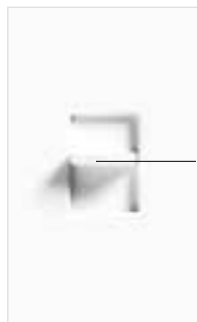


The contractor's choice in rugged, linear slide dimmers.



Select light level with slider; slide down to off

Slide-to-off Dimmer



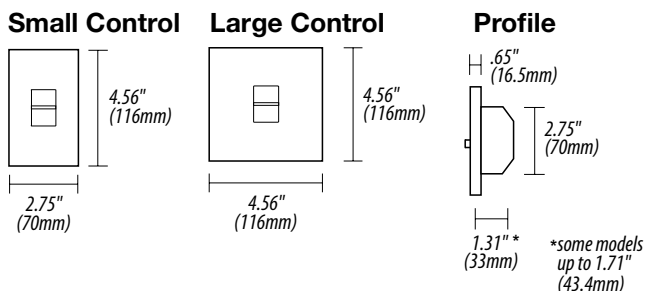
Select light level with slider; press on/off

Preset Dimmer

PRODUCT FAMILY FEATURES

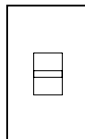
- The original smooth linear-slide dimmer
- Over 25 years of proven reliability in the most demanding applications
- Exclusive heat sink design maximizes convection cooling to maximize reliability
- Full family of products for most lighting sources
- Heavy duty components for surge protection and long product life
- Precise color matching across all controls

DIMENSIONS

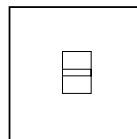


CONTROLS AND ACCESSORIES

Slide-to-Off Dimmers

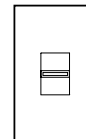


(Small Control)

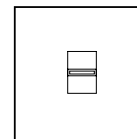


(Large Control)

Preset Dimmers

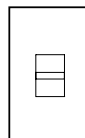


(Small Control)

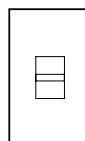


(Large Control)

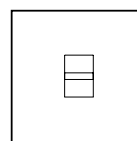
Linear-Slide Switches



Slide-to-Off Fan-Speed Controls



(Small Control)



(Large Control)

DIMMERS

Description	Maximum Capacity ¹	Model #
Incandescent		
<i>Slide-to-Off Dimmers</i>		
SMALL CONTROL		
Single pole	600W	N-600-
Single pole	1000W	N-1000-
LARGE CONTROL		
Single pole	1500W	N-1500-
Single pole	2000W	N-2000-
<i>Preset Dimmers</i>		
SMALL CONTROL		
Single pole/3-way	600W	N-603P-
Single pole/3-way	1000W	N-1003P-
LARGE CONTROL		
Single pole/3-way	1500W	N-1503P-
Single pole/3-way	2000W	N-2003P-

Note: For 3-way and 4-way switching use N-3PS- and N-4PS- or other mechanical switches.

SPECIFICATION SERIES STANDARD FEATURES



- Square Law Dimming
- Power-failure memory
- Captive linear slider
- Electrostatic discharge tested
- Heavy-duty components for surge protection and long product life
- Voltage compensation
- Superior RFI suppression
- Accessible air-gap switch
- Precise color matching

Lutron controls are rated at 120VAC, 60Hz unless otherwise noted.

JOB NAME	AREA CONTROLLED
LOCATION	JOB NUMBER
TITLE	PAGE NO.

¹ For capacities in multigang installations see derating pg. 4.

Description	Maximum Capacity ¹	Model #
-------------	-------------------------------	---------

DIMMERS



Electronic Low Voltage

Slide-to-Off Dimmers



SMALL CONTROL

Single pole 450W NELV-450-
 Note: Requires neutral wire connection. For electronic low voltage loads up to 1000W, use Nova fluorescent dimmers (NF-10- or NF-103P-) with an ELVI-1000 interface.



Magnetic Low Voltage, Neon/Cold Cathode

Slide-to-Off Dimmers



SMALL CONTROL

Single pole 600VA (450W ²) NLV-600-



LARGE CONTROL

Single pole 1000VA (800W ²) NLV-1000-
 Single pole 1500VA (1200W ²) NLV-1500-

Note: For neon/cold cathode dimming consult Lutron Technical Support "Application Note #15".

Preset Dimmers



SMALL CONTROL

Single pole/3-way 600VA (450W ²) NLV-603P-
 Single pole/3-way 1000VA (800W ²) NLV-1003P-



LARGE CONTROL

Single pole/3-way 1500VA (1200W ²) NLV-1503P-
 Single pole/3-way 2000VA (1600W ²) NLV-2003P-

For 3-way and 4-way switching use N-3PS- and N-4PS- or other mechanical switches.



