



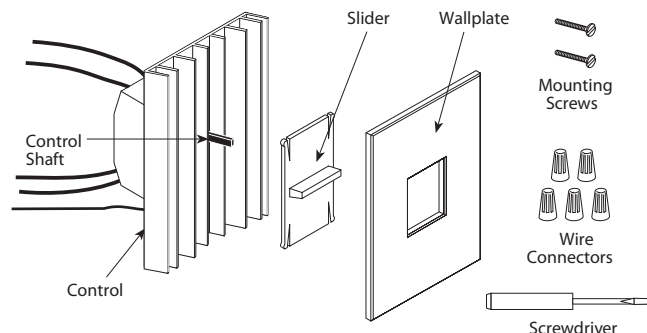
# Installation Instructions

## Please Leave for Occupant

### Fluorescent Applications

120 V~ 60 Hz:	NF-10	16 A
	NF-20	10.2 A
	NF-30	15.3 A
277 V~ 60 Hz:	NF-10-277	8 A
	NF-20-277	4.5 A

## Package Contents and Part Identification



## Important Notes

### Please Read Before Installing

**Wallbox and Location:** A single-gang wallbox (3 in high x 2 in wide x 2.5 in deep) 76 mm high x 51 mm wide x 64 mm deep)) will service all individual Nova controls. These controls are designed to operate in ambient temperatures from 0 °C (32 °F) to 40°C (104 °F). Allow a minimum space of 4.5 in (114 mm) above and below the control for proper heat dissipation.

**Short Circuit Check:** Check new installation for short circuits prior to installing control. With POWER OFF, connect incoming neutral to the white wire, and the hot wire to both ballast input wires (black wire with brown wire or yellow/blue wire or orange wire, depending on ballast used). Turn power ON. If lights do not work, or breaker trips, a short is present. Correct the wiring and check circuit again. Install control only when short is no longer present. This check should be done by a qualified electrician.

**Sockets:** Use only with rapid start lamp sockets. Lamp disconnect sockets may be required for use with certain manufacturer's ballasts. This is in order to meet U.L. and NEC® regulations and maintains personal safety standards. Lutron does not require lamp disconnect sockets with their ballasts. Refer to the manufacturer's ballast label for this information.

**Lamps:** Use only rapid start fluorescent lamps. Energy Saver Lamps may NOT be used with this control. **With magnetic ballasts only**, do not mix different wattage lamps in the same circuit. **NOTE:** For proper dimming performance lamps must be operated at full intensity for 100 hours prior to dimming.

**Ballasts:** Use ONLY dimming ballasts listed on chart in step 2 of Pre-Installation. **With magnetic ballasts only**, do not mix 1 and 2 lamp ballasts in any one control circuit. Do not mix ballasts manufactured by more than one company. Using single lamp ballasts will produce the most consistent low end dimming level.

**Multi-phased Applications (120/208-3 Phase):** In multi-phased applications use a separate neutral for each phase containing a control. Contact the **Lutron Technical Support Center** toll-free for Application Note #17, "Common Neutral Interaction".

Clean control with a **soft damp cloth only**. DO not use any chemical cleaners.

## Pre-Installation

**1.** Determine the number of controls to be ganged in the same wallbox. If installing a single control in a wallbox, continue to the "Single Unit Installation" section on page 3.

**2.** If more than one control is being ganged in the same wallbox, side sections can be removed to fit in existing wallboxes. When controlling magnetic ballasts, breaking side sections off the control will reduce the maximum number of lamps per control. Use the following charts to determine the maximum number of lamps per control.

Figure A: Derating Ballast Chart

### 120 V~ Applications

Magnetic Ballasts	Number of Side Sections Removed								
	None			One			Two		
Controls	NF-10	NF-20	NF-30	NF-10	NF-20	NF-30	NF-10	NF-20	NF-30
<b>Ballasts</b>	Units listed are maximum number of <b>LAMPS</b> per control								
<i>Universal</i> 550LTCP†	12	24	36	9	22	34	6	19	31
502ATCP**	12	24	36	9	20	32	4	18	28
<i>Advance</i> DIM 140H	10	20	30	7	18	27	4	15	25
DIM 240H*	10	20	30	6	18	26	4	14	24
<i>Valmont</i> 8G5001W	12	24	36	9	22	34	6	19	31
8G5007W*	12	24	36	9	20	32	4	18	28

† can be used with 30W lamps

\* 2 lamp ballast

Electronic Ballasts	NF-10**	
<i>Lutron</i> Hi-lume® Eco-10™	16 A	<b>NF-10 controls when used with Lutron electronic dimming ballasts do not require derating when side sections are removed.</b>

\*\* Only NF-10 may be used with Lutron Ballasts. Total Amps are determined by adding all ballast line currents as indicated on ballast label.

