



Catalog Number	
Notes	Type

PRODUCT OVERVIEW

The nLight **nPP16** family of power packs is the workhorse of an nLight system, delivering robust system performance and design versatility for commercial and industrial lighting control applications. The **nPP16** family is capable of switching loads up to 16 Amps via an internal latching relay designed with robust protection from the harsh switching requirements of T5 fluorescent and LED loads. These power packs also provide nLight system bus power - up to 40mA from each of its two RJ-45 ports - by transforming Class 1 line voltage (120/277 VAC or 347 VAC) to Class 2 15 VDC. This power is typically utilized by other nLight devices within the power pack's local control zone; however, remaining power is also made available over the network for Bridges and devices in other zones to utilize.

Besides switching, the **nPP16** family has an optional 0-10V dimming output. This output can be directly wired to 0-10 VDC dimmable ballasts or LED drivers, and is fully isolated internally from ingress noise or line voltage faults. Models are available with dimming wires running through the chase nipple (**nPP16 D**) or out the side of the enclosure (**nPP16 DS**).

The **nPP16 ER** and **nPP16 D ER** version relay packs provide a UL 924 compliant solution for controlling luminaires powered via an emergency circuit. Packs are wired to both normal and emergency power feeds. A unit only monitors the normal feed, while the emergency feed is connected to the line side of its relay. The power feed to emergency lighting is connected to the load side of the unit's relay. When normal power is present the relay is free to switch the emergency power feed as directed by sensors, switches, and schedules. However, if the normal power feed is lost the **nPP16 (D) ER** will override its relay closed and set its dimming output to full bright, thus ensuring emergency lighting is on. During this emergency operation period, the unit will not allow any switching or dimming to take place regardless of the presence of an occupancy, daylight, or other control signal. Emergency units power themselves from the emergency feed they are controlling, but they do not supply bus power out of the RJ-45 ports, and are often complemented with standard nPP16 power/relay packs that control a zone's normal-powered lighting.

To simplify installation, all **nPP16** family power packs are designed with an elongated chase nipple that allows them to be attached directly through a ½" knockout into a junction box or luminaire.

nLIGHT OPERATION

All **nPP16** family power/relay packs are native nLight devices, meaning they are individually addressable and communicate digitally over an nLight network to integrate with other nLight enabled devices, such as wall switches, sensors, and photocells. Creation of a local nLight control zone is done by simply wiring together nLight devices using CAT-5e cabling. When an nLight zone is linked to an nLight Gateway (nGWY2) - either directly via an nLight network backbone (nBRG 8) or wirelessly via nWiFi - the zone becomes capable of remote status monitoring and control with nLight SensorView software.

All nLight switches and sensors can be configured to output on one of 16 local channels or 128 global channels. **nPP16** family power/relay packs are configured to follow one or more of these channels via their tracking channel settings. By default, a standard **nPP16** is configured to follow all occupancy, photocell, and switch commands on Channel 1.

Once powered, units close their relay. If an nLight occupancy sensor is connected, the pack will automatically start following the occupancy status of the sensor. The factory default sequence of operation of standard units is Auto On/Auto Off. Via the **-SA** option, Manual On / Auto Off is also available as the factory default operational sequence. Several other operational sequences are selectable via the unit's push-button or SensorView software. If communication is lost between an **nPP16** family power/relay pack and all other nLight devices, the unit will revert back to its default state of relay closed (lights on). All factory defaults can be changed by using the unit's push-button or via SensorView software.

Note: For information on current monitoring relay packs, see the nPP16 IM series datasheet.

nPP16 FAMILY

POWER / RELAY PACK w/ OPTIONAL DIMMING and EMERGENCY OPERATION



Model #: nPP16 (D)



Model #: nPP16 (D) ER

KEY OPTIONS

DIMMING CONTROL (D, DS)

- Provides dimming outputs to control 0-10 VDC dimmable ballasts or LED drivers
- Follows dimming commands from nLight dimming WallPods, Photocells, Scene Controllers, and/or SensorView software
- Adds 20 AWG (600V rated) violet & gray wires through chase nipple (**D** option) or via a separate side output (**DS** option)
- Isolated dimming circuitry provides robust network protection from ingress noise or line voltage faults

