



# Room Controller Operation Guide



**HUBBELL**  
Control Solutions

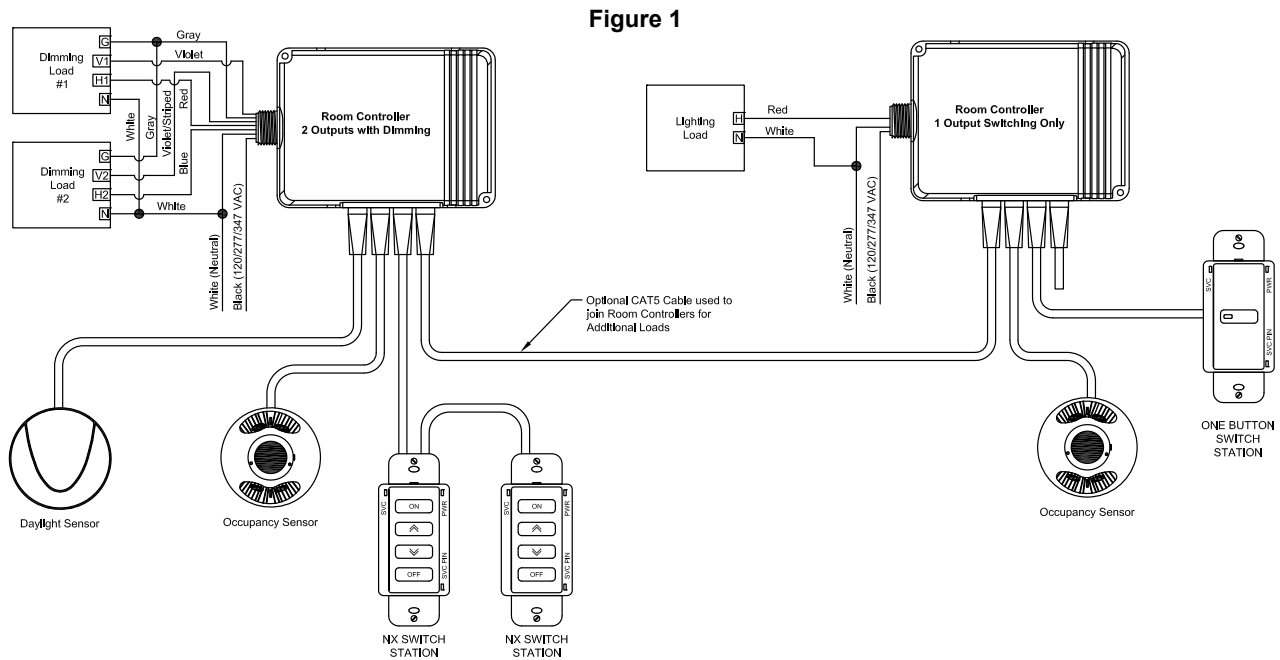
**HUBBELL**  
Lighting

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## INTRODUCTION

The NX™ Room Controller is designed to control and manage lighting within a single room or zone in a building. Working in conjunction with an occupancy sensor(s), daylight sensor, and wall switch station(s), the room controller intelligently responds to inputs to perform the required lighting control sequence of operation. The room controller operates with the connected control devices as a stand-alone local control system but can be extended to participate in a building-wide networked lighting control system with the addition of the NXHNB Network Bridge Module.



## GETTING STARTED

This document assumes that the room controller has been installed and tested using the instructions and procedures described in the NX Room Controller Installation Instructions provided with the unit. When powered from either 120 or 277 VAC, the room controller is capable of providing a source of 24 VDC current to power the connected control devices such as switch stations and sensors. A maximum of 250 mA of 24 VDC current is available. Since the control components draw differing amounts of current, the following table should be used to determine how many control devices can be connected to a single room controller. In cases where two or more room controllers are connected together, the power budget is determined for each room controller based on the control devices that are plugged into that room controller. See figure 1 above.

### MAXIMUM POWER BUDGET PER ROOM CONTROLLER = 30 LOADS

Switch station = 1 Load

PIR only Occupancy sensor = 1 Load

PIR only Occupancy sensor with RP option = 2 Loads

Dual Technology and Ultrasonic Occupancy sensor = 3 Loads

Dual Technology and Ultrasonic Occupancy sensor with RP option = 4 Loads

Daylight Sensor (photocell) = 1 Load

NOTE: Only one daylight sensor can be connected in each room/zone

## SELF CONFIGURATION

The sequence of operation in the room will automatically reconfigure as devices are plugged into the room controller as described in the following sections. Note that self configuration will automatically be disabled once the room has been manually configured. See Manual Configuration section.

