



IECC 2015

nLight® Applications Guide





/ ACUITY CONTROLS

It's not just smarter. It's easier.

Acuity Controls is advanced lighting controls technology, service and support from a single expert source. We offer one of the industry's most extensive product portfolios for indoor and outdoor applications; single rooms to campuses to municipalities. Our product solutions include occupancy and photosensors, centralized and distributed systems, panels, fixture-integrated, wired and wireless controls that simply work.



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/ ABOUT

About IECC 2015

The International Energy Conservation Code (IECC) 2015 is a residential and commercial building energy code. The IECC has been adopted by many states and municipalities. The intention of this code is to reduce energy consumption by outlining design and construction requirements which include specific constraints for lighting controls. The use of lighting controls to synchronize light levels with daylight, occupancy, and multi-level control demand response capability are required in order to be compliant.

About This Guide

Acuity Controls offers the nLight® IECC Applications Guide as a reference of typical nLight layouts that help make code compliance quicker and easier. The Acuity Controls Design Services Team is also available to support engineers and contractors with detailed design, submittal, and installation. For additional information, please contact your Acuity Brands Sales Representative.

About nLight

The nLight networked digital lighting control system is easy-to-use, easy-to-install and saves energy. Using only standard CAT-5e cable, nLight networks together occupancy sensors, wall stations, and digital LED luminaires to create a digital lighting system with unmatched flexibility! nLight easily scales from one room to an entire campus, creating a lighting control solution that's perfect for your space and need.

The chart below is an overview of the Code Requirements for Common Building Spaces. Please use this information as a guide. For specific code requirements please refer to the IECC code.

	Control Requirement*	Code Provision	Code Summary*	Space Type									
				Private Office	Open Office	Conference, Meeting, Multipurpose Room	Classroom, Lecture Hall, Training Room	Lobby	Corridor	Restroom	Non-Exit Stairwell	Warehouse	
On-Off Control	Manual-On or AutoOn ≤ 50%	C405.2.1.1.2	Automatically controlled spaces must be controlled to automatically turn the lighting on to not more than 50% power.	✓	✓	✓	✓						
	Full Automatic-On	C405.2.1.1.2	Automatically controlled spaces are allowed to turn on to full.					✓	✓	✓	✓	✓	
	Auto-Off ≤ 50%	C405.2.1.2	Occupancy sensors shall automatically reduce lighting in warehouse aisle-ways and open areas by ≤ 50%										✓
	Full Auto-Off via Occupancy Sensor	C405.2.1.1.1	Fixtures must automatically turn off within 30 minutes of all occupants leaving the space.	✓	✓	✓	✓	✓	✓	✓	✓	✓	(or) ✓
	Time-Switch Controls (via System Controller)	C405.2.2.1	Each area of the building not provided with occupant sensor controls shall be provided with time switch controls. These areas must also be provided with a manual override switch.		(or) ✓			(or) ✓	(or) ✓		(or) ✓		
	Light Reduction Controls	C405.2.2.2	Spaces shall have a manual control that allows the occupant to reduce the connected lighting load uniformly by at least 50%.		✓							✓	
	Manual Control (Local Switch)	C405.2.2.3	Areas shall incorporate a manual control to allow occupants to turn fixtures off.	✓	✓	✓	✓	✓	✓	✓	✓**	✓**	
Daylight Control	Daylight-Responsive Controls	C405.2.3.1/2	Daylight-responsive controls shall be provided within each space with sidelight and toplight daylight zones totaling > 150W.	✓	✓	✓	✓	✓	✓	✓	✓	✓	

Notes:
 *This summary is for general information purposes only and is provided without any warranty as to accuracy, completeness, or otherwise. The user should read the applicable code sections for more complete and detailed descriptions of code requirements and exceptions and should consult with a professional engineer or other competent advisor before making any decision or taking any action based on this summary.
 ** While energy code required, safety may preclude the use of a Manual Control in these areas.

Quick summary of applicable code sections

Room description

Room layout with devices & locations

Room layout diagram with control, fixture, and wiring type detail

Required list of devices in order to implement room layout design above

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PRIVATE OFFICE: No Windows, nLight Enabled Fixtures

Supports the Following Requirements:

- Full Auto-Off via Occupancy Sensor (C405.2.1.1)
- Manual Control (Local Switch) (C405.2.2.3)
- Lighting Reduction (C405.2.2.2)
- Enhanced Digital Lighting Controls if connected to network (C406.4)

Bill of Materials

Symbol	Qty	Product #	Description
	4	Various; see Appendix A	nLight Enabled Fixture
	1	nWSX PDT LV DX	Wall Switch Occupancy Sensor with On/Off & Raise/Lower

SEQUENCE OF OPERATION:

<p>Fixtures:</p> <ul style="list-style-type: none"> ■ All fixtures are dimmable ■ All fixtures can be controlled together or independently ■ Maximum level can be task tuned to any percentage during startup ■ Optional automatic lumen compensation 	<p>Occupancy Control:</p> <ul style="list-style-type: none"> ■ Fixtures must be turned on manually (or optionally can be configured to come on automatically to 50%) ■ Fixtures automatically turn off when room becomes vacant 	<p>Daylight Control:</p> <ul style="list-style-type: none"> ■ Not required for offices without windows or that have loads <150W in sidelight zones 	<p>Manual Control:</p> <ul style="list-style-type: none"> ■ On/off & raise/lower control of fixtures
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ADDITIONAL OPTIONS:

- Surface or recessed mount sensors also available
- Room can be connected to nLight backbone to enable network control or time schedules (C405.2.2.1 - Time-Switch Controls), and also qualify for Enhanced Digital Lighting Controls (C406.4)

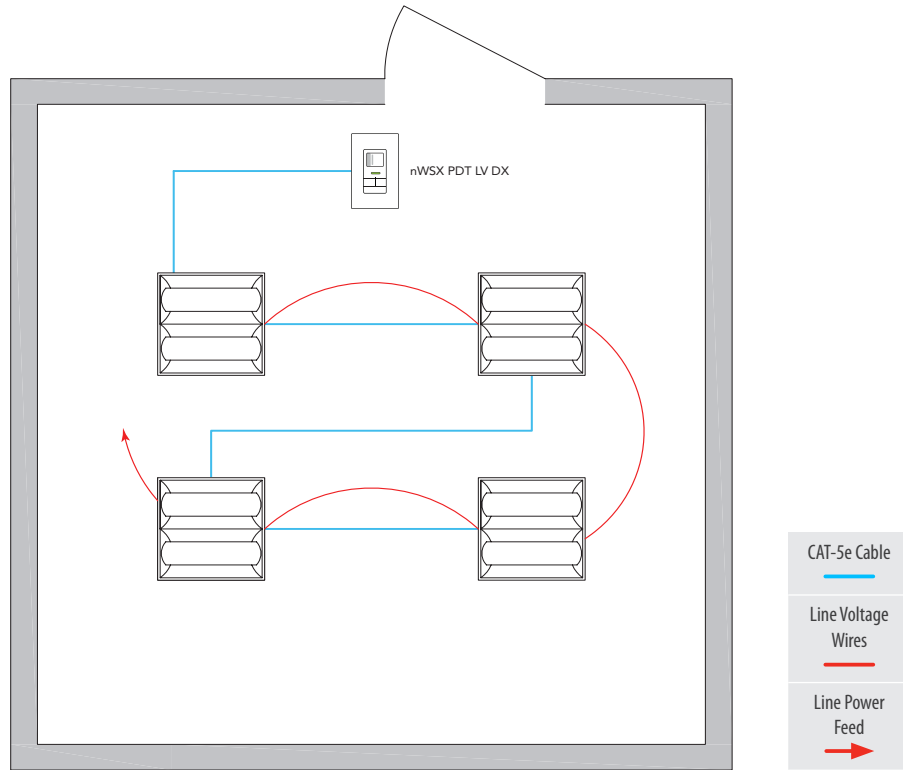
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Operational details describe the functionality provided by the equipment specified in the solution



Additional options that add control capacity beyond code requirements

Supports the Following Requirements:

- Full Auto-Off via Occupancy Sensor (C405.2.1.1)
- Manual Control (Local Switch) (C405.2.2.3)
- Lighting Reduction (C405.2.2.2)
- Enhanced Digital Lighting Controls if connected to network (C406.4)



Bill of Materials

Symbol	Qty	Product #	Description
	4	Various; see Appendix A	nLight Enabled Fixture
	1	nWSX PDT LV DX	Wall Switch Occupancy Sensor with On/Off & Raise/Lower

SEQUENCE OF OPERATION:

Fixtures:

- All fixtures are dimmable
- All fixtures can be controlled together or independently
- Maximum level can be task tuned to any percentage during startup
- Optional automatic lumen compensation

Occupancy Control:

- Fixtures must be turned on manually (or optionally can be configured to come on automatically to 50%)
- Fixtures automatically turn off when room becomes vacant

Daylight Control:

- Not required for offices without windows or that have loads <150W in sidelight zones

Manual Control:

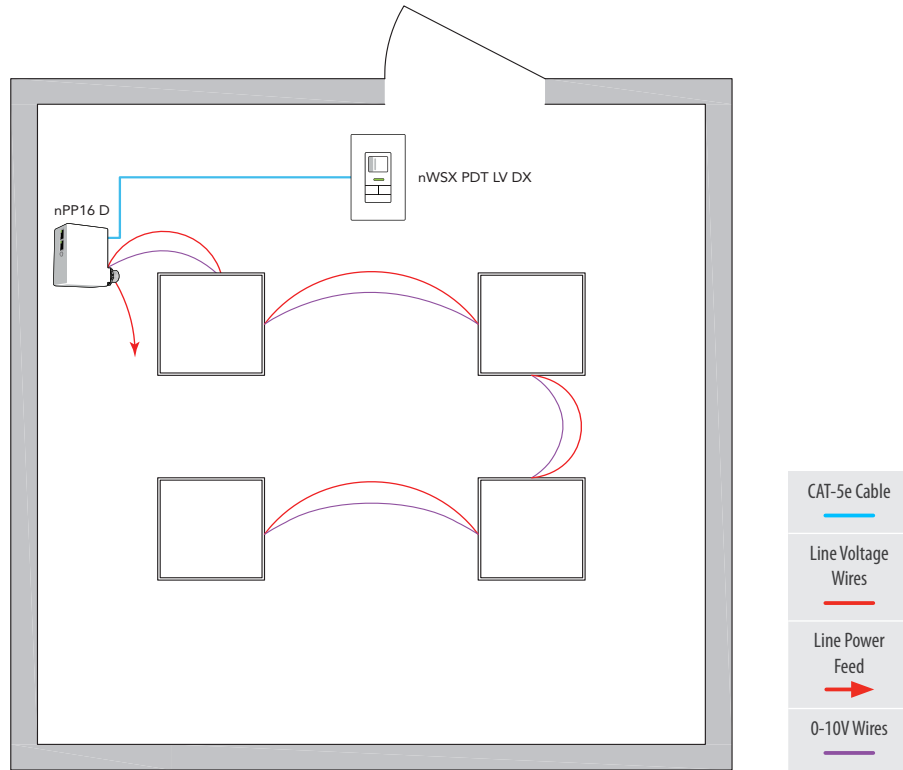
- On/off & raise/lower control of fixtures

ADDITIONAL OPTIONS:



- Surface or recessed mount sensors also available
- Room can be connected to nLight backbone to enable network control or time schedules (C405.2.2.1 - Time-Switch Controls), and also qualify for Enhanced Digital Lighting Controls (C406.4)

Supports the Following Requirements:

- Full Auto-Off via Occupancy Sensor (C405.2.1.1)
- Manual Control (Local Switch) (C405.2.2.3)
- Lighting Reduction (C405.2.2.2)