Fluorescent Dimming with Hi-lume® and Eco-10™ (ECO-Series) Electronic Ballasts

*Slide-to-Off Dimmers*³



SMALL CONTROL

Single pole, 120V 16A NF-10-



LARGE CONTROL

Single pole, 277V 8A NF-10-277-

Note: Use with Lutron Hi-lume or Eco-10 (ECO-Series) line voltage control Electronic Dimming Ballasts only.

*Preset Dimmers*³



SMALL CONTROL

Single pole/3-way, 120V 8A NF-103P-
 Single pole/3-way, 277V 6A NF-103P-277-

Note: Use with Lutron Hi-lume or Eco-10 (ECO-Series) line voltage control Electronic Dimming Ballasts only. For 3-way and 4-way switching use N-3PS- and N-4PS- or other mechanical switches.

1 For capacities in multigang installations see derating, page 4.

2 Actual lamp wattage.

3 No derating required if ganged.

Description	Maximum Capacity ¹	Model #
-------------	-------------------------------	---------

DIMMERS



Fluorescent Dimming with Eco-10 (TVE-Series) 0-10VDC Electronic Ballasts

*Slide-to-Off Dimmers*³



SMALL CONTROL

Single pole, 0-10VDC 60 ballasts/16A NFTV-
 Use with PP-20.



Note: Use with Lutron Eco-10 (TVE-Series) 0-10VDC Electronic Dimming Ballasts only. Requires use of an external relay to switch ballast power on/off, Lutron model number PP-20.



Fluorescent Dimming with Tu-Wire™ Electronic Ballasts

Slide-to-Off Dimmers



SMALL CONTROL

Single pole, 120V 5A NFTU-5A-
 Note: Use with Lutron Tu-Wire line voltage control Electronic Dimming Ballasts only.



Fluorescent Dimming with Magnetic Ballasts

*Slide-to-Off Dimmers*³



SMALL CONTROL

Single pole, 120V 10 lamps NF-10-



LARGE CONTROL

Single pole, 120V 20 lamps NF-20-
 Single pole, 120V 30 lamps NF-30-
 Single pole, 277V 10 lamps NF-10-277-
 Single pole, 277V 20 lamps NF-20-277-

Note: Magnetic dimming ballasts generally cannot be effectively dimmed below 20% low end. For best performance and reliability, Lutron strongly recommends using Hi-lume or Eco-10 electronic dimming ballasts.

HI-POWER 2•4•6™ DIMMING MODULES

To increase load capacity up to 30,000W/VA in most popular sources, use one N-600- and add up to five dimming modules. Cannot be used with 0-10VDC ballast.

LINEAR-SLIDE SWITCHES

General Purpose Switching of All Sources and Motor Loads

*Linear-Slide Dimmers*³



SMALL CONTROL

Single pole, 120/277V 20A N-1PS-
 3-way, 120/277V 20A N-3PS-
 4-way, 120/277V 20A N-4PS-
 Single pole, 347V 20A N-1PS-347- -CSA
 3-way, 347V 20A N-3PS-347- -CSA

Description	Maximum Capacity ¹	Model #
-------------	-------------------------------	---------

FAN-SPEED CONTROLS



Fully Variable Controls

For use with one or more ceiling, ventilation, or exhaust fan. Do not mix fan types on one control.

Slide-to-Off Fan-Speed Control



SMALL CONTROL

Single pole/Adjustable Minimum Speed

6A NFS-6E-



LARGE CONTROL

Single pole/Adjustable Minimum Speed

12A NFS-12E-

Note: Products above can be used as a fan-speed/light (360W incandescent switch/control) see Wiring Diagram #4.

¹ For capacities in multigang installations see derating, page 4.

STANDARD COLORS/FINISHES

Matte Finishes (Ships in 3-5 days)

Add color/finish suffix to model number to order.

Example: N-600-**WH**

WH	White
BE	Beige
IV	Ivory
GR	Gray
BR	Brown
BL	Black
TP	Taupe

SPECIAL ORDER MULTIGANG AND METAL WALLPLATES

Multigang and metal wallplates are available. When ordering product for use with metal wallplates, the product and wallplate must be ordered separately. See the Nova T☆/Nova Wallplate Ordering Guide in the Lutron Residential Lighting Controls Catalog (360-975) for ordering procedure.