### 277 V~ Applications

Magnetic Ballasts	Number of Side Sections Removed					
	None		One		Two	
Controls	NF-10-277	NF-20-277	NF-10-277	NF-20-277	NF-10-277	NF-20-277
<b>Ballasts</b>	Units listed are maximum number of <b>LAMPS</b> per control					
<i>Magnetek</i> <i>Universal</i> 679LTCP	12	24	11	21	10	20
678LTCP	12	24	10	20	10	20

Electronic Ballasts	NF-10-277**	
<i>Lutron</i> Hi-lume® Eco-10	8 A	<b>NF-10-277 controls when used with Lutron electronic dimming ballasts do not require derating when side sections are removed.</b>

\*\* Only NF-10-277 may be used with Lutron Ballasts. Total Amps are determined by adding all ballast line currents as indicated on ballast label.



## Multi-gang Installation

In multi-gang installations several controls are grouped horizontally in one ganged wallbox or in a series of interconnected wallboxes. Multi-gang faceplates are available to simplify and improve the appearance of these installations. A multi-gang mounting frame is provided with each standard multi-gang wallplate to ensure proper alignment of controls, easy application of the wallplate, and a flat surface for the installation. This frame is most easily mounted on the wall before control wires are connected. Refer to multi-gang instruction sheet supplied with multigang wallplate.

### No Side Sections Removed (No Derating Required)

Installation of controls without removing side sections allows operation at full capacity (i.e., no derating is required). Follow instructions below. For retrofit installations, side sections can be removed to fit existing wallboxes. See Multi-gang Installation, "Side Sections Removed" at right.

**1.** Assure safe operation by using Ballast Chart (Figure A) to determine maximum number of lamps safely used with specific ballast. **Note:** Use ONLY dimming ballasts listed on chart. Do not use any other ballasts.

**2.** Determine the number of wallboxes necessary by using Wallbox Requirement Chart in Figure B. When ganging any combination of "small" (NF-10) and "large" (NF-20, NF-30, NF-10-277, NF-20-277) controls, place all small controls at one end of the gang and all large dimmers at the other end.

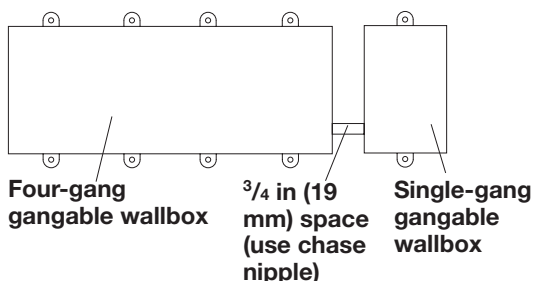
**Figure B: Wallbox Requirement Chart**  
No Side Sections Removed

		Number of Small Controls						
		0	1	2	3	4	5	6
Number of Large Controls	0	0	1	1+1*	4	4+1*	7	7+1*
	1	1	3	5	6	8	9	11
	2	4	6	7	9	10	12	13
	3	6	8	10	11	13	14	16
	4	9	11	12	14	15	17	18

See Item 3

**3.** When ganging an EVEN number of SMALL controls, use gangleable wallboxes with tapped ears as shown below. Do not use plaster rings or gangbox covers. Space an "additional" wallbox  $\frac{3}{4}$  in (19 mm) apart from the other wallbox(es). A  $\frac{3}{4}$  in (19 mm) chase nipple is recommended as a spacer between the wallboxes. (Example, 4 small controls require 5 wallboxes. See Figure C.)