EMERGENCY OPERATION (ER)

- Controls luminaires powered via an emergency circuit
- UL924 Listed
- Monitors normal power and overrides relay closed and sets dimming output (if present) to full bright if normal feed is lost regardless of current state or sensor status

DEFAULT MODE (SA, SA2, SW2, PL T24)

- **SA** option changes default operating mode to Manual On/Auto Off
- **SA2** and **SW2** change default switch tracking channel to 2
- **PA** (Partial On) mode changes default operation of dimming units to be Auto On to 50%
- **PL T24** option for 120 VAC plug load control. Changes default operation to track only occupancy sensors (not switches or photocells)

347 VAC (347)

- Allows unit to be powered from and switch 347 VAC.

LOW TEMP/HIGH HUMIDITY (LT)

- Device electronics are coated for corrosion resistance - required for cold storage or humid areas
- Unit operates down to -40° F/C

OPERATIONAL SETTINGS

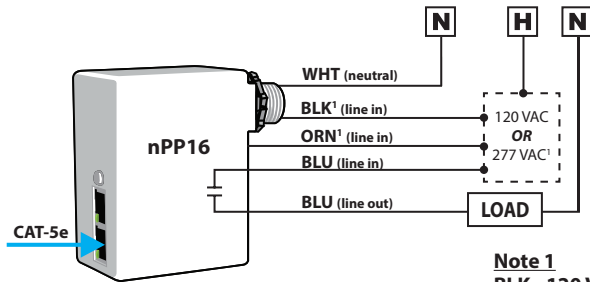
Several operational settings for the **nPP16** family are available, including:

- Override (On/Off/Normal) & Relay Test Mode (Enable/Disable)
- Occupancy, Photocell, & Switch Tracking (Enable/Disable)
- Occupancy, Photocell, & Switch Tracking Channel (1-16 each)
- Idle Time to Dim
- Special Operating Modes:
 - Manual On to Auto Off (Semi-Auto), Auto to (Timed) Override On, Manual to (Timed) Override On, Manual On to Full Auto, Predictive Off
- Occupancy Expiration of Manual Off / Timed Expiration of Manual Off
- Maintain Dim Level When Vacant
- Occupied Bright Level & Unoccupied Dim Level
- High End & Low End Trim

WIRING FOR STANDARD (NON-EMERGENCY) UNITS

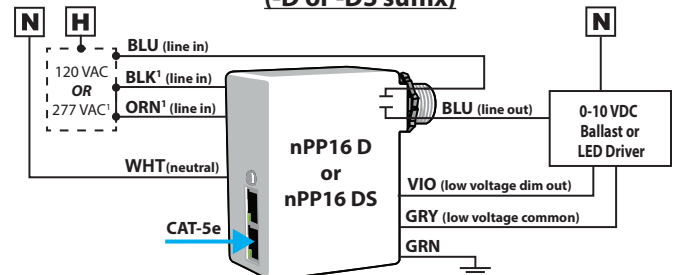
T568B pin/pair assignment is recommended for all CAT-5e cables. For Supply Connections, use 14 AWG or larger wires rated for at least 75° C.

Diagram for non-dimming units



Note 1
 BLK - 120 VAC
 ORN - 277 VAC (or 347 VAC if unit has 347 option)

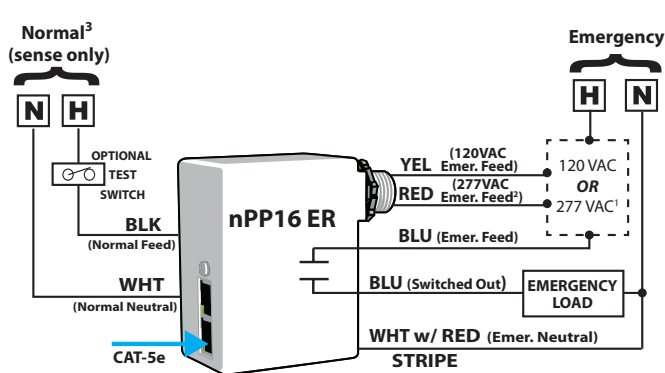
Diagram for units with a dimming option (-D or -DS suffix)