See below for complete list of metal finishes.

Metal Finishes (Ships in 4-6 weeks)

SB	Satin Brass
BB	Bright Brass
BC	Bright Chrome

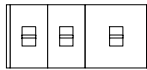
Special Metal Finishes

QB	Antique Brass
QZ	Antique Bronze
SC	Satin Chrome
SN	Satin Nickel
BN	Bright Nickel

Anodized Aluminum Finishes

CLA	Clear Anodized Aluminum
BLA	Black Anodized Aluminum
BRA	Brass Anodized Aluminum

DERATING/MAXIMUM CAPACITY



No side sections removed
(Full Capacity)

One side section removed
(End Units)

Two side sections removed
(Middle Unit)

Incandescent Dimmers

600W	500W	300W
1000W	900W	700W
1500W	1250W	1000W
2000W	1800W	1500W

Electronic Low Voltage ¹

450W	400W	350W
------	------	------

Magnetic Low Voltage

600VA (450W ²)	500VA (400W ²)	300VA (250W ²)
1000VA (800W ²)	900VA (750W ²)	700VA (500W ²)
1500VA (1200W ²)	1250VA (1000W ²)	1000VA (800W ²)
2000VA (1600W ²)	1800VA (1500W ²)	1500VA (1200W ²)

Fluorescent

Nova controls may be used with either Lutron Hi-lume or Eco-10 magnetic dimming ballasts. Controls used with electronic dimming ballasts do not require derating. Reference the Lutron Residential Lighting Control Catalog.

Fully Variable Fan-Speed Controls

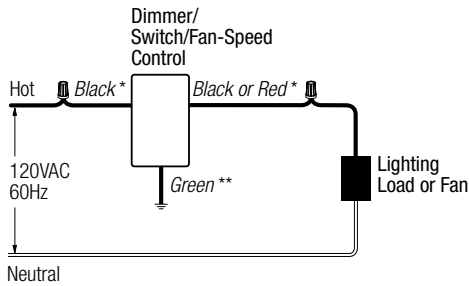
6A	4.2A	2.5A
12A	10A	8.3A

¹ Requires 40W minimum load.

² Actual lamp wattage.

WIRING DIAGRAMS

Wiring Diagram 1
Single-Pole Wiring



Ground

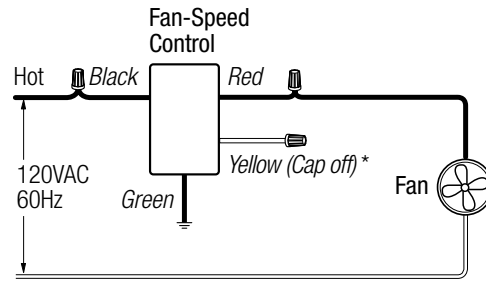
Wire Connectors

* or Brass screw terminal
** or Green screw terminal

Model #

N-1PS-
N-1PS-347- -CSA
N-600-
N-1000-
N-1500-
N-2000-
NFTU-5A-
NLV-600-
NLV-1000-
NLV-1500-

Wiring Diagram 4
Single-Pole Wiring, Fan Only



Neutral

Ground

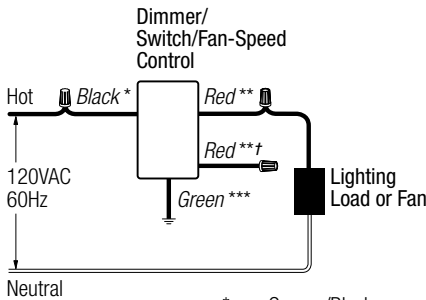
Wire Connectors

* Switched full voltage only

Model #

NFS-6E-
NFS-12E-

Wiring Diagram 2
Single-Pole Wiring of 3-Way Control



Ground

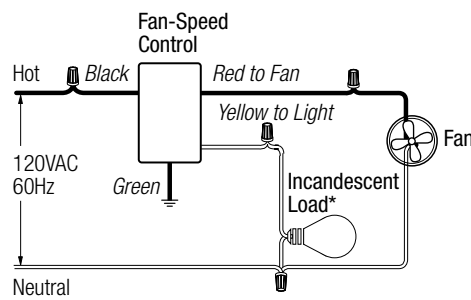
Wire Connectors

* or Copper/Black screw terminal
** or Brass screw terminal
*** or Green screw terminal
† or Red/White stripe (cap off)