Bill of Materials

Symbol	Qty	Product #	Description
	1	nPP16 D	Relay Module with 0-10V Dimming Output
	1	nWSX PDT LV DX	On/Off & Raise/Lower WallPod

SEQUENCE OF OPERATION:

Fixtures:

- All fixtures are dimmable
- All fixtures are controlled together
- Maximum level can be task tuned to any percentage during startup

Occupancy Control:

- Fixtures must be turned on manually (or optionally can be configured to come on automatically to 50%)
- Fixtures automatically turn off when room becomes vacant

Daylight Control:

- Not required for offices without windows or that have loads <150W in sidelight zone

Manual Control:

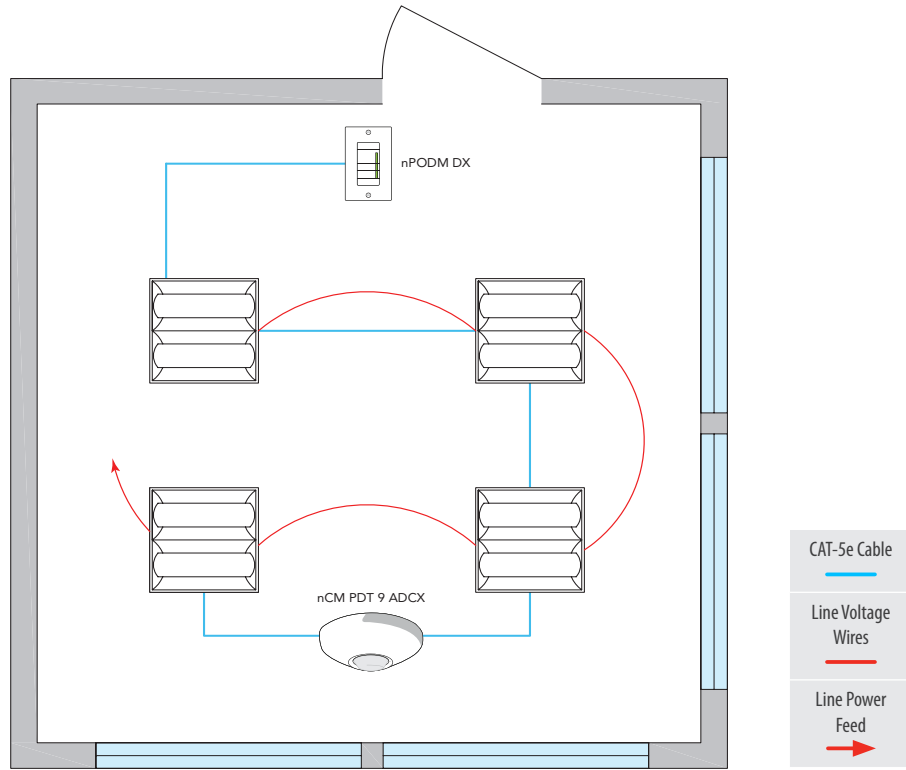
- On/off & raise/lower control of fixtures

ADDITIONAL OPTIONS:

- Surface or recessed mount sensors also available
- Room can be connected to nLight backbone to enable network control or time schedules (C405.2.2.1 - Time-Switch Controls), and also qualify for Enhanced Digital Lighting Controls (C406.4)
Note: Max of 4 fixture per controlled group.

Supports the Following Requirements:

- Full Auto-Off via Occupancy Sensor (C405.2.1.1)
- Manual Control (Local Switch) (C405.2.2.3)
- Lighting Reduction (C405.2.2.2)
- Sidelight Daylight Zone (C405.2.3.2)
- Enhanced Digital Lighting Controls if connected to network (C406.4)



Bill of Materials

Symbol	Qty	Product #	Description
	4	Various; see Appendix A	nLight Enabled Fixture
	1	nPODM DX	On/Off & Raise/Lower WallPod
	1	nCM PDT 9 ADCX	Dual Technology Occupancy Sensor with Automatic Dimming Photocell

SEQUENCE OF OPERATION:

Fixtures:

- All fixtures are dimmable
- All fixtures are controlled together or independently
- Maximum level can be task tuned to any percentage during startup
- Optional automatic lumen compensation

Occupancy Control:

- Fixtures must be turned on manually (or optionally can be configured to come on automatically to 50%)
- Fixtures automatically turn off when room becomes vacant

Daylight Control:

- Smooth continuous dimming
- Custom grouping of fixtures into separate daylight zones (max. number zones = number of fixtures)
- Not required for offices without windows or that have loads <150W in sidelight zones

Manual Control:

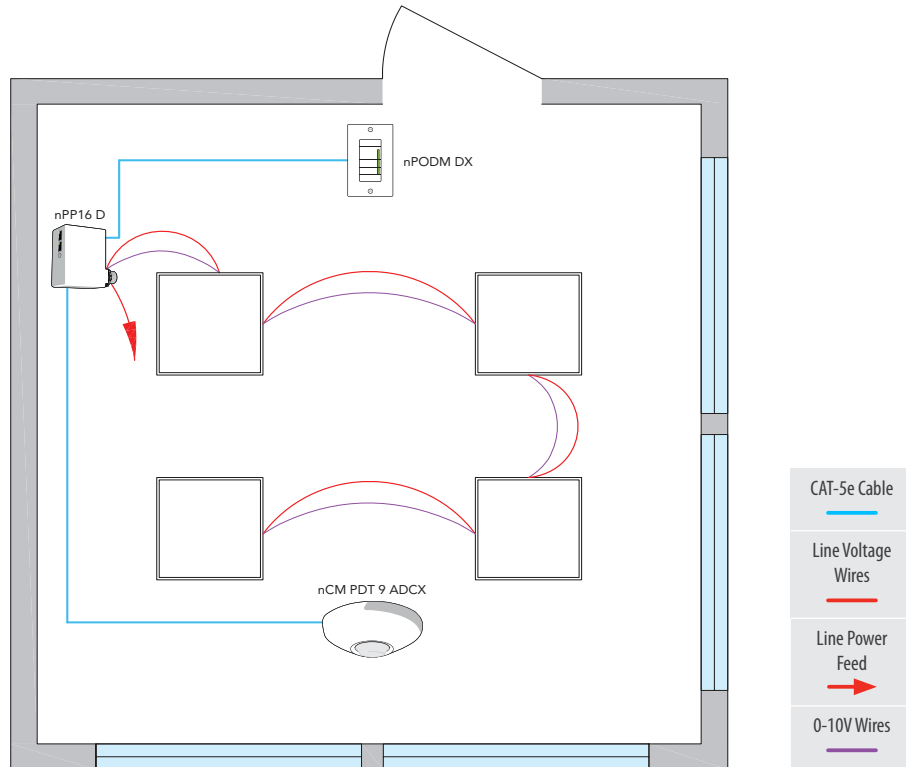
- On/off & raise/lower control of fixtures

ADDITIONAL OPTIONS:




- Surface or recessed mount sensors also available
- Room can be connected to nLight backbone to enable network control or time schedules (C405.2.2.1 - Time-Switch Controls), and also qualify for Enhanced Digital Lighting Controls (C406.4)
- For emergency lighting control order fixtures with -n80EMG or -n100EMG option

Supports the Following Requirements:

- Full Auto-Off via Occupancy Sensor (C405.2.1.1)
- Manual Control (Local Switch) (C405.2.2.3)
- Lighting Reduction (C405.2.2.2)
- Sidelight Daylight Zone (C405.2.3.2)



Bill of Materials

Symbol	Qty	Product #	Description
	1	nPP16 D	Relay Module with 0-10V Dimming Output
	1	nPODM DX	On/Off & Raise/Lower WallPod
	1	nCM PDT 9 ADCX	Dual Technology Occupancy Sensor with Automatic Dimming Photocell

SEQUENCE OF OPERATION:

Fixtures:

- All fixtures are dimmable
- All fixtures are controlled together
- Maximum level can be task tuned to any percentage during startup

Occupancy Control:

- Fixtures must be turned on manually (or optionally can be configured to come on automatically to 50%)
- Fixtures automatically turn off when room becomes vacant

Daylight Control:

- Smooth continuous dimming
- Not required for offices without windows or that have loads <150W in sidelight zones

Manual Control:

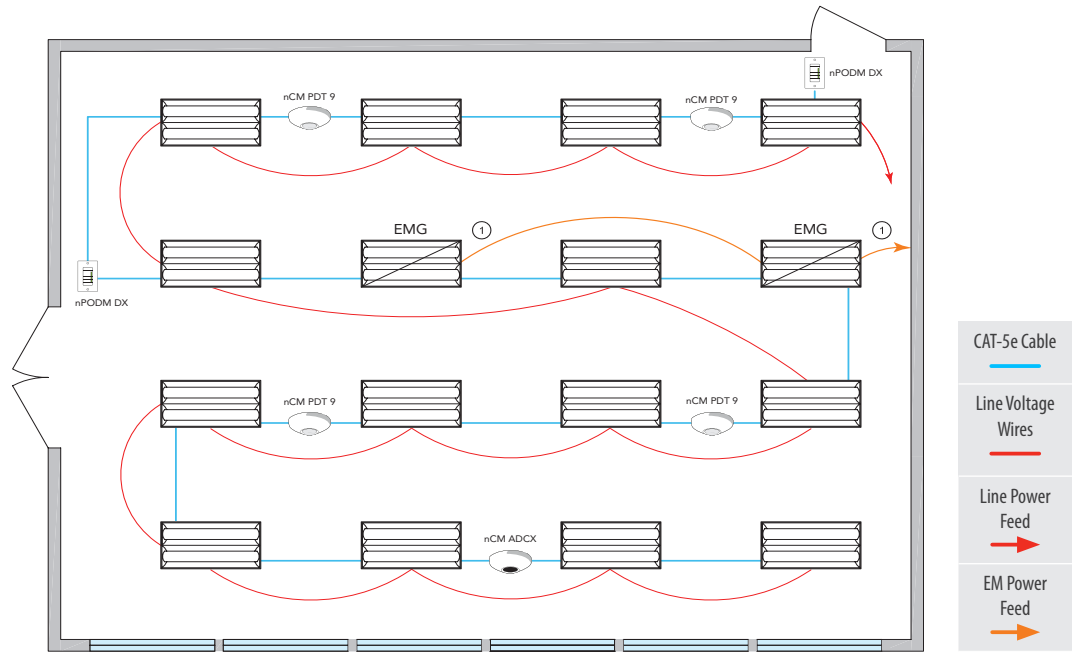
- On/off & raise/lower control of fixtures

ADDITIONAL OPTIONS:

- Surface or recessed mount sensors also available
- Room can be connected to nLight backbone to enable network control or time schedules (C405.2.2.1 - Time-Switch Controls), and also qualify for Enhanced Digital Lighting Controls (C406.4)
Note: Max of 4 fixture per controlled group
- For emergency lighting control order fixtures with -n80EMG or -n100EMG option

Supports the Following Requirements:

- Full Auto-Off via Occupancy Sensor (C405.2.1.1)
- Manual Control (Local Switch) (C405.2.2.3)
- Lighting Reduction (C405.2.2.2)
- Sidelight Daylight Zone (C405.2.3.2)
- Enhanced Digital Lighting Controls if connected to network (C406.4)



① Note: Some nLight enabled EMG fixtures require a Normal Power Sense line connection. See fixture spec sheet for details.

