ATTENTION! Only use non-booted CAT-5e cables.**



nWSX (PDT) - TN-409-02