Model #

N-3PS-
N-603P-
N-1003P-
N-1503P-
N-2003P-
NLV-603P-
NLV-1003P-
NLV-1503P-
NLV-2003P-
N-3PS-347- -CSA

Wiring Diagram 5
Single-Pole using Fan/Light



Neutral

Ground

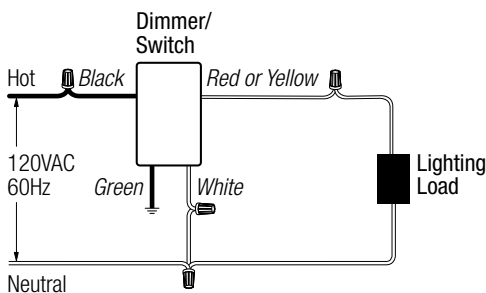
Wire Connectors

* Switched full voltage only

Model #

NFS-6E-
NFS-12E-

Wiring Diagram 3
Single-Pole Wiring



Ground

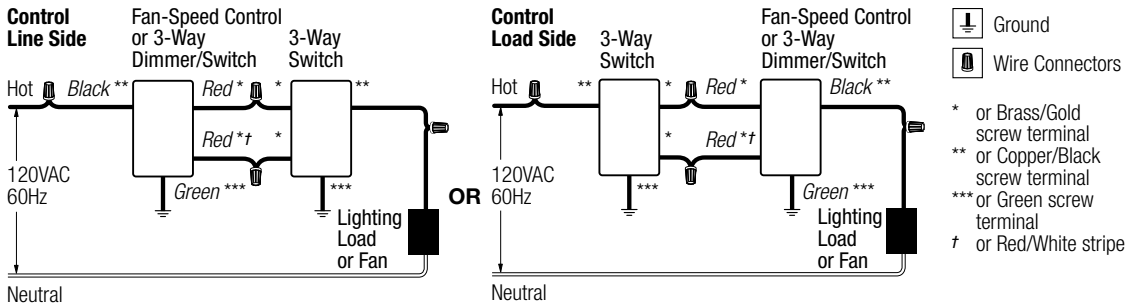
Wire Connectors

Model #

NELV-450-

WIRING DIAGRAMS

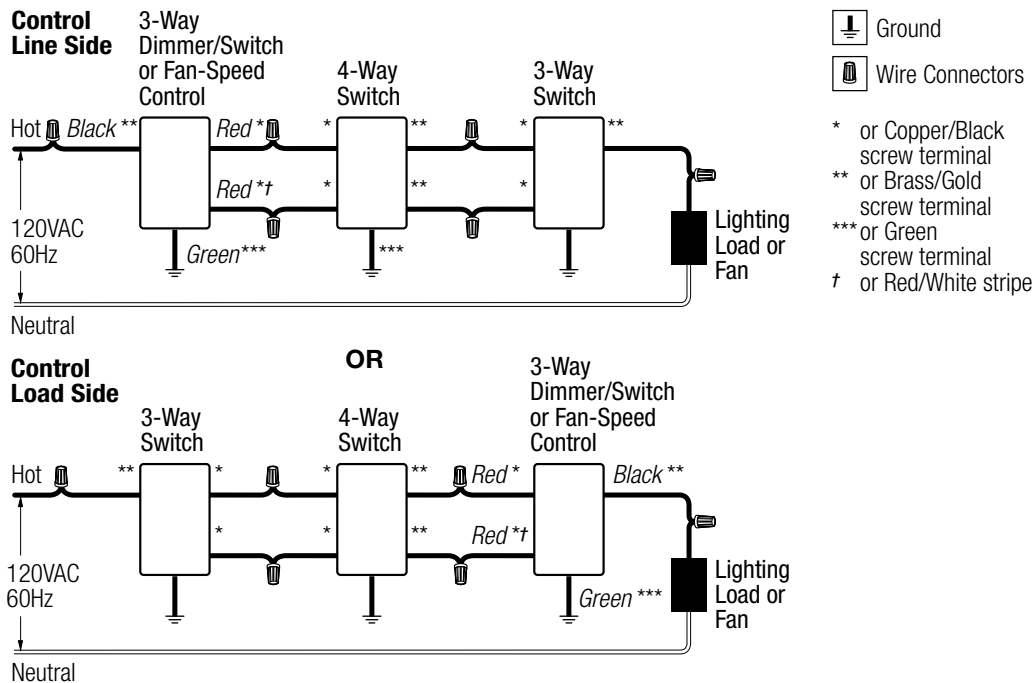
Wiring Diagram 6 3-Way Wiring



Model #

N-3PS-
N-603P-
N-1003P-
N-1503P-
N-2003P-
NLV-603P-
NLV-1003P-
NLV-1503P-
NLV-2003P-
N-3PS-347- -CSA

Wiring Diagram 7 4-Way Wiring

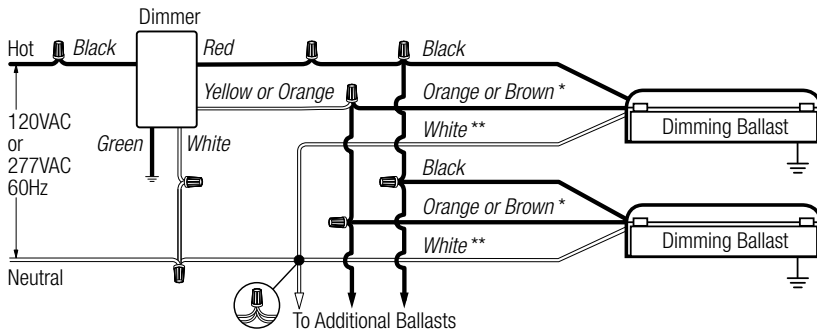


Model #

N-3PS-
N-4PS-
N-603P-
N-1003P-
N-1503P-
N-2003P-