## OCCUPANCY SENSORS

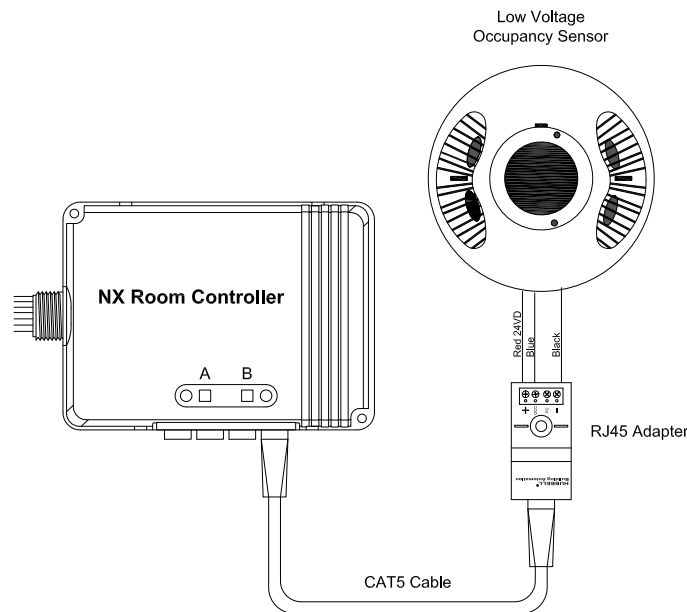
The NX™ room controller is compatible with any low voltage Hubbell Control Solutions vacancy/occupancy sensor that uses the red/black/blue control wires. A wiring adapter (**#RJ45ADAPTOR**) is required to make the wiring transition from the flying leads on the sensor to the RJ-45 SmartPORT™ on the room controller. Hubbell Control Solutions sensors ordered under model **NXOS** series model numbers are automatically supplied with the adapter and a short CAT5 jumper cable.

The sensor can be connected to the Room Controller *SmartPORT* using a pre-terminated CAT5 cable (see Figure 2). Alternately, the adapter can be connected to the Room Controller *SmartPORT* and one or more sensors connected using traditional low voltage wiring. The adapter is color coded to match the flying leads on the sensors.

A occupancy sensor connected to a Room Controller will automatically be recognized after the first time it cycles occupancy. This can be expedited by unplugging and replugging the sensor after it has had time to power up (LED blinking activity). This will simulate an occupancy cycle. With only the sensor connected (no switch stations), the lights will turn on automatically and operate in auto on/auto off sequence of operation.

**NOTE: Once any NX digital switch station is connected to the Room Controller, the mode of operation will automatically switch to vacancy mode (manual on) for all loads. To change one or more load(s) to automatic on operation see Manual Configuration section below.**

Figure 2



## DIGITAL SWITCH STATIONS

The NX Digital Switch Stations will automatically configure themselves to control the available loads within 5 seconds after being connected to the Room Controller. For best results, do not press any buttons for 5 seconds after plugging in a switch station. This allows time for the system to self configure and stabilize.

Model number switch stations **NXSW-1, NXSW-2, NXSW-3, NXSW-4, NXSW-6** will have all buttons configured for ON/OFF toggle operation by default. These stations will self configure to sequentially control the loads. For example, a **NXSW-1** will control load 1, a **NXSW-2** will control loads 1 and 2, etc. The relationship between the buttons and the loads can be changed. See Manual Configuration below. NOTE: if the zone has more loads than buttons, the last button in the sequence will automatically control the remaining loads. This insures that no load is left uncontrolled during the self configuration process.

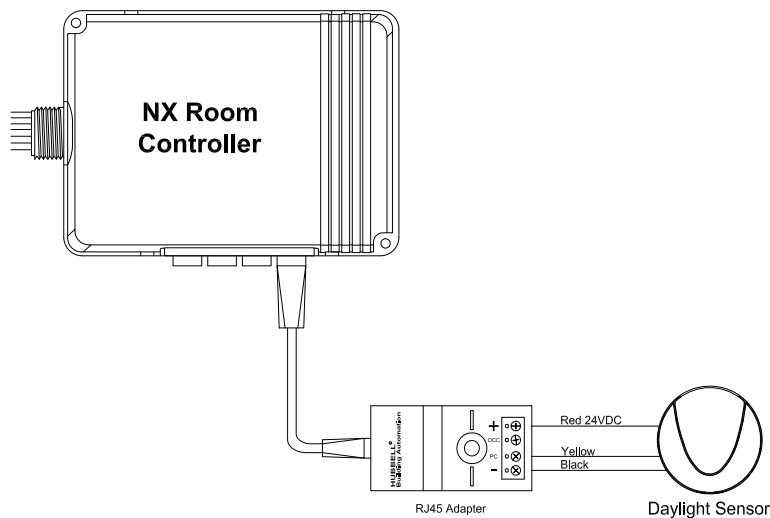
The NX™ Specialty Switch Stations model **NXSW-OO** and **NXSW-TO** will self configure the same as the **NXSW-1** as described above.