Bill of Materials

Symbol	Qty	Product #	Description
	14	Various; see Appendix A	nLight Enabled Fixture
	2	Various; see Appendix A	nLight Enabled Fixture with EMG Option
	2	nPODM DX	On/Off & Raise/Lower WallPod
	4	nCM PDT 9	Dual Technology Occupancy Sensor
	1	nCM ADCX	Automatic Dimming Control Photocell

SEQUENCE OF OPERATION:

Fixtures:

- All fixtures are dimmable
- All fixtures are controlled together or independently
- Maximum level can be task tuned to any percentage during startup
- Optional automatic lumen compensation

Occupancy Control:

- Fixtures must be turned on manually (or optionally can be configured to come on automatically to 50%)
- Fixtures automatically turn off when room becomes vacant

Daylight Control:

- Smooth continuous dimming
- Custom grouping of fixtures into separate daylight zones (max. number zones = number of fixtures)
- Not required for offices without windows or that have loads <150W in sidelight zones

Manual Control:

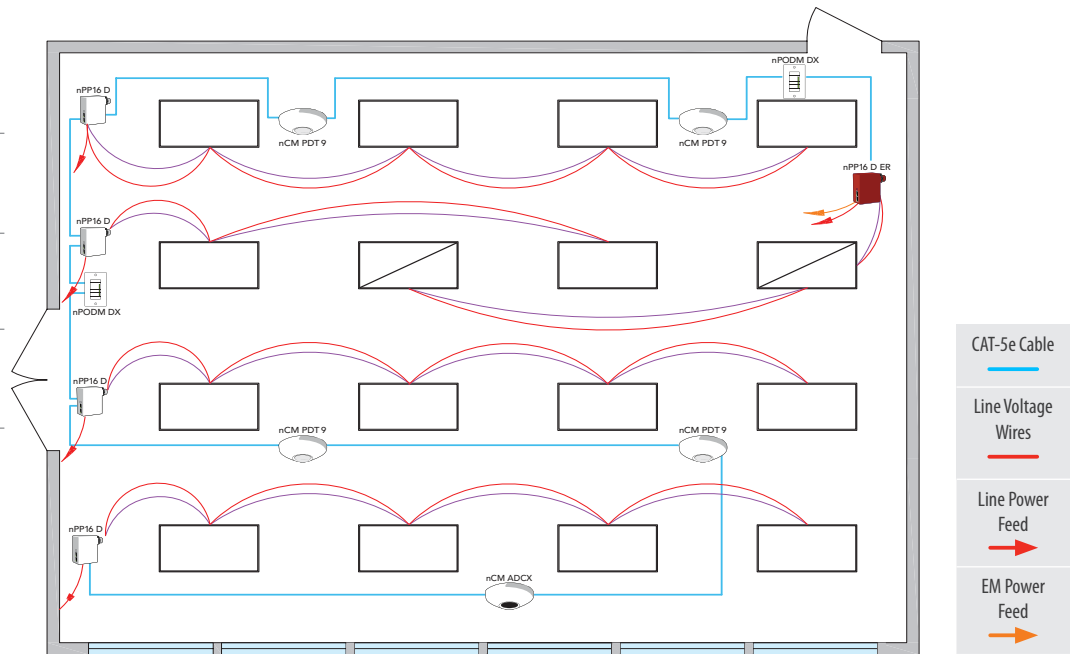
- Master on/off & raise/lower control of fixtures
- Optional individual row control (add nPODM 4P DX)

ADDITIONAL OPTIONS:






- Surface or recessed mount sensors also available
- Add Graphic WallPod (model nPOD GFX) for individual row and up to 16 scene control
- Room can be connected to nLight backbone to enable network control or time schedules (C405.2.2.1 - Time-Switch Controls), and also qualify for Enhanced Digital Lighting Controls (C406.4)

Supports the Following Requirements:

- Full Auto-Off via Occupancy Sensor (C405.2.1.1)
- Manual Control (Local Switch) (C405.2.2.3)
- Lighting Reduction (C405.2.2.2)
- Sidelight Daylight Zone (C405.2.3.2)



Bill of Materials

Symbol	Qty	Product #	Description
	4	nPP16 D	Relay Module with 0-10V Dimming Output
	1	nPP16 D ER	Emergency Relay Module with 0-10V Dimming Output
	2	nPODM DX	On/Off & Raise/Lower WallPod
	4	nCM PDT	Dual Technology Occupancy Sensor
	1	nCM ADCX	Automatic Dimming Control Photocell

SEQUENCE OF OPERATION:

Fixtures:

- All fixtures are dimmable
- Each row controlled independently
- Maximum level can be task tuned to any percentage during startup

Occupancy Control:

- Fixtures must be turned on manually (or optionally can be configured to come on automatically to 50%)
- Fixtures automatically turn off when room becomes vacant

Daylight Control:

- Smooth continuous dimming
- Daylight zones defined by rows
- Not required for offices without windows or that have loads <150W in sidelight zones

Manual Control:

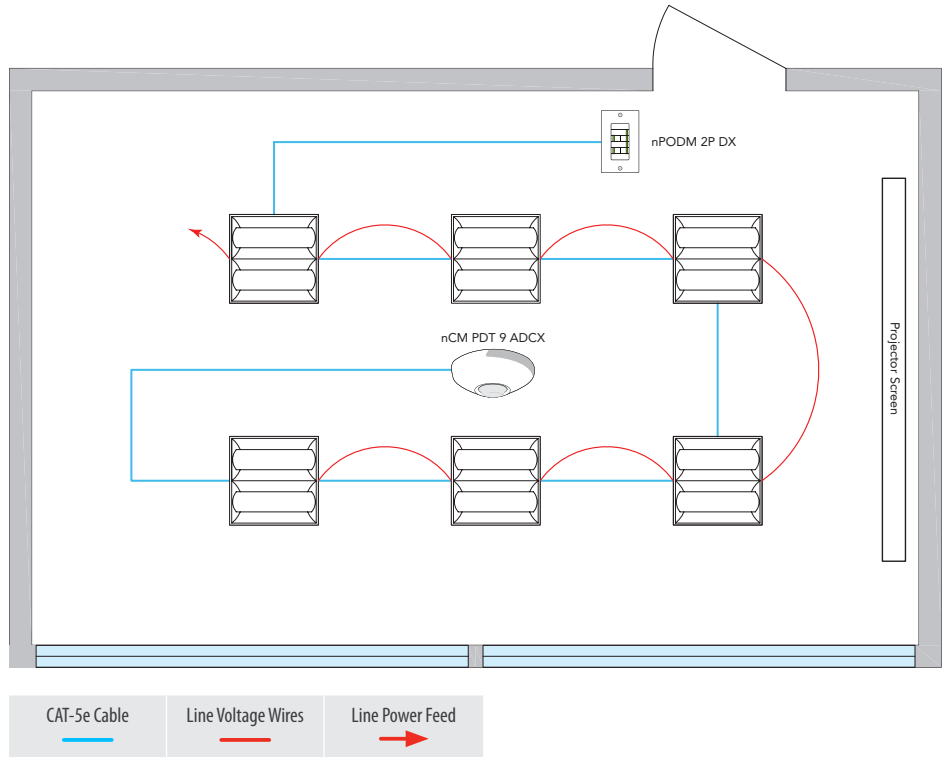
- Master on/off & raise/lower control of fixtures
- Optional individual row control (add nPODM 4P DX)

ADDITIONAL OPTIONS:

- Surface or recessed mount sensors also available
- Add Graphic WallPod (model nPOD GFX) for individual row and up to 16 scene control
- Room can be connected to nLight backbone to enable network control or time schedules (C405.2.2.1 - Time-Switch Controls), and also qualify for Enhanced Digital Lighting Controls (C406.4)
Note: Max of 4 fixture per controlled group

Supports the Following Requirements:

- Full Auto-Off via Occupancy Sensor (C405.2.1.1)
- Manual Control (Local Switch) (C405.2.2.3)
- Lighting Reduction (C405.2.2.2)
- Sidelight Daylight Zone (C405.2.3.2)
- Enhanced Digital Lighting Controls if connected to network (C406.4)



CAT-5e Cable	Line Voltage Wires	Line Power Feed

Bill of Materials

Symbol	Qty	Product #	Description
	6	Various; see Appendix A	nLight Enabled Fixture
	1	nPODM 2P DX	Dual On/Off & Raise/Lower WallPod
	1	nCM PDT 9	Dual Technology Occupancy Sensor

Options

	1	nCM PDT 9 ADCX	Dual Technology Occupancy Sensor and Automatic Dimming Control Photocell (if daylight control is required)
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Note: nCM PDT 9 ADCX replaces nCM PDT 9 above when daylighting control is required.

SEQUENCE OF OPERATION:

Fixtures:

- All fixtures are dimmable
- AV Zone can be programmed to control 2 fixtures in front of projector screen
- Maximum level can be task tuned to any percentage during startup
- Optional automatic lumen compensation

Occupancy Control:

- Fixtures must be turned on manually (or optionally can be configured to come on automatically to 50%)
- Fixtures automatically turn off when room becomes vacant

Daylight Control:

- Smooth continuous dimming
- Custom grouping of fixtures into separate daylight zones (max number zones = number of fixtures)
- Not required for areas without windows or that have loads <150w in sidelight zones

Manual Control:

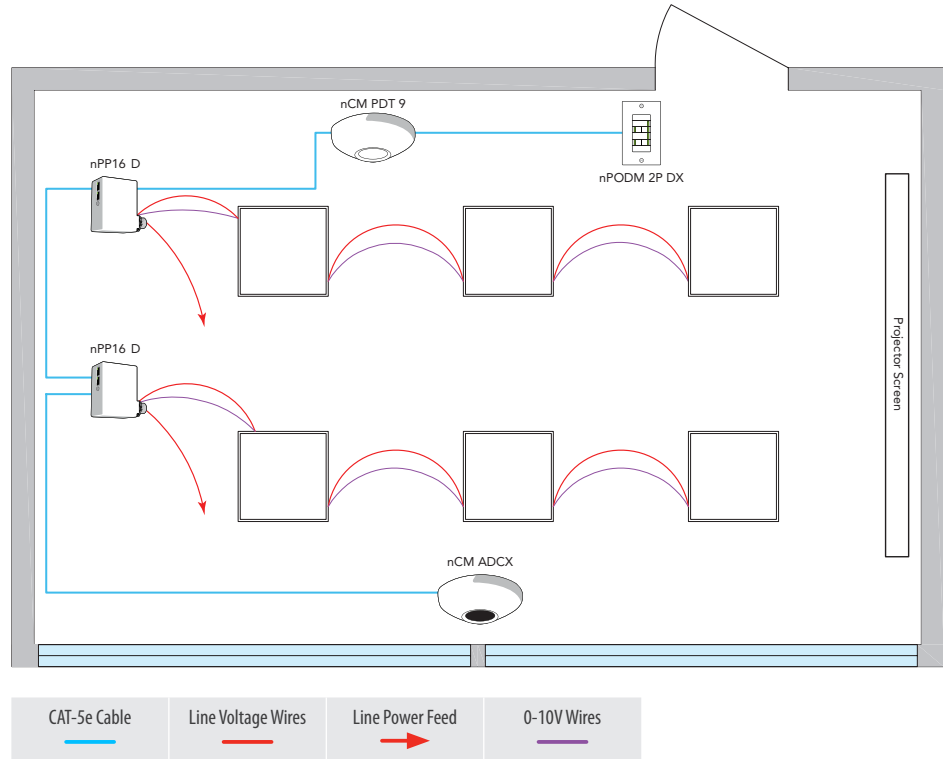
- On/off & raise/lower control of two groups of fixtures

ADDITIONAL OPTIONS:

- Surface or recessed mount sensors also available
- Add nPODM 4S for four scene or nPOD GFX for touch screen control
- Room can be connected to nLight backbone to enable network control or time schedules (C405.2.2.1 - Time-Switch Controls), and also qualify for Enhanced Digital Lighting Controls (C406.4)
- For emergency lighting control order fixtures with -n80EMG or -n100EMG option