NLV-603P-
NLV-1003P-
NLV-1503P-
NLV-2003P-

WIRING DIAGRAMS

Wiring Diagram 8 Single-Pole Wiring



- Ground
- Wire Connectors
- Typical 4-Wire Connection

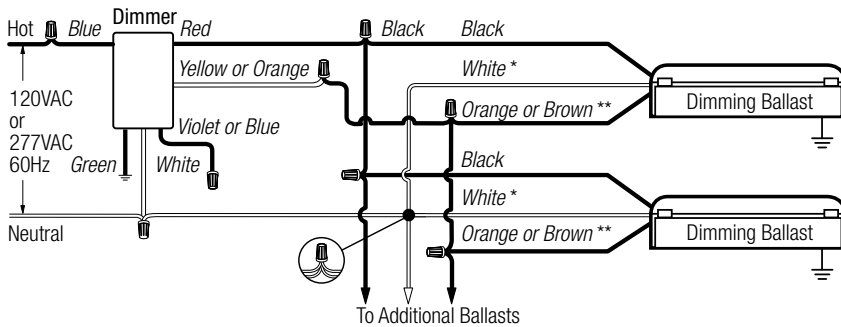
* or Yellow/Blue or Yellow/Green when used with magnetic dimming ballasts must use lamp disconnect sockets with magnetic dimming ballasts

** must use lamp disconnect sockets with magnetic dimming ballasts

Model

NF-10-
NF-10-277-
NF-20-
NF-30-
NF-20-277-

Wiring Diagram 9 Single-Pole Wiring of a 3-Way Control



- Ground
- Wire Connectors
- Typical 4-Wire Connection

* must use lamp disconnect sockets with magnetic dimming ballasts

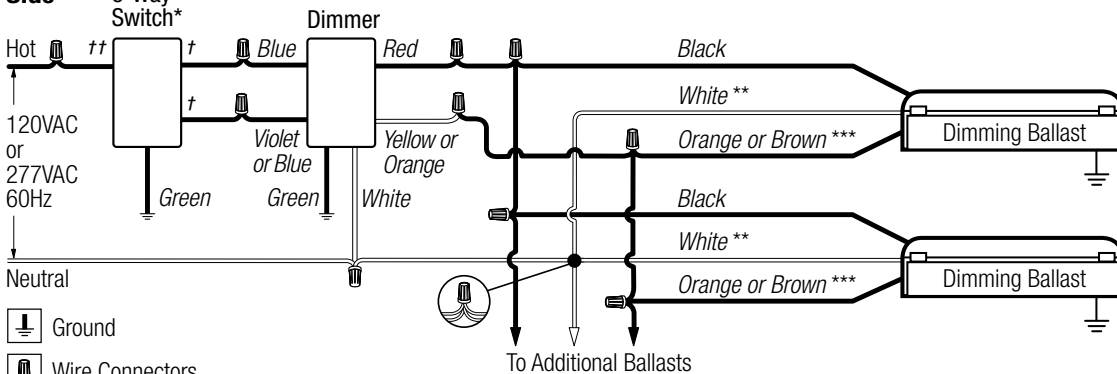
** or Yellow/Blue or Yellow/Green when used with magnetic dimming ballasts