The NX Specialty Switch Stations model number **NXSW-RL**, **NXSW-SS** and **NXSW-ORLO** have dimming functionality and will self configure to control all loads. The relationship of the stations to the dimmed loads can be changed. See Manual Configuration below.

**DAYLIGHT SENSOR**

The model **NXDS** Daylight Sensor will self configure to control Load 1 when connected to a room controller. The photocell operation can be verified by observing Load 1 lighting while alternately covering the photocell (Load 1 light will be ON and bright if dimming enabled) or exposing the photocell to bright light (Load 1 light will be OFF or dimmed if so enabled). The relationship between the daylight sensor and the load(s) can be changed. See Manual Configuration below.

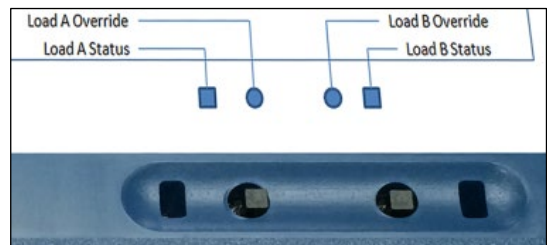
**Figure 3**



**MANUAL CONFIGURATION**

The process of manual configuration allows certain functions to be adjusted using only the A and B pushbuttons and LED indicators on the Room Controller. The functions that can be adjusted are:

1. Assign loads to buttons and stations
2. Configure loads for manual ON (vacancy mode) or automatic ON operation
3. Configure loads to respond to the photocell
4. Calibrate the photocell



**ENTER MANUAL CONFIGURATION MODE**

To enter manual configuration mode, simultaneously press and hold buttons A and B on the Room Controller until the A and B LEDs start to alternately blink. Release buttons A and B. The room controller will now be in configuration mode. Load A will be ON and all other loads will be OFF. Note, while in configuration mode no more than one load will ever be on and the A and B buttons on the room controller will not control the loads.

**Hint: If more than one load is on or pressing the A or B button switches a load, you likely did not press both buttons exactly together when entering configuration mode. Repeat the process to enter manual configuration mode.**

## EXIT MANUAL CONFIGURATION MODE

To exit configuration mode, simultaneously press and immediately release buttons A and B. The room controller will resume normal operation.

## ENTER MANUAL CONFIGURATION MODE FROM A SWITCH

Remove the faceplate from any wall switch and locate the rectangular opening in the plastic bezel marked "SVC PIN". Use a thin object such as a straightened paper clip to press the recessed configuration button for 5 seconds. Note that the button is located slightly offset from the opening in the bezel. The LED marked "SVC" will blink while the configuration button is being pressed. Release the configuration button and note that one load turns on and all other loads turn off indicating that the room is in manual configuration mode.

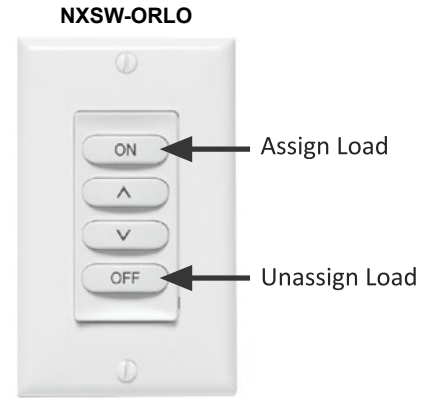
## EXIT MANUAL CONFIGURATION MODE FROM A SWITCH

Press the configuration button for five seconds. Note that the LED marked "SVC" will blink while the configuration button is being pressed. Release the configuration button. The loads in the room will restore to the levels they were prior to entering manual configuration mode.

## ASSIGN LOADS TO BUTTONS

All **NXSW** switch stations assume default operation of the load(s) when they are plugged into a SmartPORT™ on the Room Controller. The assignment of the loads to the buttons can easily be changed as follows:

Enter calibration mode as described above. Load A on the first room controller will be ON. While load A is ON, each button that controls that load will have a lighted LED. To unassign control of the load from the button, press the button to extinguish the LED. To assign the load to another button, press the switch station button to light the LED on the button. Repeat this process for all buttons.



To advance to the next load, press and release button A on the room controller. Load A will turn off and next load will turn ON. Repeat the assignment process above for each load.