Supports the Following Requirements:

- Full Auto-Off via Occupancy Sensor (C405.2.1.1)
- Manual Control (Local Switch) (C405.2.2.3)
- Lighting Reduction (C405.2.2.2)
- Sidelight Daylight Zone (C405.2.3.2)



Bill of Materials

Symbol	Qty	Product #	Description
	2	nPP16 D	Relay Module with 0-10V Dimming Output
	1	nPODM 2P DX	Dual On/Off & Raise/Lower WallPod
	1	nCM PDT 9	Dual Technology Occupancy Sensor

Options

	1	nCM ADCX	Automatic Dimming Control Photocell
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SEQUENCE OF OPERATION:

Fixtures:

- All fixtures are dimmable
- Each row controlled independently
- Maximum level can be task tuned to any percentage during startup

Occupancy Control:

- Fixtures must be turned on manually (or optionally can be configured to come on automatically to 50%)
- Fixtures automatically turn off when room becomes vacant

Daylight Control:

- Smooth continuous dimming
- Daylight zones defined by rows
- Not required for areas without windows or that have loads <150W in sidelight zones

Manual Control:

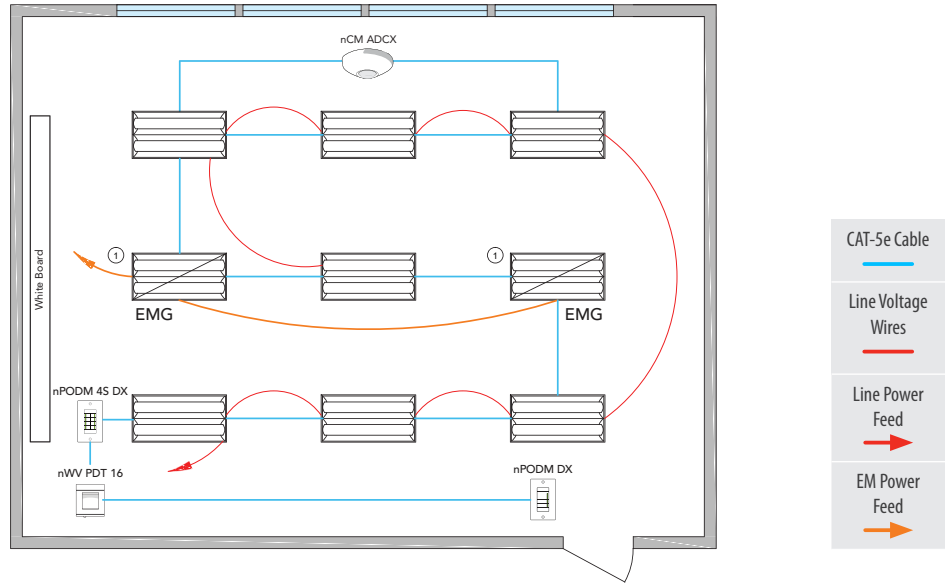
- On/off & raise/lower control of each row

ADDITIONAL OPTIONS:

- Surface or recessed mount sensors also available
- Add nPODM 4S for four scene or nPOD GFX for touch screen control
- Room can be connected to nLight backbone to enable network control or time schedules (C405.2.2.1 - Time-Switch Controls), and also qualify for Enhanced Digital Lighting Controls (C406.4)
Note: Max of 4 fixture per controlled group
- For emergency lighting control add a nPP16 D ER pack

Supports the Following Requirements:

- Full Auto-Off via Occupancy Sensor (C405.2.1.1)
- Manual Control (Local Switch) (C405.2.2.3)
- Lighting Reduction (C405.2.2.2)
- Sidelight Daylight Zone (C405.2.3.2)
- Enhanced Digital Lighting Controls if connected to network (C406.4)



1 Note: Some nLight enabled EMG fixtures require a Normal Power Sense line connection. See fixture spec sheet for details.

Bill of Materials

Symbol	Qty	Product #	Description
	10	Various; see Appendix A	nLight Enabled Fixture
	2	Various; see Appendix A	nLight Enabled Fixture with the EMG Option
	1	nPODM DX	On/Off & Raise/Lower WallPod
	1	nWV PDT 16	Dual Technology Wide View Occupancy Sensor

Options

	1	nPODM 4S DX	Teacher Station — 4 Scene Control Master On/Off & Raise/Lower
	1	nCM ADCX	Automatic Dimming Control Photocell

SEQUENCE OF OPERATION:

Fixtures:

- All fixtures are dimmable
- White Board or A/V Zone can be programmed to control 2 fixtures in front of projector screen
- Maximum level can be task tuned to any percentage during startup
- Optional automatic lumen compensation

Occupancy Control:

- Fixtures must be turned on manually (or optionally can be configured to some on automatically to 50%)
- Fixtures automatically turn off when room becomes vacant

Daylight Control:

- Smooth continuous dimming
- Custom grouping of fixtures into separate daylight zones (max number zones = number of fixtures)
- Not required for areas without windows or that have loads <150W in sidelight zones

Manual Control:

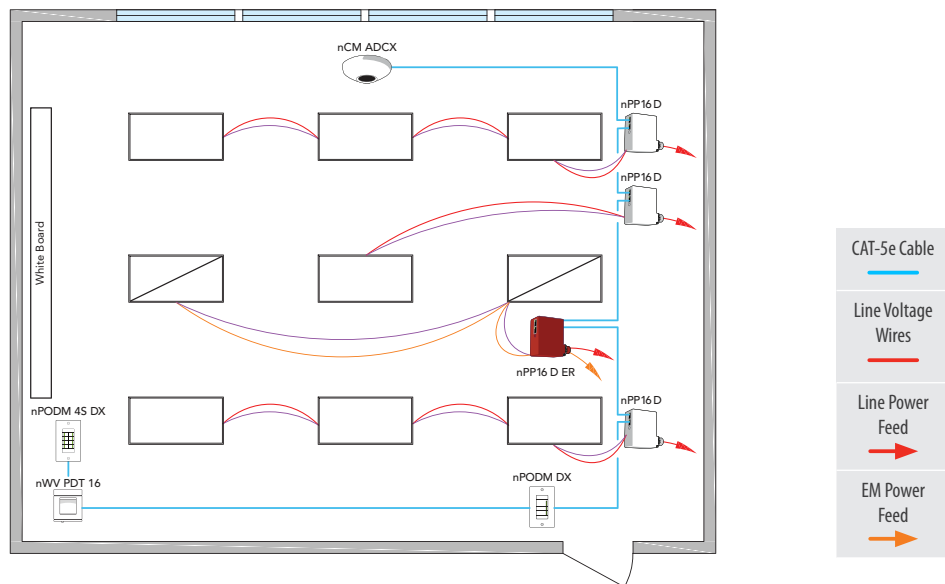
- Master on/off & raise/lower control of entire room
- Optional 4 scene control

ADDITIONAL OPTIONS:

- Surface or recessed mount sensors also available
- Add additional relay pack (model nPP16 D) if a white board lighting zone is also required
- Add graphic wallpod (model nPOD GFX) for individual row and up to 16 scene control
- Room can be connected to nLight backbone to enable network control or time schedules (C405.2.2.1 - Time-Switch Controls), and also qualify for Enhanced Digital Lighting Controls (C406.4)

Supports the Following Requirements:

- Full Auto-Off via Occupancy Sensor (C405.2.1.1)
- Manual Control (Local Switch) (C405.2.2.3)
- Lighting Reduction (C405.2.2.2)
- Sidelight Daylight Zone (C405.2.3.2)



Bill of Materials

Symbol	Qty	Product #	Description
	3	nPP16 D	Relay Module with 0-10V Dimming Output
	1	nPP16 D ER	Emergency Relay Module with 0-10V Dimming Output
	1	nPODM DX	On/Off & Raise/Lower WallPod
	1	nWV PDT 16	Dual Technology Wide View Occupancy Sensor

Options

	1	nPODM 4S DX	Teacher Station — 4 Scene Control Master On/Off & Raise/Lower
	1	nCM ADCX	Automatic Dimming Control Photocell

SEQUENCE OF OPERATION:

Fixtures:

- All fixtures are dimmable
- Each row controlled independently
- Maximum level can be task tuned to any percentage during startup

Occupancy Control:

- Fixtures must be turned on manually (or optionally can be configured to come on automatically to 50%)
- Fixtures automatically turn off when room becomes vacant

Daylight Control:

- Smooth continuous dimming
- Custom grouping of fixtures into separate daylight zones (max number zones = number of fixtures)
- Not required for areas without windows or that have loads <150W in sidelight zones

Manual Control:

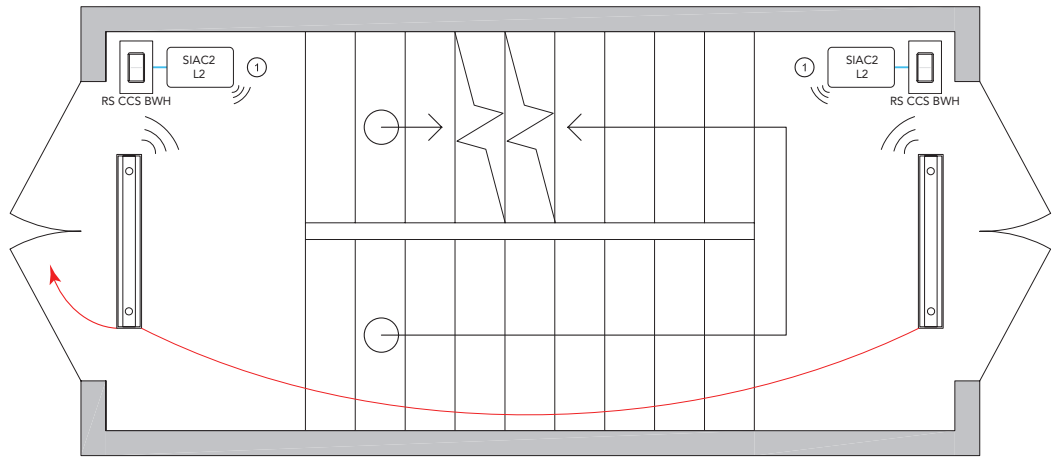
- Master on/off & raise/lower control of entire room
- Optional 4 scene control

ADDITIONAL OPTIONS:

- Surface or recessed mount sensors also available
- Add additional relay pack (model nPP16 D) if a white board lighting zone is also required
- Add graphic wallpod (model nPOD GFX) for individual row and up to 16 scene control
- Room can be connected to nLight backbone to enable network control or time schedules (C405.2.2.1 - Time-Switch Controls), and also qualify for Enhanced Digital Lighting Controls (C406.4)
Note: Max of 4 fixture per controlled group

Supports the Following Requirements:

- Full Auto-Off via Occupancy Sensor (C405.2.1.1)
- Manual Control (Local Switch) (C405.2.2.3)



① Note: Safety may preclude the use of a Manual Control in these areas.