Model

NF-103P-
NF-103P-277-

Wiring Diagram 10 3-Way Wiring

Control Load Side



- Ground
- Wire Connectors
- Typical 4-Wire Connection

* 3-Way switch must be wired on line side of dimmer

** must use lamp disconnect sockets with magnetic dimming ballasts

*** or Yellow/Blue or Yellow/Green when used with magnetic dimming ballasts

t or Copper/Black screw terminal

†† or Brass/Gold screw terminal

Model

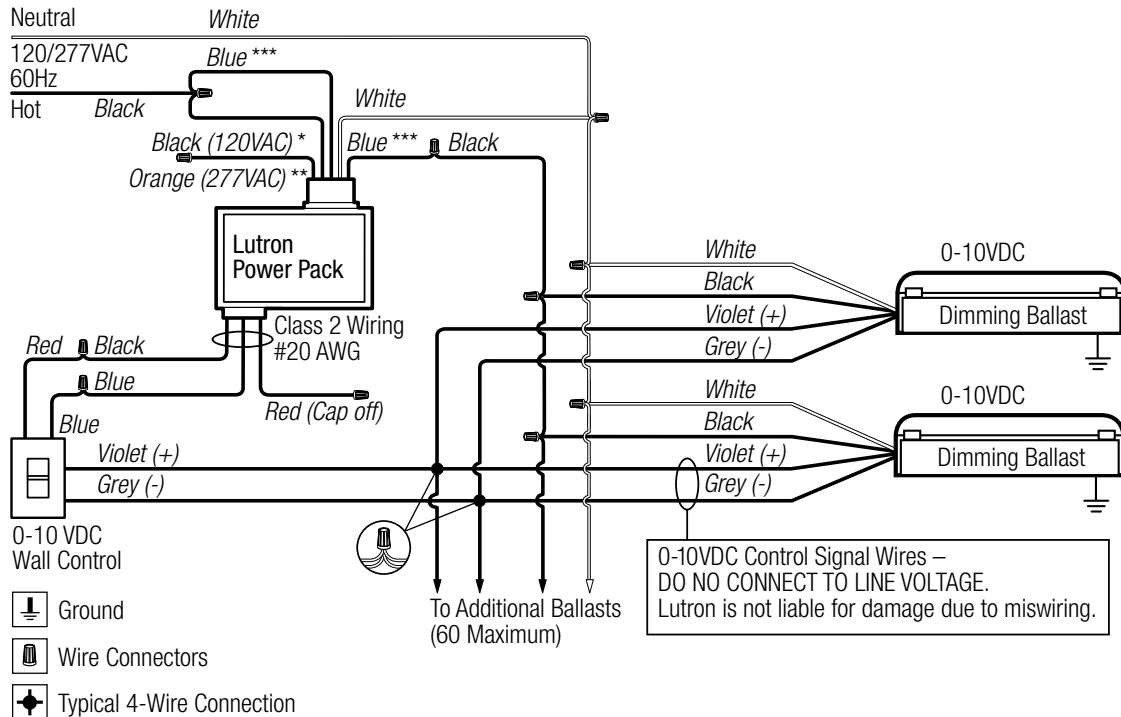
NF-103P-
NF-103P-277-

WIRING DIAGRAMS

Wiring Diagram 11 Dimming with ON/OFF Control Using PP-20 Relay

Model #

NFTV-



* 120VAC wiring shown: cap off Orange wire as shown

** 277VAC wiring: cap off Black wire and connect Blue and Orange to Hot

*** Blue wires are interchangeable-either may be connected to line side or load side

NOVA CONTROLS AND ACCESSORIES

PART 1 – GENERAL

1.01 SUMMARY

- A. Scope: Provide, install and test all switches, dimmers and related devices as specified herein for the areas indicated on the drawings, specifications, and load schedules.
- B. Related Sections: Section 16580 (Ballasts), Section 16570 (Dimming Systems).

1.02 REFERENCES

- A. UL 20, UL 1472, CSA, NOM, ISO 9001

1.03 SYSTEM DESCRIPTION AND OPERATION

- A. Permanently installed, wallbox mounted switches and dimmers
- B. Permanently installed, wallbox mounted fan-speed controls
- C. Permanently installed, wallbox mounted receptacles
- D. Permanently installed, wallbox mounted data, voice and cable jacks
- E. Screwless, seamless wallplates

1.04 SUBMITTALS

- A. Submit manufacturer's standard catalog data giving all application, wiring, and installation information on basic components and wallplate kits. Provide test data and/or samples as required to demonstrate conformance with PART 2 of this specification.