For NXSW switch stations that do not have LED indicators, ie. **NXSW-OO**, **NXSW-ORLO**, **NXSW-RL**, etc., press the ON button or the Raise button to assign the load. Press the OFF button or the Lower button to unassign the load.

If using the Switch Station method for manual load configuration, tap the recessed configuration button to advance to the next load as necessary.

After all loads are assigned, exit manual configuration mode. Test the button operation and repeat the above if necessary.

## CONFIGURE LOADS FOR AUTO/MANUAL ON OPERATION

Enter manual configuration mode (see above). While load A is ON, the B LED on the room controller will indicate the current operation mode for the load. If LED B is OFF, the load will operate in manual on (vacancy) mode. If LED B is ON, the load will operate in auto ON mode when the motion sensor detects occupancy. Press and release button B on the room controller to change the operation mode for the current load.

To advance to the next load, press and release button A on the room controller. Repeat the above for all loads. When finished, exit manual configuration mode.

**Hint: a load set to manual ON (vacancy mode) must be controlled by an NXSW wall switch station otherwise the load will never turn on.**

## CONFIGURE LOADS FOR PHOTOCELL OPERATION

Enter manual configuration mode. While in manual configuration mode, simultaneously press and hold buttons A and B for three seconds until LED A begins to blink rapidly. This indicates the room controller has transitioned from load configuration mode into photocell configuration mode. While in photocell configuration mode, only one load will be ON. If the selected load has dimming capability, the light will cycle between minimum to maximum to identify itself during the selection process. If the currently selected load is to be controlled by the photocell, momentarily press and release button B on the room controller. LED B will blink in a pattern to indicate the performance level for daylight harvesting.

The blink patterns are as follows:

- Double blink/pause indicates normal baseline performance (default setting)
- Triple blink/pause indicates more aggressive performance, lights will dim more
- Single blink/pause indicates less aggressive performance, lights will dim less
- No blinking indicates that the selected load will not participate in daylight harvesting

Press and release button B on the room controller to cycle through the performance choices for the selected load. The “more aggressive” selection will cause the light to dim more during daylight harvesting. The “less aggressive” selection will cause the light to dim less.

**Hint: if the room controller is equipped with dimming capability (NXRC-1RD or NXRC-2RD), the photocell will assume that it's operation will use dimming. If the room controller does not have dimming capability (NXRC-1R or NXRC-2R), the photocell will operate in switching mode based on a default set point of 150 foot candles.**

Press and release button A on the room controller save your selection and to advance to the next load. Repeat the above to set the performance for all loads to be controlled by the photocell. Proceed to auto calibration of the photocell.

**Hint: the above process can be used to set up multi-zone daylight harvesting in applications where more than one row of lights are to be controlled. Simply select a more aggressive performance for the row closest to the windows and a less aggressive performance for the row away from the windows. Using this process it is possible to set up a room with three zones of daylight harvesting using the triple blink setting for the row by the window, the double blink setting for the row in the center, and the single blink setting for the row away from the window.**

## AUTO CALIBRATING THE PHOTOCELL

The photocell must be calibrated before it will perform proper daylight harvesting operation. Be sure to complete the load assignment process above before proceeding with auto calibration of the photocell.

While the room controller is in photocell configuration mode (see above), simultaneously press and hold buttons A and B for three seconds until both LED A and B begin to blink rapidly indicating the auto calibration process has started. Release buttons A and B. The lights will cycle OFF and ON during the calibration process. When calibration is complete, the room controller will automatically exit configuration mode and return to normal operation. Daylight harvesting will now be active based on the settings made during configuration.

## RESET THE ROOM CONTROLLER TO FACTORY DEFAULT SETTINGS

Should you wish to erase all manual configuration and restore the room controller to its factory default settings, perform the following step:

Simultaneously press and hold buttons A and B on the room controller. After a few seconds, LED A and B will begin alternately blink. Continue to hold buttons A and B until the blink pattern changes to a double blink pattern. Release buttons A and B. When the blinking stops, all loads will turn on indicating the room controller has be reset to factory default settings.

***Hint: If the installation has more than one room controller connected together in the room, the reset process done on any one of the room controllers will reset all of the room controllers.***

## RESET FACTORY DEFAULTS USING A SWITCH STATION

Remove the faceplate from any wall switch and locate the rectangular opening in the plastic bezel marked "SVC PIN". sUse a thin object such as a straightened paper clip to press the recessed configuration button for at least 10 seconds. Note that the button is located slightly offset from the opening in the bezel. The LED marked "SVC" will blink while the configuration button is being pressed. Release the configuration button and note that all loads in the room turn on indicating that the room has been reset to factory default settings.