Bill of Materials

Symbol	Qty	Product #	Description
	2	WL4 Series	XPoint Wireless Enabled Fixture with Occupancy Sensor
	1	XPA BRG	XPoint Wireless Bridge
	2	XPA SIAC2 L2 + RS CCS BWH	Wireless Contact Interface + Dimming Rocker Switch

/ SEQUENCE OF OPERATION:

Fixtures:

- All fixtures are dimmable
- Maximum level can be task tuned to any percentage during startup
- Integral wireless occupancy and protocol sensor

Occupancy Control:

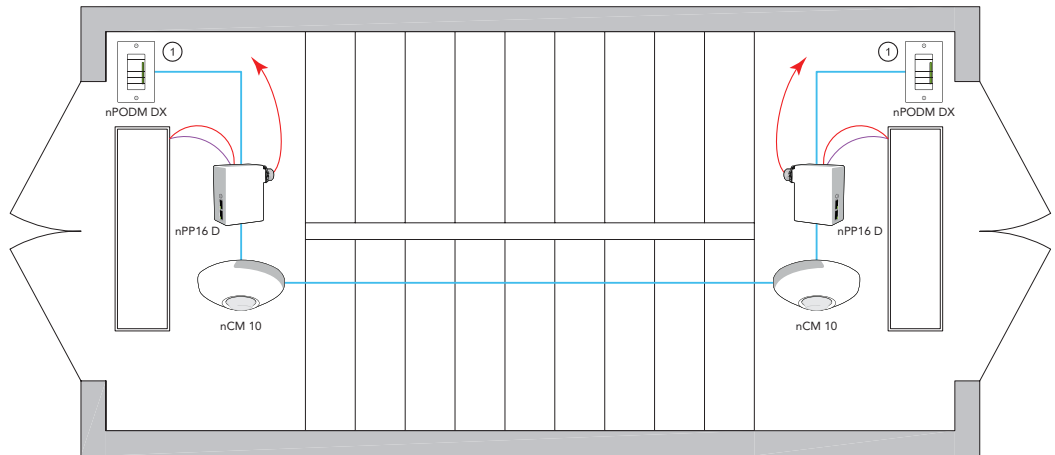
- Fixtures automatically go to full bright when occupied
- Fixtures automatically turn off or optionally can be configured to drop to low dim setting when space becomes vacant

/ ADDITIONAL OPTIONS:

- Room can be connected to nLight backbone to enable network control or time schedules (C405.2.2.1 - Time-Switch Controls), and also qualify for Enhanced Digital Lighting Controls (C406.4)
Note: Max of 4 fixture per controlled group
- For sidelight/toplight zones with a load > 150W, integrated sensor can be used for daylight control (C405.2.3.1/2)

Supports the Following Requirements:

- Full Auto-Off via Occupancy Sensor (C405.2.1.1)
- Manual Control (Local Switch) (C405.2.2.3)



CAT-5e Cable
 Line Voltage Wires
 Line Power Feed
 0-10V Wires

① Note: Safety may preclude the use of a Manual Control in these areas

Bill of Materials

Symbol	Qty	Product #	Description
	2	nPP16 D	Relay Module with 0-10V Dimming Output
	2	nCM 10	PIR Extended Range Occupancy Sensor
	2	nPODM DX	On/Off & Raise/Lower WallPod

SEQUENCE OF OPERATION:

Fixtures:

- All fixtures are dimmable
- Maximum level can be task tuned to any percentage during startup

Occupancy Control:

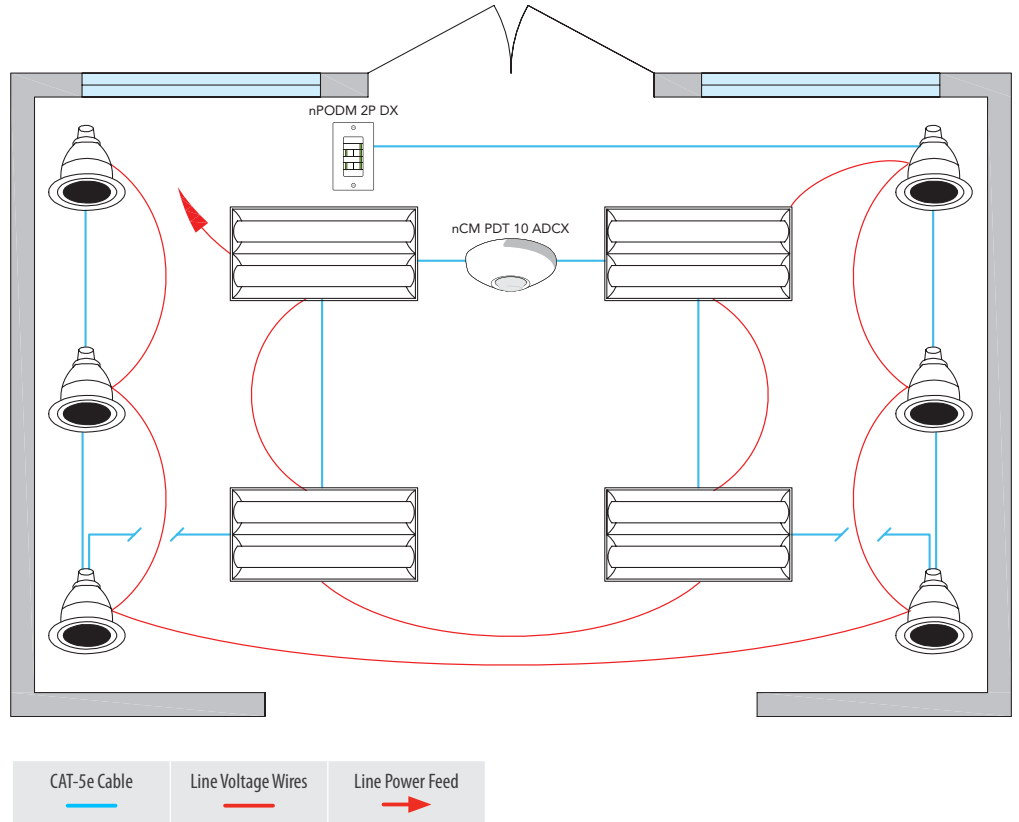
- Fixtures automatically go to full bright when occupied
- Fixtures automatically turn off or optionally can be configured to drop to low dim setting when space becomes vacant

ADDITIONAL OPTIONS:

- Surface or recessed mount sensors also available
- Room can be connected to nLight backbone to enable network control or time schedules (C405.2.2.1 - Time-Switch Controls), and also qualify for Enhanced Digital Lighting Controls (C406.4)
Note: Max of 4 fixture per controlled group
- For emergency lighting control add a nPP16 D ER pack
- For sidelight/toplight daylight zones with a load >150W, add nCM ADCX for daylight control (C405.2.3.1/2)

Supports the Following Requirements:

- Full Auto-Off via Occupancy Sensor (C405.2.1.1)
- Sidelight Daylight Zone (C405.2.3.2)
- Enhanced Digital Lighting Controls if connected to network (C406.4)



Bill of Materials

Symbol	Qty	Product #	Description
	4	Various; see Appendix A	nLight Enabled Fixture
	1	nPODM 2P DX	Dual On/Of & Raise/Lower WallPod
	1	nCM PDT 10 ADCX	Dual Technology Extended Range Occupancy Sensor with Automatic Dimming Photocell
	6	Various; see Appendix A	nLight Enabled Downlight

SEQUENCE OF OPERATION:

Fixtures:

- All fixtures are dimmable
- Fixtures can be configured for control of two zones
- Maximum level can be task tuned to any percentage during startup
- Optional automatic lumen compensation

Occupancy Control:

- Fixtures automatically go to full bright when occupied
- Fixtures automatically turn off or optionally can be configured to low dim setting when space becomes vacant

Daylight Control:

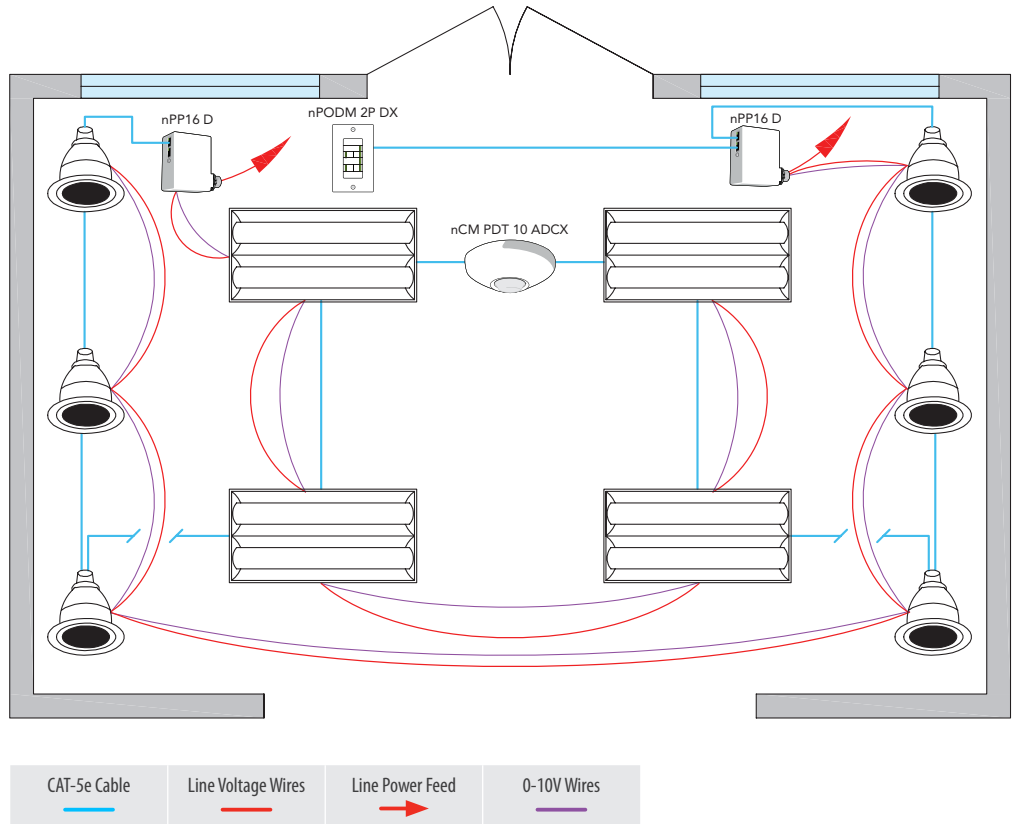
- Smooth continuous dimming
- Custom grouping of fixtures into separate daylight zones (max. number of zones = number of fixtures)
- Not required for spaces without windows or that have loads <150W in sidelight zones

ADDITIONAL OPTIONS:

- Surface or recessed mount sensors also available
- Space can be connected to nLight backbone to enable network control or time schedules (C405.2.2.1 - Time-Switch Controls), and also qualify for Enhanced Digital Lighting Controls (C406.4)
- For emergency lighting control, order fixtures with -n80EMG or -n100EMG option

Supports the Following Requirements:

- Full Auto-Off via Occupancy Sensor (C405.2.1.1)
- Sidelight Daylight Zone (C405.2.3.2)



Bill of Materials

Symbol	Qty	Product #	Description
	1	nPP16 D	Relay Module with 0-10V Dimming Output
	1	nPODM 2P DX	Dual On/Of & Raise/Lower WallPod
	1	nCM PDT 10 ADCX	Dual Technology Extended Range Occupancy Sensor with Automatic Dimming Photocell

SEQUENCE OF OPERATION:

Fixtures:

- All fixtures are dimmable
- Fixtures can be configured for control of two zones
- Maximum level can be task tuned to any percentage during startup

Occupancy Control:

- Fixtures automatically go to full bright when occupied
- Fixtures automatically turn off or optionally can be configured to drop to low dim setting when space becomes vacant

Daylight Control:

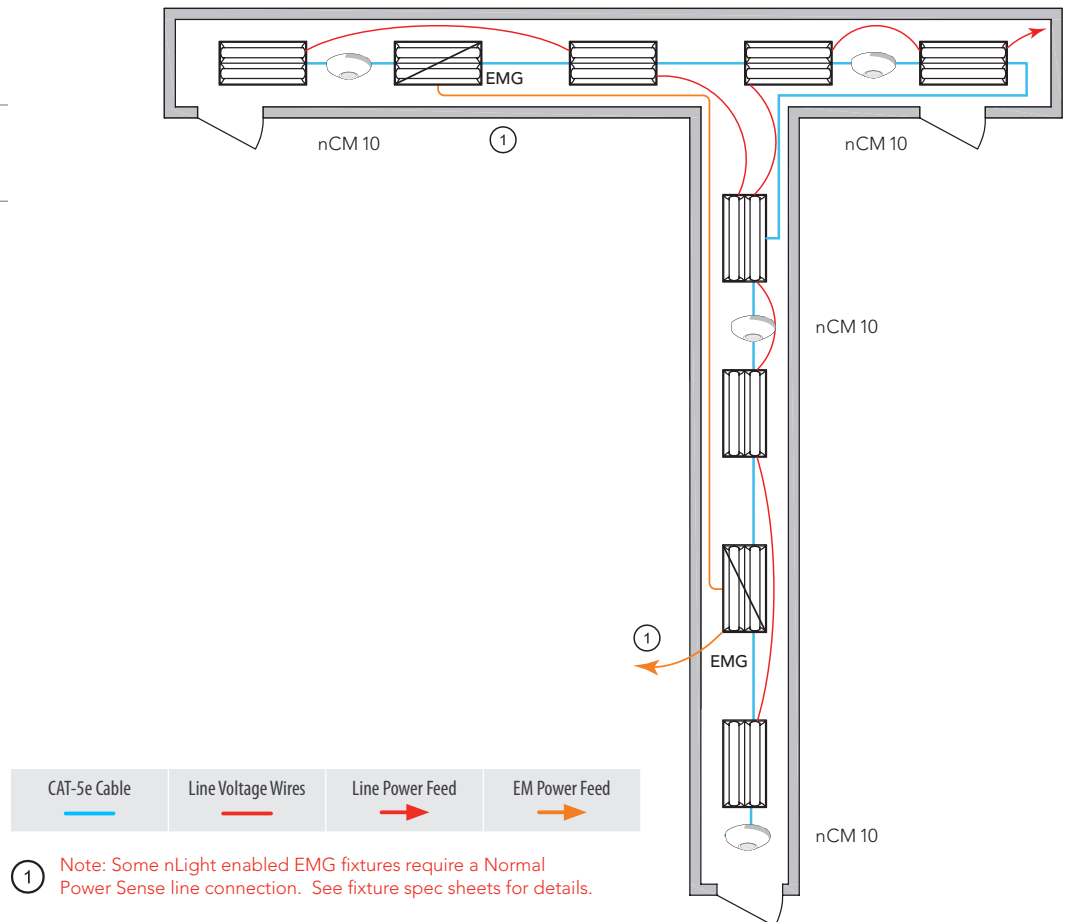
- Smooth continuous dimming
- Not required for spaces without windows or that have loads <150W in sidelight zones

ADDITIONAL OPTIONS:

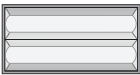
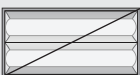

- Surface or recessed mount sensors also available
- Space can be connected to nLight backbone to enable network control or time schedules (C405.2.2.1 - Time-Switch Controls), and also qualify for Enhanced Digital Lighting Controls (C406.4)
Note: Max of 4 fixture per controlled group
- For emergency lighting control add a nPP16 D ER pack

Supports the Following Requirements:

- Full Auto-Off via Occupancy Sensor (C405.2.1.1)
- Enhanced Digital Lighting Controls if connected to network (C406.4)



Bill of Materials

Symbol	Qty	Product #	Description
	7	Various; see Appendix A	nLight Enabled Fixture
	2	Various; see Appendix A	nLight Enabled Fixture with EMG Option
	4	nCM 10	Extended Range PIR Occupancy Sensor

/ SEQUENCE OF OPERATION:

Fixtures:

- All fixtures are dimmable
- All fixtures are controlled together or independently
- Maximum level can be task tuned to any percentage during startup
- Optional automatic lumen compensation

Occupancy Control:

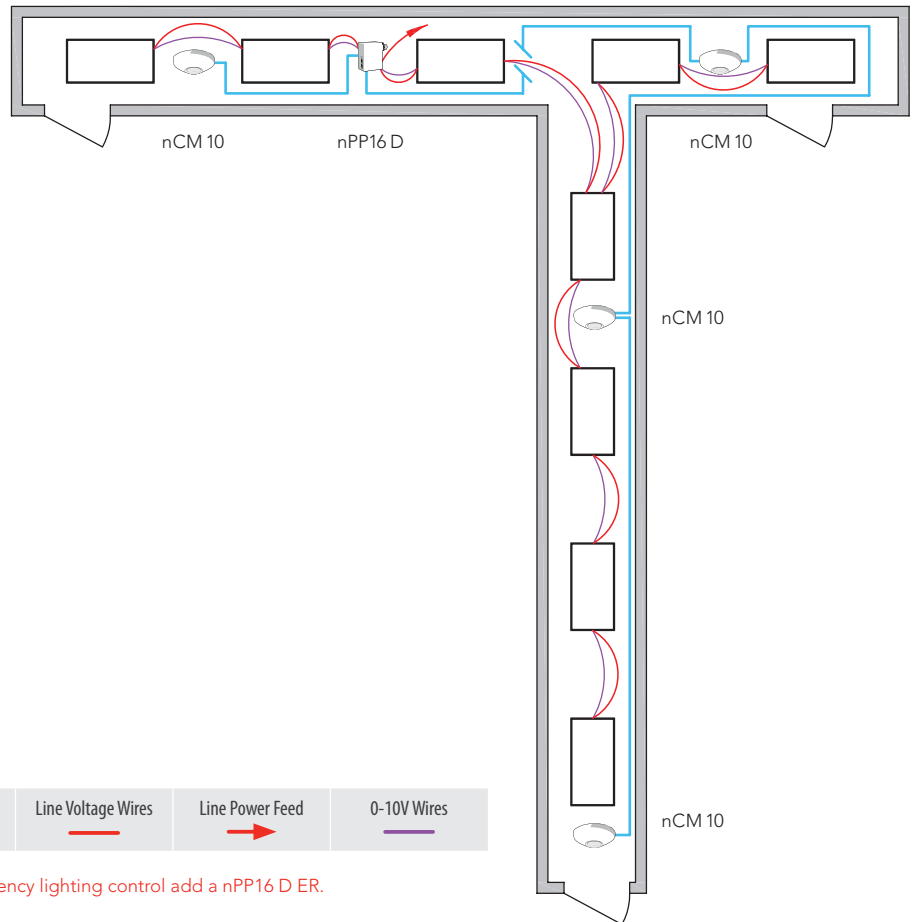
- Fixtures automatically go to full bright when occupied
- Fixtures automatically turn off or optionally can be configured to drop to low dim setting when space becomes vacant

/ ADDITIONAL OPTIONS:


- Surface or recessed mount sensors also available
- Space/zone can be connected to nLight backbone to enable network control or time schedules (C405.2.2.1 - Time-Switch Controls), and also qualify for Enhanced Digital Lighting Controls (C406.4)
- For sidelight/toplight daylight zones with a load >150W, add nCM ADCX (RJB) for daylight control (C405.2.3.1/2)

Supports the Following Requirements:

- Full Auto-Off via Occupancy Sensor (C405.2.1.1)



Bill of Materials

Symbol	Qty	Product #	Description
	1	nPP16 D	Relay Module with 0-10V Dimming Output
	4	nCM 10	Extended Range PIR Occupancy Sensor

/ SEQUENCE OF OPERATION:

Fixtures:

- All fixtures are dimmable
- All fixtures are controlled together
- Maximum level can be task tuned to any percentage during startup

Occupancy Control:

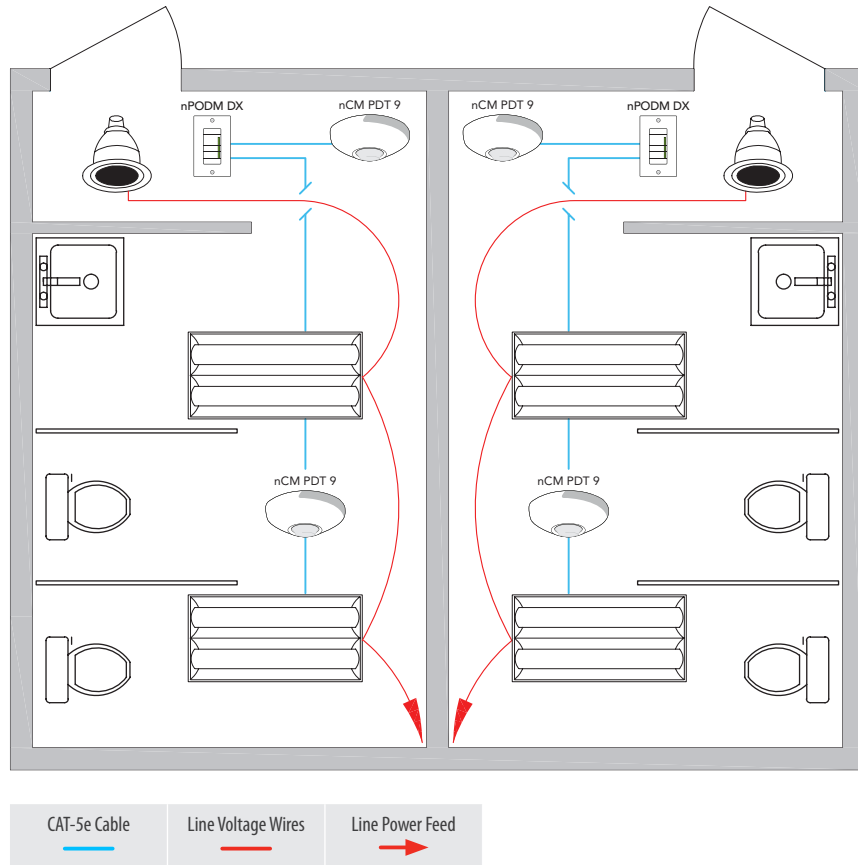
- Fixtures automatically go to full bright when occupied
- Fixtures automatically turn off or optionally can be configured to drop to low dim setting when space becomes vacant

/ ADDITIONAL OPTIONS:

- Surface or recessed mount sensors also available
- Space/zone can be connected to nLight backbone to enable network control or time schedules (C405.2.2.1 - Time-Switch Controls), and also qualify for Enhanced Digital Lighting Controls (C406.4)
Note: Max of 4 fixture per controlled group
- For sidelight/toplight daylight zones with a load >150W, add nCM ADCX (RJB) for daylight control (C405.2.3.1/2)

Supports the Following Requirements:

- Full Auto-Off via Occupancy Sensor (C405.2.1.1)
- Manual Control (Local Switch) (C405.2.2.3)
- Lighting Reduction (C405.2.2.2)
- Enhanced Digital Lighting Controls if connected to network (C406.4)



Bill of Materials (Each Restroom)

Symbol	Qty	Product #	Description
	2	Various; see Appendix A	nLight Enabled Fixture
	1	nPODM DX	On/Off & Raise/Lower WallPod
	2	nCM PDT 9	Dual Technology Occupancy Sensor
	2	Various; see Appendix A	nLight Enabled Downlight

SEQUENCE OF OPERATION:

Fixtures:

- All fixtures are dimmable
- All fixtures are controlled together or independently (per room)
- Maximum level can be task tuned to any percentage during startup
- Optional automatic lumen compensation

Occupancy Control:

- Fixtures automatically go to full bright when occupied (or optionally can be configured to come on automatically to 50%)
- Fixtures automatically turn off when room becomes vacant

Manual Control:

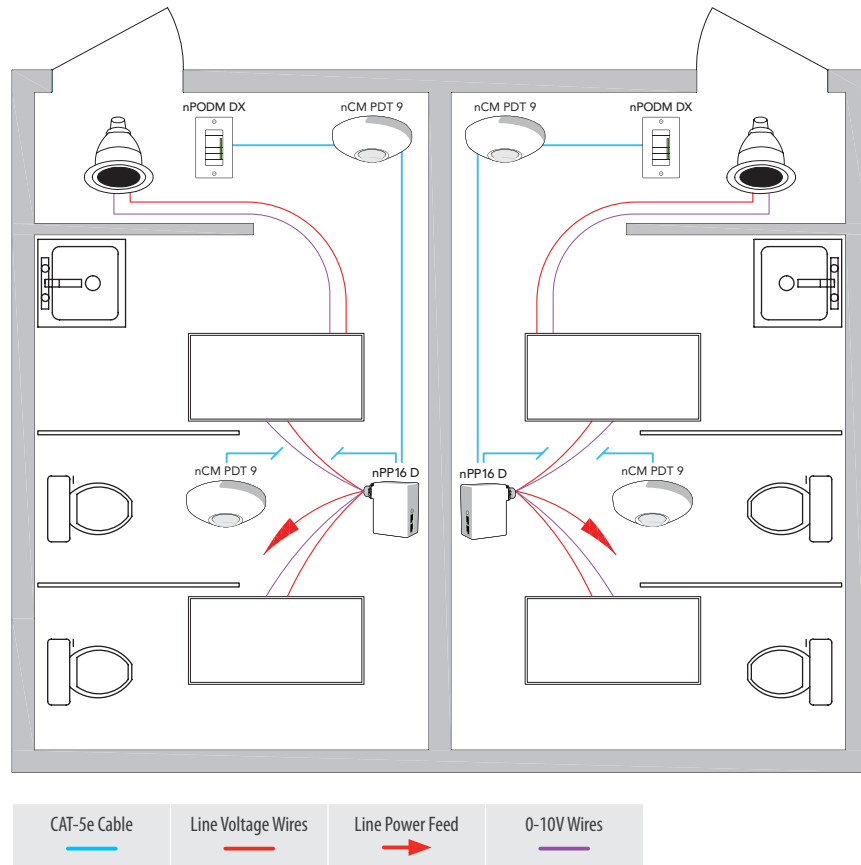
- On/off & raise/lower control of fixtures (per room)
- If switch poses safety concerns, optionally can be programmed for "on only"

ADDITIONAL OPTIONS:

- Surface or recessed mount sensors also available
- Room can be connected to nLight backbone to enable network control or time schedules (C405.2.2.1 - Time-Switch Controls), and also qualify for Enhanced Digital Lighting Controls (C406.4)
- For emergency lighting control order fixtures with -n80EMG or -n100EMG option

Supports the Following Requirements:

- Full Auto-Off via Occupancy Sensor (C405.2.1.1)
- Manual Control (Local Switch) (C405.2.2.3)
- Lighting Reduction (C405.2.2.2)



Bill of Materials (Each Restroom)

Symbol	Qty	Product #	Description
	1	nPP16 D	Relay Module with 0-10V Dimming Output
	1	nPODM DX	On/Off & Raise/Lower WallPod
	2	nCM PDT 9	Dual Technology Occupancy Sensor

SEQUENCE OF OPERATION:

Fixtures:

- All fixtures are dimmable
- All fixtures are controlled together (per room)
- Maximum level can be task tuned to any percentage during startup

Occupancy Control:

- Fixtures automatically go to full bright when occupied
- Fixtures automatically turn off when room becomes vacant

Manual Control:

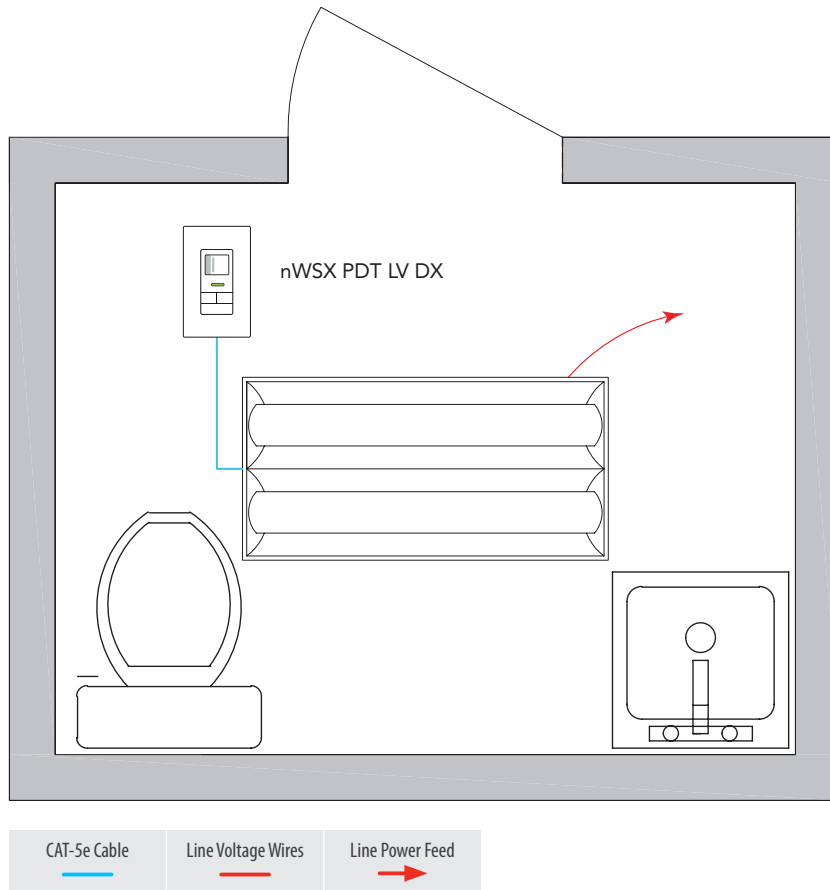
- On/off & raise/lower control of fixtures (per room)
- If switch poses safety concerns, optionally can be programmed for "on only"

ADDITIONAL OPTIONS:

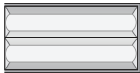

- Surface or recessed mount sensors also available
- Room can be connected to nLight backbone to enable network control or time schedules (C405.2.2.1 - Time-Switch Controls), and also qualify for Enhanced Digital Lighting Controls (C406.4)
Note: Max of 4 fixture per controlled group
- For emergency lighting control add a nPP16 D ER pack

Supports the Following Requirements:

- Full Auto-Off via Occupancy Sensor (C405.2.1.1)
- Manual Control (Local Switch) (C405.2.2.3)
- Lighting Reduction (C405.2.2.2)
- Enhanced Digital Lighting Controls if connected to network (C406.4)



Bill of Materials

Symbol	Qty	Product #	Description
	1	Various; see Appendix A	nLight Enabled Fixture
	1	nWSX PDT LV DX	Dual Technology Occupancy Wall Switch with Raise/Lower

SEQUENCE OF OPERATION:

Fixtures:

- All fixtures are dimmable
- Maximum level can be task tuned to any percentage during startup
- Optional automatic lumen compensation

Occupancy Control:

- Fixtures automatically go to full bright when occupied (or optionally can be configured to come on automatically to 50%)
- Fixtures automatically turn off when space becomes vacant

Manual Control:

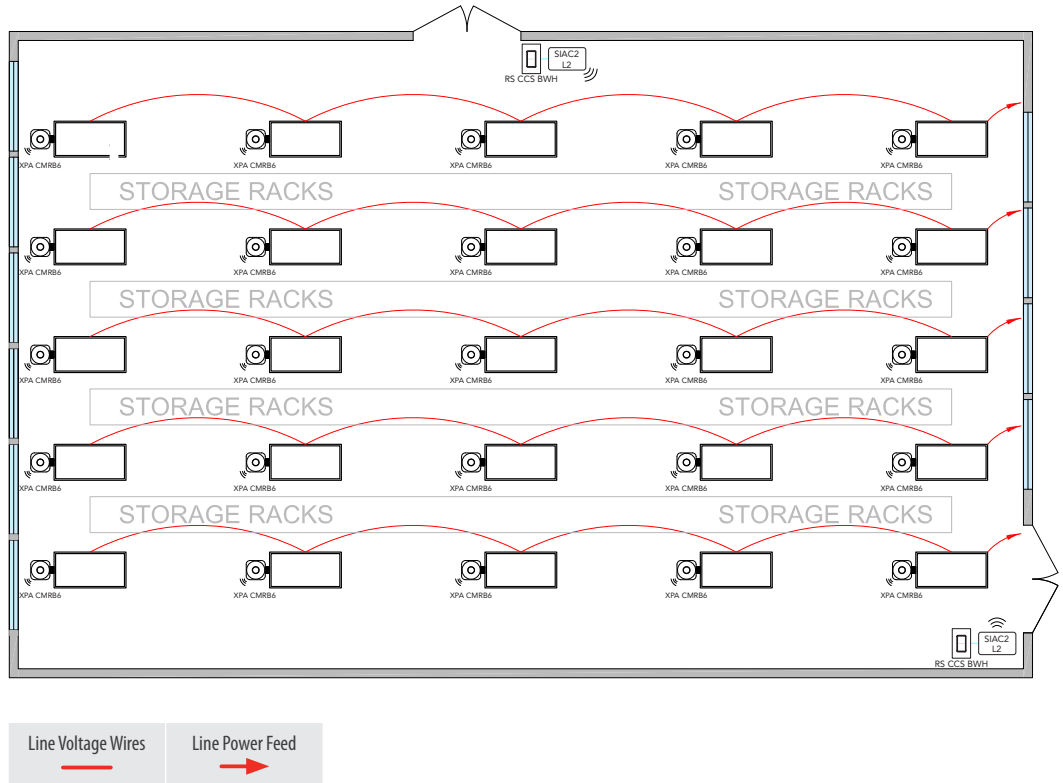
- On/off & raise/lower control of fixtures

ADDITIONAL OPTIONS:

- Surface or recessed mount sensors also available
- Space can be connected to nLight backbone to enable network control or time schedules (C405.2.2.1 - Time-Switch Controls), and also qualify for Enhanced Digital Lighting Controls (C406.4)
- For emergency lighting control order fixtures with -n80EMG or -n100EMG option

Supports the Following Requirements:

- Full Auto-Off via Occupancy Sensor (C405.2.1.1)
- Toplight Daylight Zone (C405.2.3.3)



Bill of Materials

Symbol	Qty	Product #	Description
	25	IBG Series	XPoint Wireless Enabled Fixture with Integral Motion Sensor and Photocell
	1	XPA BRG	XPoint Wireless Bridge

Options

	2	XPA SIAC2 L2 + RS CCS BWH	Wireless Contact Interface + Dimming Rocker Switch
	25	XPA CMRB6	Optional Nipple Mount 0-10V Dimming Module with Integral Occupancy Sensor & Photocell, when XPW Enabled Fixtures are not utilized

SEQUENCE OF OPERATION:

Fixtures:

- All fixtures are dimmable
- All fixtures are controlled together
- Maximum level can be task tuned to any percentage during startup

Occupancy Control:

- Fixtures automatically go to full bright when occupied
- Fixtures automatically turn off or optionally can be configured to drop to low dim setting when space becomes vacant

Daylight Control:

- Daylight responsive controls lights to full off when adequate daylight present
- Not required for spaces without skylights or that have loads <150W in toplight zones