1.05 QUALITY ASSURANCE

- A. Manufacturer shall have a minimum of 10 years continuous experience in manufacturing wallbox dimming products.
- B. Dimmers, switches and Fan-speed controls shall be UL listed, CSA and NOM approved specifically for each required load (i.e., tungsten, electronic low voltage transformer, magnetic low voltage transformer, and fluorescent). Manufacturer shall provide file card or certificate upon request. Universal load-type dimmers shall not be acceptable.
- C. Manufacturer shall maintain ISO 9001 certification and provide a copy of the certificate upon request.

1.06 WARRANTY

- A. All devices shall be covered by a minimum one-year warranty.

PART 2 – EQUIPMENT

2.01 ACCEPTABLE MANUFACTURERS

- A. Lutron Electronics Co., Inc.
- B. Unless otherwise noted, all basic components (dimmer, fan-speed control, switch, receptacle, telephone jack and cable TV jack) and wallplate kits shall be provided by one manufacturer.

2.02 EQUIPMENT

- A. Controls Lutron Nova Style
 - 1. Performance
 - a. Dimmers shall provide full-range, continuously variable control of light intensity.
 - b. Controls shall fit a 1 inch wide, 1.5 inch tall wallplate opening with a vertical linear-slide. Unless otherwise specified, controls shall have a matte finish.

- c. Controls shall provide a vertical slider allowing the light level or fan speed to be set by the user. "Slide-to-off" controls shall use the vertical linear-slide to turn the control on and off. "Preset" dimmers shall provide the on/off function independent of the dimmer slider position. This preset function shall be provided as a push on/push off switch integral to the slider. For preset dimmers, when the lights are on, the slider shall change the light level and when the lights are off, the slider shall preselect the light level the lights will turn on to.
- d. Control on/off function must be accomplished utilizing a mechanical air-gap switch to totally disconnect power from the load during "off" condition, no leakage current shall be present at the fixture(s).
- e. Slider shall be captured behind wallplate.
- f. Preset dimmers shall be capable of multi-location on and mechanical air-gap off using standard 3-way and 4-way switches. Multi-location switches shall be Nova style.
- g. Controls shall be able to have their visible plastic parts replaced, for color changes in the field, without removing the body of the control from the wall and with requiring special tools.
- h. Within rated capacity, dimmers shall be available for direct control of incandescent, electronic low voltage, magnetic low voltage, neon cold cathode, and fluorescent. Matching fan-speed controls shall also be available.
- i. Controls shall be capable of operating at the rated capacity; this includes modified capacities for ganging configurations which require the removal of fins. Operation at rated capacity shall be possible across the full ambient temperature range, without shortening design lifetime.
- j. To ensure a precise color match between all plastic parts, color variation of any matte finish control shall not exceed a delta E of 1, CIE L*a*b* color units, as defined in ASTM E 308-99.
- k. Dimmer shall provide smooth and continuous Square Law dimming curve, for the full slider travel, on their rated load per The IESNA Lighting Handbook, 9th edition, p. 27-4.
- l. Controls shall meet the applicable requirements of UL 20 and UL 1472 referring to the inclusion of a visible, accessible air-gap off switch and the limited short circuit test.
- m. Controls shall meet ANSI/IEEE Std. C62.41-1980, tested to withstand voltage surges of up to 6000V and current surges of up to 200A without damage.
- n. Dimmers shall be designed to reduce interference with radio, audio, and video equipment.
- o. Controls shall incorporate power-failure memory. Should power be interrupted and subsequently returned, the lights or fans will come back on to the same levels set prior to the power interruption. Restoration to some other default level is not acceptable.
- p. Controls shall not be susceptible to damage or loss of memory due to static discharge.
- q. Dimmer shall include voltage compensation to compensate light output for variation in the AC line-voltage. Dimmers in which the light output is not held constant with varying AC line-voltage shall not be acceptable.
- r. Controls shall operate in an ambient temperature range of 0°C (32°F) to 40°C (104°F).
- s. 3-Way controls shall wire using conventional 3-way and 4-way wire runs.