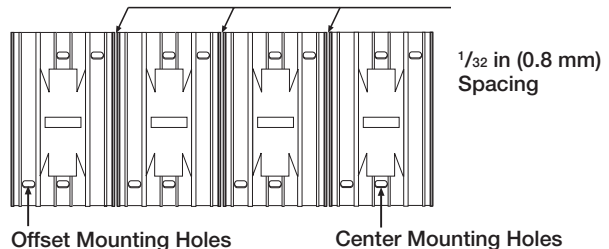
**Figure C: Wallbox Positioning Four-Gang C**



**4.** Wire each control according to Steps in "Single Unit Installation" on page 3.

**5.** Install controls in wallbox(es). When combining small and large controls, place all small controls on one extreme end of the gang, and large controls at the other end of the gang. Use center and offset mounting holes as required for proper alignment. Allow  $\frac{1}{32}$  in (0.8 mm) between controls for ease in attaching wallplate. See Figure D.

**Figure D: Front View - Four-Gang Installation**  
No Side Sections Removed



**6.** Replace sliders and snap on multi-gang wallplate (or multiple single wallplates) and adjust up or down for a snug fit. Multi-gang wallplates (with mounting frames and instructions) are available in a variety of colors to beautify and simplify your installation.

### Side Sections Removed (Derating Required)

**1.** Derating is necessary when side sections are removed. Use Derating Ballast Chart in Figure A. Match the control size, number of side sections removed, and the ballast type to determine maximum safe load.

**2.** Determine number of wallboxes necessary by using the Wallbox Requirement Chart in Figure E. When ganging any combination of "small" controls (NF-10) and "large" (NF-20, NF-30, NF-10-277, NF-20-277) controls, place all small controls at one end of the gang and all large controls at the other end.

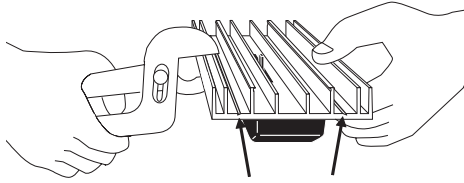
**Figure E: Wallbox Requirement Chart**  
Side Sections Removed

		Number of Small Controls						
		0	1	2	3	4	5	6
Number of Large Controls	0	0	1	2	3	4	5	6
	1	1	3	4	5	6	7	8
	2	3	5	6	7	8	9	10
	3	5	7	8	9	10	11	12
	4	7	9	10	11	12	13	14

**3.** Remove INNER side sections only. Using pliers, bend side sections down as far as you can and then back to their original positions. Side sections will break off. See Figure E.

**DO NOT REMOVE OUTER SIDE SECTIONS OF THE TWO CONTROLS WHICH ARE ON THE ENDS OF THE GANG.**

Figure E: Side Section Removal

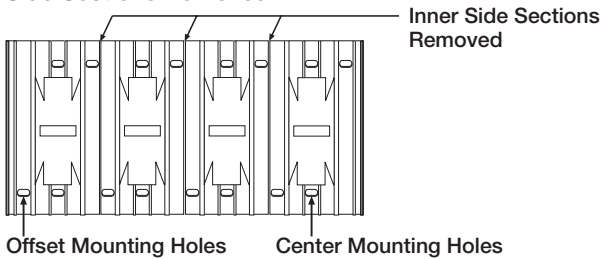


Side section break-off points

4. Wire each control according to Steps in "Single Unit Installation" on page 3.

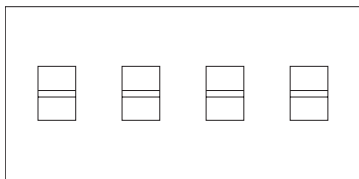
5. Install controls in wallbox(es). Use center mounting holes as required for first unit, then use offset mounting holes as required for proper alignment. Remember to keep all small controls grouped together. See Figure F.

Figure F: Front View - Four-Gang Installation  
Side Sections Removed



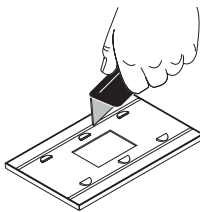
6. Replace sliders and snap on multi-gang wallplate (or multiple single wallplates) and adjust up or down for a snug fit. Multi-gang wallplates (with mounting frames and instructions) are available in a variety of colors to beautify and simplify your installation. See Figure G.