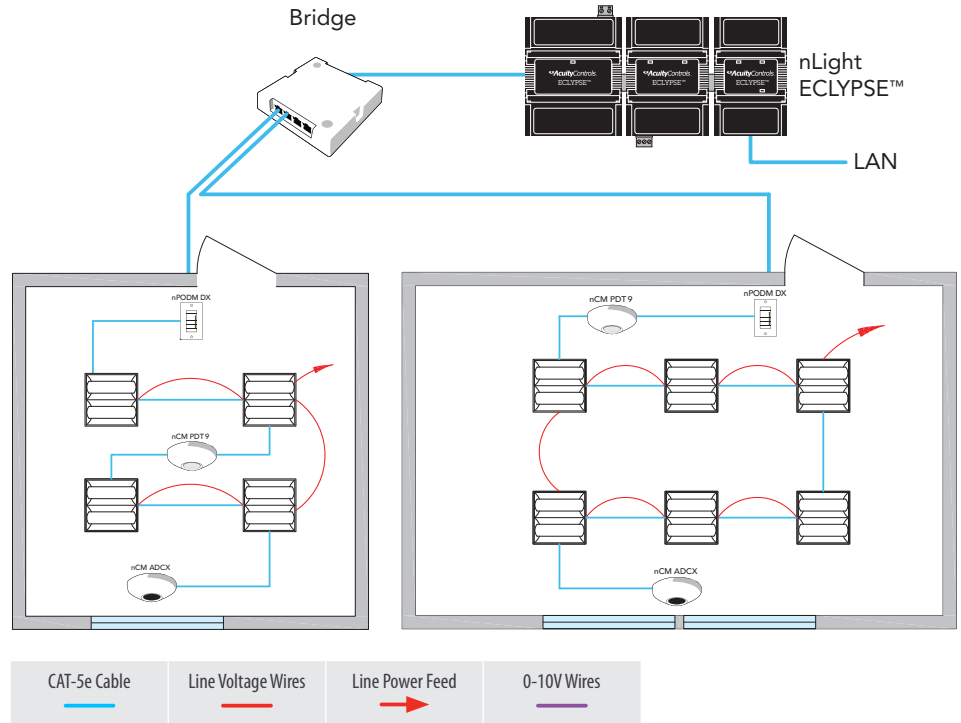
ADDITIONAL OPTIONS:

- Space can be connected to nLight backbone to enable network control or time schedules (C405.2.2.1 - Time-Switch Controls), and also qualify for Enhanced Digital Lighting Controls (C406.4)



Programmable Timeclock Control:

Although not pictured within the individual room design guides, each nLight Control Zone can be connected via an nLight backbone to create a networked nLight lighting control system capable of meeting the requirements of the IECC Time-Switch Controls provision (C405.2.2.1), and also qualifies for the Enhanced Digital Lighting Controls provision (C406.4). A networked system also enables astronomical time clock control.

For additional information regarding building management integration or demand response features, please contact your Acuity Brands Sales Representative.



Bill of Materials

Symbol	Qty	Product #	Description
	1	nBRG 8 KIT	8-Port Backbone Bridge
	1	nECY	nLight ECLYPSE System Controller

nLight BLE Radio Module

The nLight nIO BT Bluetooth® low energy technology module enables wireless communication to an nLight zone of devices from a smartphone. The nLight smartphone app, nConfig, easily modifies the settings and operation of the devices in an nLight zone aiding in meeting energy code requirements.






The nLight BLE Module connects to an nLight zone of devices using CAT-5e cables, powering directly off the CAT5e. Upon powering up, the nIO BT communicates with the Acuity Controls smartphone app via Bluetooth low energy technology. The on-board blue LED indicates paired state, and pin code recognition ensures system security.







Fixture Type	Product Family	Fixture Series
Downlight	Gotham	EVO
Downlight	Gotham	Incito
Downlight	Juno	Aculux
Downlight	Juno	Indy L
Downlight	Lithonia Lighting	DOM
Downlight	Lithonia Lighting	LDN
High Bay	Lithonia Lighting	IBL / IBH / IBG
High Bay	Lithonia Lighting	PTN
Recessed	Lithonia Lighting	AC Series
Recessed	Lithonia Lighting	AL Series
Recessed	Lithonia Lighting	AVLED
Recessed	Lithonia Lighting	BLT Series
Recessed	Lithonia Lighting	BZL Series
Recessed	Lithonia Lighting	FSL Series
Recessed	Lithonia Lighting	GT Series
Recessed	Lithonia Lighting	RT Series
Recessed	Lithonia Lighting	SBS Series
Recessed	Lithonia Lighting	T Series
Recessed	Lithonia Lighting	VT Series
Recessed	Mark Lighting	Fin LED
Recessed	Mark Lighting	Nol LED
Recessed	Mark Lighting	Slot 6 LED
Recessed	Mark Lighting	SPR LED
Recessed	Mark Lighting	Veil LED
Recessed	Mark Lighting	Whisper LED
Recessed	Peerless	Mino LED
Recessed	Relight	RTLRT
Recessed	Relight	RTLEDRT
Recessed	Relight	SBS LX
Recessed	Relight	VTL RT LED
Recessed	Relight	VTLR LED

Fixture Type	Product Family	Fixture Series
Recessed/Wall/Surface/Pendant	Mark Lighting	Slot 2 LED
Recessed/Wall/Surface/Pendant	Mark Lighting	Slot 4 LED
Surface Mount	Lithonia Lighting	ALLS
Surface Mount	Lithonia Lighting	RTLX
Surface Mount	Lithonia Lighting	STLED
Surface Mount	Relight	ACLX
Surface Mount	Relight	TLX
Surface Mount	Relight	VTLX
Suspended	Peerless	Aero
Suspended	Peerless	Cerra
Suspended	Peerless	Envision
Suspended	Peerless	Enzo
Suspended	Peerless	IceTray
Suspended	Peerless	Lightline, Indirect
Suspended	Peerless	Lightedge
Suspended	Peerless	Naro
Suspended	Peerless	Open
Suspended	Peerless	Prima
Suspended	Peerless	Tulip
Suspended/Recessed	Peerless	Vellum LED
Suspended/Wall	Peerless	Bruno LED
Suspended/Wall	Peerless	Origami LED
Suspended/Wall	Peerless	Round 2/4 LED
Suspended/Wall	Peerless	Square LED
Suspended/Wall	Peerless	Staple
Wall Mount	Lithonia Lighting	WL Series

Note: New nLight enabled fixtures are added regularly. Please reference fixture spec sheets for nLight enabled options.

Control Requirement	Code Provision	Code Summary*	Recommendations for Compliance	nLight Solution Details	
Manual Control (Local Switch)	C405.2.2.3	Areas shall incorporate a manual control to allow occupants to turn fixtures off.	Include manual control device(s) in all room control system designs	nLight WallPod devices provide a user with local control of lighting within an nLight controlled space (i.e.: nLight zone). WallPods are available in multiple styles – each with varying features and user experiences.	
				Push-Button WallPod	Graphic WallPod
					
				Traditional tactile buttons and LED user feedback.	Full-color touch screen provides a sophisticated look and feel.
Shut-Off Control Time-Switch Controls (via System Controller)	C405.2.2.1	Each area of the building not provided with occupant sensor controls shall be provided with time switch controls. These areas must also be provided with a manual override switch.	Utilizing controls capable of being networked across an entire building enables simple compliance via a single central programmable time clock.	Individual nLight Control Zones (i.e.: rooms) can be easily networked together across an entire building simply by connecting them into a “backbone” made up of one or more nLight Bridge devices and an nLight ECLYPSE™ system controller. The system controller provides programmable time clock functionality for an nLight network as well as interfaces to the SensorView suite of web-based software applications (via an Ethernet LAN / WAN connection).	
				Network System Controller	
					
Additional benefits of installing an nLight backbone include remote status monitoring, iOS smartphone app control, and BMS interface capability					
Full Auto-Off via Occupancy Sensor	C405.2.1.1.1	Fixtures must automatically turn off within 30 minutes of all occupants leaving the space.	Always include occupancy sensors in all control system designs regardless of lighting type.	nLight occupancy sensors utilize 100% digital passive infrared (PIR) detection, come in several mounting styles, and offer multiple coverage pattern options. Additionally, nLight sensors are available with patented Microphonics™ dual technology detection for rooms with obstructions. Configuring for full off vs. partial off control is done with system programming.	
Manual On, Auto-On <=50%, Full Automatic On	C405.2.1.1.2	Automatically controlled spaces must be controlled to either turn the lighting on to not more than 50%, or in certain spaces, to full on.	Always include occupancy sensors in all control system designs. Reducing the level of dimmable fixtures to 50% is the easiest method of compliance, however turning off 50% of lighting via circuit switching is also an option.	360° Occupancy Sensor	120° WideView Corner Sensor
					
Surface or recessed mounts to ceiling tiles or sheetrock/plaster.		Directly mounts in corner or to ceiling via repositionable ceiling bracket.			

*Note: This summary is for general information purposes only and is provided without any warranty as to accuracy, completeness, or otherwise. The user should read the applicable code sections for more complete and detailed descriptions of code requirements and exceptions and should consult with a professional engineering or other competent advisor before making any decision or taking any action based on this summary.

Control Requirement	Code Provision	Code Summary*	Recommendation for Compliance	nLight Solution Details	
Light-Reduction Controls	C405.2.2.2	Spaces shall have a manual control that allows the occupant to reduce the connected lighting load uniformly by at least 50%.	Continuously dimmable LED (or fluorescent) fixtures and manual dimming controls are the easiest method of compliance.	nLight provides multiple options for controlling continuous dimming luminaires. This allows spaces with several lighting types and technologies to be controlled together and with a common user experience.	
				nLight Enabled Acuity Brands Fixtures	Dimming Relay Packs / Panels
					
				Acuity Brands offers a wide variety of LED fixtures with factory installed integrated nLight controls that provide smooth continuous dimming, and optional automatic lumen maintenance or manual task tuning.	nLight dimming relay packs / panels enable control of any 0-10VDC dimmable LED (or fluorescent) luminaire. Manual task tuning control can also be used.
Daylight-Responsive Controls	C405.2.3.1/2	Daylight-responsive controls shall be provided within each space with sidelight and toplight daylight zones totaling >150 Watts.	Automatic daylight harvesting photocells that continuously adjust the level of dimming fixtures according to daylight levels provide the most effective and least distracting control.	nLight offers standalone daylight harvesting sensors as well as occupancy sensors with integrated daylight harvesting. Sensors are available in four different housings and provide continuous dimming control of any/all networked nLight enabled fixtures or dimming relay packs, each capable of being its own daylight zone.	
				Ceiling Mount Dimming Photocell	Recessed Mount Dimming Photocell
					

*Note: This summary is for general information purposes only and is provided without any warranty as to accuracy, completeness, or otherwise. The user should read the applicable code sections for more complete and detailed descriptions of code requirements and exceptions and should consult with a professional engineering or other competent advisor before making any decision or taking any action based on this summary.



Additional Resources

Acuity Controls Typical Layout Drawings

<http://www.acuitybrands.com/typicals>

IECC

<http://www.iccsafe.org/>

Use the Following Sections of the IECC 2015 Code as Reference:

- Section C405.2.1.1.1 – Full Auto-Off via Occupancy Sensor
- Section C405.2.1.1.2 – Manual-On or Partial-On
- Section C405.2.1.1.2 – Full Automatic On
- Section C405.2.1.3 – Local Switch
- Section C405.2.2.1 – Programmable Timeclock
- Section C405.2.2.2 – Manual Lighting Reduction
- Section C405.2.3.1/2 – Daylight-Responsive Controls
- Section C406.4 – Enhanced Digital Lighting Controls



A+ Certified solutions from Acuity Brands help you quickly and confidently select and implement lighting systems that are both compatible and consistent.

For lighting applications, A+ means verified consistent performance, visual appearance and system interoperability of all luminaires and controls within the certified solutions. For lighting professionals it means confidence that all parts of the lighting system will work together and meet common Acuity Brands specifications.

Go to www.acuitybrands.com/solutions/a-certified or contact your local Acuity Brands representative for more information.

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