- t. Contractors shall install all backboxes with a minimum wallbox depth of 2.5 inches.
- 2. Incandescent Dimmers
 - a. Provide incandescent dimmers for direct control of up to 2000 watts.
 - b. Dimmers shall have a high-end of no less than 95% of line voltage.
 - c. Dimmer shall be capable of operating in either 3-way switch location.
- 3. Electronic (Solid-State) Low Voltage (ELV) Transformer Dimmers
 - a. Provide ELV dimmers for direct control of up to 450 watts of electronic low voltage load.
 - b. Dimmers shall contain circuitry specifically designed to control the input of electronic (solid state) low voltage transformers. Dimmers using standard phase control shall not be acceptable.
 - c. Dimmers shall have a resettable overload protection that automatically shuts off when dimmer capacity is exceeded. Protection methods that are non-resettable or require the device to be removed from the wall to reset shall not be acceptable.
 - d. Dimmers shall be designed to withstand a short, per UL 1472 section 5.10, between load hot and either neutral or ground without damage to the dimmer.
 - e. Dimmers shall have a high-end of no less than 90% of line voltage.
- 4. Magnetic Low Voltage (MLV) Transformer Dimmers
 - a. Provide MLV dimmers for direct control of up to 2000VA of magnetic low voltage load.
 - b. Dimmers shall contain circuitry specifically designed to control and provide a symmetrical AC waveform to the input of magnetic low voltage transformers per UL1472 section 5.11.
 - c. Dimmers shall not cause a magnetic low voltage transformer to operate above the transformers rated operating current or temperature.
 - d. Dimmers shall have a high-end of no less than 95% of line voltage.
 - e. Dimmer shall be capable of operating in either 3-way switch location.
- 5. Fluorescent Dimming Ballast Dimmers
 - a. Provide Fluorescent dimmers for direct control of fluorescent dimming ballasts up to the manufacturers specified rating.
 - b. Dimmers shall be designed to operate the following ballasts. Dimmers and ballasts shall be produced by the same manufacturer to ensure proper ballast/control compatibility:
 - 1) Hi-lume® Architectural Dimming Ballasts (1% 3-wire)
 - 2) Hi-lume® Compact™ Lamp Dimming Ballasts (5% 3-wire)
 - 3) Eco-10™ Lighting Management Dimming Ballasts (10% 3-wire)
 - 4) Eco-10™ Lighting Management Dimming Ballasts (10% 0-10VDC)
 - 5) Tu-Wire™ High Performance Dimming Ballasts (5% 2-wire)
 - c. Dimmers shall be designed to provide full ballast output at high-end.
- 6. Remote dimming modules for high power loads
 - a. Where lighting loads exceed the full rated capacity of single dimmers, provide a Nova incandescent dimmer driving high power modules. High power module and dimmer shall be from the same manufacturer to ensure compatibility.
 - b. High power modules shall be remotely mounted.
 - c. High power module shall be rated and UL listed for control of incandescent, magnetic low voltage, electronic low voltage, fluorescent, and neon/cold cathode loads in increments of 2000 Watts up to 30,000 Watts.
- 7. Fan-Speed Controls:
 - a. Fan-speed controls shall be UL listed, CSA and NOM approved, Lutron Nova style.
 - b. Fully variable model shall provide fully variable fan-speed control with slide-to-off function.
 - c. Fully variable model shall provide single-pole control of multiple paddle fans, ventilation or exhaust fans (12A max.).
 - d. Fully variable model shall provide fully variable fan-speed control with slide-to-off function.
 - e. Fully variable model shall provide single-pole control of multiple paddle fans, ventilation or exhaust fans (12A max.).
- 8. Switches:
 - a. Provide switches for on/off control of any 120/277 VAC load up to 20A. Switches shall be UL listed as general-use AC switches, Lutron Nova style. Switches shall be available in single-pole, 3-way and 4-way configurations.
 - b. Provide switches for on/off control of any 120/347 VAC load up to 20A. Switches shall be UL/CSA listed as general-use AC switches, Lutron Nova style. Switches shall be available in single-pole, and 3-way configurations.

2.03 SOURCE QUALITY CONTROL

- A. All dimming controls shall be 100% function tested at the time of manufacture. Statistical sampling plan shall not be acceptable.

PART 3 – EXECUTION

3.01 INSTALLATION

- A. Contractor shall furnish all devices (dimmers, accessories, & wallplate kits), labor and other services necessary for the proper installation of the devices as indicated on the drawings and specified herein.
- B. Contractor shall be responsible for derating dimmer capacity if side sections are removed.
- C. Contractor shall run separate neutral wires in 120/208 VAC installations.
- D. Devices shall be installed utilizing manufacturer's recommended application, wiring and installation instructions.
- E. Contractor to provide seamless wallplate covers per specification 2.02 for all devices ganged in a common box. Contractor shall provide barriers within the box where required by code.

3.02 FIELD QUALITY CONTROL

- A. Twenty-four hours a day, seven days a week, global customer service and technical hotline available.
- B. Supplemental information shall be provided by manufacturer's Internet site.