Figure G: Multi-Gang Unit With Wallplate



**Cutting Wallplates When Removing Side Sections:** Wallplates will need to be cut if side sections are removed when not using a multi-gang wallplate. Place wallplate on a soft cloth face down. Press firmly and score the groove on the back of wallplate with a razor sharp knife, using vertical groove to keep knife on a straight course. Bend section back and forth to break it off. Smooth edges by placing fine-grained sandpaper on a flat surface and rubbing edge of wallplate over the sandpaper a few times. Hold wallplate steady as you rub to keep a straight edge. See Figure H.

Figure H: Cutting Wallplate



Multigang wallplates, which eliminate the need to cut individual wallplates, are available from Lutron.

## Single Unit Installation

1. TURN POWER OFF at fuse box or circuit breaker. Wiring with power on can result in personal injury. Damage caused by wiring with power on will void the warranty.

2. Remove wallplate and slider from control to prevent surface damage and to access mounting holes. Pull out at top and bottom edges, plate will snap off.

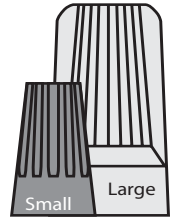
3. Strip wallbox wires. **IMPORTANT:** When making wire connections, follow the recommended strip lengths and combinations for the supplied wire connectors. Twist wire connector tight making sure that no bare wire is exposed. Note: Wire connectors provided are suitable for *copper wire only*. For aluminum wire, consult an electrician.

**Small:**

Strip insulation 3/8 in (10 mm) for 14 AWG wire  
Strip insulation 1/2 in (13 mm) for 16 or 18 AWG wire  
Use to join one 14 AWG supply wire with one 16 or 18 AWG control wire.

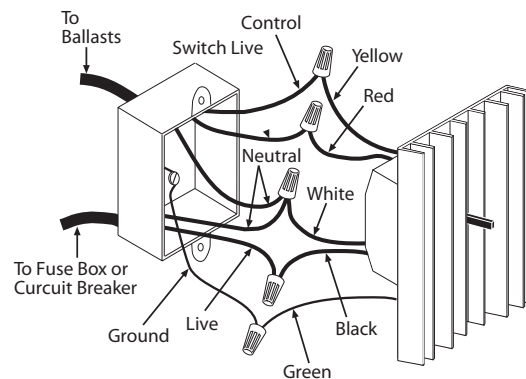
**Large:**

Strip insulation 1/2 in (13 mm) for 10, 12 or 14 AWG wire  
Strip insulation 5/8 in (16 mm) for 16 or 18 AWG wire  
Use to join one or two 12 or 14 AWG supply wires with one 10, 12, 14, 16, or 18 AWG control wire.



4. Use wire connectors supplied to make the connections shown in Figure I. Refer to the appropriate wiring diagram for your application on page 4, when installing control. Additional wiring information may be found on ballast.

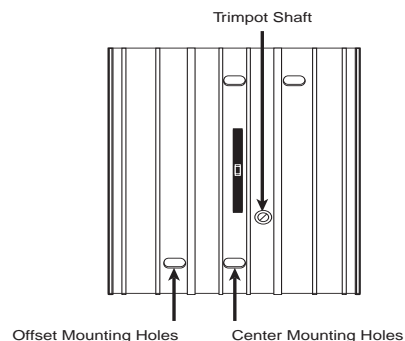
Figure I: Wallbox Wiring



5. Carefully push wires into wallbox allowing room for the control's backcover.

6. Mount control into the switchbox using center mounting holes in the control's base and screws provided. See Figure J. Unit **MUST** be mounted vertically.

Figure J: Front View-Single Unit Installation



7. Turn power ON.

**8. For Lutron electronic ballasts ONLY:**

This control is factory-calibrated and does not require low-end light adjustment when used with Lutron FDB or ECO-10 electronic ballasts. If lamps flicker or drop out at minimum dimming level, there may be an installation error. Continued use of the system in this mode will cause premature lamp failure. If this condition exists, call the **Lutron Technical Support Center** at: 1-800-523-9466.