WIRING FOR EMERGENCY (-ER) UNITS

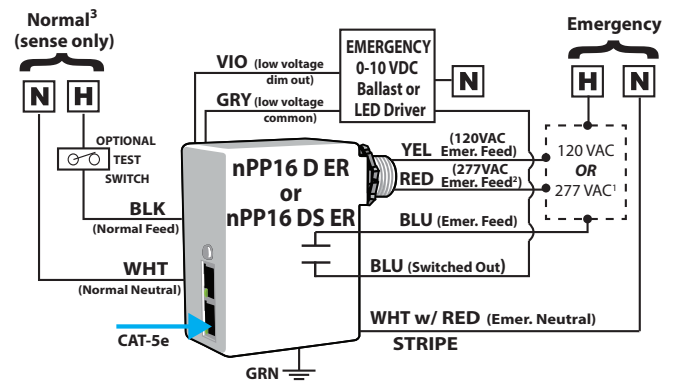
T568B pin/pair assignment is recommended for all CAT-5e cables. Unit powers itself but does not provide any bus power to other connected nLight devices. For Supply Connections, use 14 AWG or larger wires rated for at least 75° C.

Diagram for non-dimming units



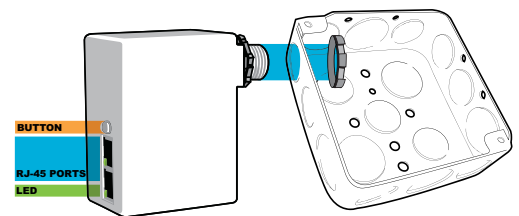
Notes
 1) Connect to 120VAC or 277VAC feed ONLY. Cap off unused wire.
 2) For 347V product, Red wire is 347VAC Emer. Feed
 3) Normal Sense input: 120-277VAC. For 347V product: 120-347VAC

Diagram for units with a dimming option (-D or -DS suffix)



GENERAL INSTALLATION INSTRUCTIONS

- Mount through a ½" knockout in any junction box or luminaire. Secure with lock nut.
- Following above wiring diagram, connect wires to line voltage feed(s), neutral(s), and load.
- If applicable, connect low voltage violet and gray dimming wires to 0-10 VDC ballast/driver and green wire to an approved ground connection. Note wires have 600V rated insulation.
- Interconnect unit (via RJ-45 ports) with other nLight devices in lighting zone using CAT-5e cables.



ADDITIONAL EMERGENCY (-ER) INSTRUCTIONS

PUSH-BUTTON TESTING: As long as the relay is in the open (lights off) position and normal power is present, you are able to simulate normal power being lost by pressing and releasing the unit's push-button one time. After a few seconds the relay will close for 4 seconds, then open back up and return to normal operation. A separate push-button test switch (not included) can also be wired in as shown in above diagrams.

INTERFACING WITH A FIRE ALARM PANEL: To interface unit to a fire alarm system such that the relay is overridden upon activation of the fire alarm system, the fire alarm system must provide a normally closed relay which opens when the fire alarm system is activated. This relay must be put in series with the Black power sense line on the nPP16 ER. When the normally closed relay opens, the nPP16 ER will close its relay to provide egress lighting when the fire alarm system is activated.



SPECIFICATIONS

ELECTRICAL SPECS

OPERATING VOLTAGE
120/277 VAC
347 VAC (with -347 option)
MAX LOAD: (No derating necessary)
16A @ 120 VAC/ 277 VAC
16A @ 347 VAC (with -347 option)
MAX RECEPTACLE LOAD: 16A @ 120 VAC
MOTOR LOAD: 1 HP
RELAY TYPE: Latching

FREQUENCY: 50/60 Hz
BUS OUTPUT CURRENT/VOLTAGE:
40mA / port @ 15 VDC
(non-ER units only)
MAX DIMMING LOAD (with -D option):
Sinks 100 mA; 0-10 VDC dimmable
ballasts or LED drivers
nLIGHT NETWORK PORTS: (2) RJ-45