**For magnetic ballasts ONLY:**

- a) Run lamps at full intensity (slider at top position) for 15 minutes to warm lamps. **Note:** For proper dimming performance lamps must be operated at full intensity for 100 hours prior to dimming.
- b) After 15 minutes push slider to low intensity position (as far down as possible without clicking off).
- c) Locate trimpot adjustment shaft shown in Figure J.
- d) Minimum light intensity is initially set at the factory. Use the screwdriver provided to turn the trimpot screw (inside trimpot shaft) clockwise to increase light level and counterclockwise to lower light level.

**Important note for magnetic ballasts ONLY:** If lamps flicker when trimpot adjustment shaft is adjusted from factory setting then turn shaft (as shown in Figure J) clockwise until lamps cease to flicker.

9. Replace slider and snap wallplate on dimmer by pressing firmly at the top, center, and bottom tabs.

**Technical Assistance**

If you have questions concerning the installation or operation of this product, call the **Lutron Technical Support Center**. Please provide exact model number when calling.

1-800-523-9466 (U.S.A., Canada, and the Caribbean)  
 Other countries call +1-610-282-3800  
 Fax +1-610-282-3090  
 Internet: www.lutron.com

**Limited Warranty**

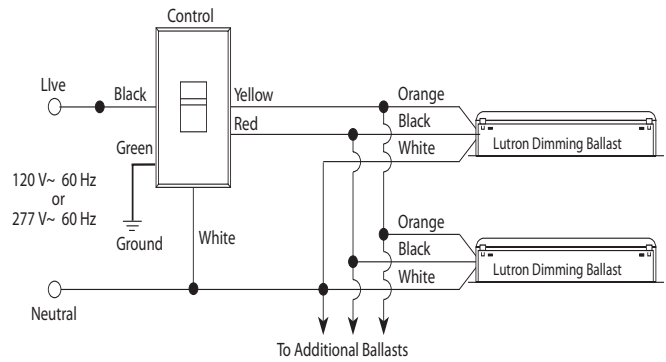
(Valid only in U.S.A., Canada, Puerto Rico, and the Caribbean.)  
 Lutron will, at its option, repair or replace any unit that is defective in materials or manufacture within one year after purchase. For warranty service, return unit to place of purchase or mail to LUTRON at 7200 Suter Road, Coopersburg, PA 18036-1299, postage prepaid.

**THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, AND THE IMPLIED WARRANTY OF MERCHANTABILITY IS LIMITED TO ONE YEAR FROM PURCHASE. THIS WARRANTY DOES NOT COVER THE COST OF INSTALLATION, REMOVAL, OR REINSTALLATION, OR DAMAGE RESULTING FROM MISUSE, ABUSE, OR DAMAGE RESULTING FROM IMPROPER WIRING OR INSTALLATION. THIS WARRANTY DOES NOT COVER INCIDENTAL OR CONSEQUENTIAL DAMAGES. LUTRON'S LIABILITY ON ANY CLAIM FOR DAMAGES ARISING OUT OF OR IN CONNECTION WITH THE MANUFACTURE, SALE, INSTALLATION, DELIVERY, OR USE OF THE UNIT SHALL NEVER EXCEED THE PURCHASE PRICE OF THE UNIT.**

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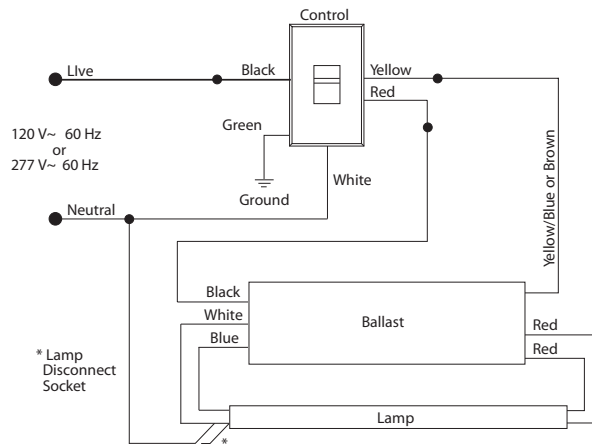
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**NF-10/NF-10-277 with Lutron Ballast**



**NF-10, NF-20, NF-30, NF-10-277, NF-20-277 with Magnetic Ballast**

**With one lamp ballast**



**With two lamp ballast**