PHYSICAL SPECS

SIZE: (not incl. 1/2" chase nipple)
3.38" H x 2.53" W x 1.83" D
(8.59 cm x 6.43 cm x 4.65 cm)
WEIGHT: 6 oz
MOUNTING: 1/2" knockout
(7/8" hole) on box or fixture
COLOR:
White (Standard)
RED (-ER versions)
BLUE (-PL T24 versions)

ENVIRONMENTAL SPECS

OPERATING TEMP:
Standard: 14° to 122° F (-10° to 50° C)
LT Option: -40° to 122° F (-40° to 50° C)
RELATIVE HUMIDITY:
Standard: 20 to 75% non-condensing
LT Option: 20 to 90% non-condensing
ROHS COMPLIANT
SILICONE FREE
UL 2043 Plenum Rated

ORDERING INFORMATION

nPP16

Series

nPP16 Power/Relay Pack

Dimming

(blank) None
D 0-10 VDC Dimming Output
(via chase nipple)

DS 0-10 VDC Dimming Output
(via side slot)

Emergency

(blank) None
ER UL924 Emergency
Operation

Default Mode

(blank) Auto On (Switch Ch. 1)
SW2 Auto On (Switch Ch. 2)
SA Manual On (Switch Ch. 1)
SA2 Manual On (Switch Ch. 2)
PA Auto On to 50% (Partial On)¹
PL T24 Plug Load Control with Occ. only Tracking²
(CA-T24 Plug Load)

Voltage

(blank) 120/277 VAC
347 347 VAC

Temp/Humidity

(blank) Standard
LT Low Temp

Notes:

- Requires D or DS option
- Not available with D or DS option

Note: For information on current monitoring relay packs, see the nPP16 IM series datasheet.



Expanding the boundaries of lighting™



WARRANTY

5-year limited warranty. Complete warranty terms located at www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx

READ AND FOLLOW ALL SAFETY INSTRUCTIONS! SAVE THESE INSTRUCTIONS AND DELIVER TO OWNER AFTER INSTALLATION

- To reduce the risk of death, personal injury or property damage from fire, electric shock, falling parts, cuts/abrasions, and other hazards please read all warnings and instructions included with and on the fixture box and all fixture labels.
- Before installing, servicing, or performing routine maintenance upon this equipment, follow these general precautions.
- Installation and service should be performed by a qualified licensed electrician.
- Maintenance should be performed by qualified person(s) familiar with the products' construction & operation & any hazards involved. Regular maintenance programs recommended.
- DO NOT INSTALL DAMAGED PRODUCT!** This product has been properly packed so that no parts should have been damaged during transit. Inspect to confirm. Any part damaged or broken during or after assembly should be replaced.

<p>CAUTION - RISK OF PRODUCT DAMAGE</p> <ul style="list-style-type: none"> ✓ Electrostatic Discharge (ESD): ESD can damage product(s). Personal grounding equipment should be worn during all installation or servicing of the unit. ✓ Do not touch individual electrical components, as this can cause ESD and affect product performance. ✓ Do not stretch or use cable sets that are too short or are of insufficient length. ✓ Do not tamper with contacts. ✓ Do not modify the product. ✓ Do not change or alter internal wiring or installation circuitry. ✓ Do not use product for anything other than its intended use.

<p>WARNING - RISK OF ELECTRIC SHOCK</p> <ul style="list-style-type: none"> ✓ Disconnect or turn off power before installation or servicing. ✓ Verify that supply voltage is correct by comparing it with the product information. ✓ Make all electrical and grounded connections in accordance with the National Electrical Code (NEC) and any applicable local code requirements. ✓ All wiring connections should be capped with UL approved recognized wire connectors. ✓ All unused connector openings must be capped.

<p>WARNING - RISK OF BURN or FIRE</p> <ul style="list-style-type: none"> ✓ Do not exceed maximum wattage, ratings, or published operation conditions of product. ✓ Do not overload. ✓ Follow all manufacturer's warnings, recommendations and restrictions to ensure proper operation of product. <p>CAUTION - RISK OF INJURY</p> <ul style="list-style-type: none"> ✓ Wear gloves and safety glasses at all times when installing, servicing or performing maintenance.
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